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Joerg Zumbach · Douglas A. Bernstein
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Editors

International Handbook of Psychology Learning and Teaching

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Joerg Zumbach • Douglas A. Bernstein •
Susanne Narciss • Giuseppina Marsico
Editors

International Handbook of Psychology Learning and Teaching

With 64 Figures and 92 Tables

Springer

Editors
Joerg Zumbach
Department of Educational Research
University of Salzburg
Salzburg, Austria

Douglas A. Bernstein
Department of Psychology
University of South Florida
Tampa, FL, USA

Susanne Narciss
School of Science -
Faculty of Psychology, Psychology
of Learning and Instruction
Technische Universitaet Dresden
Dresden, Sachsen, Germany

Giuseppina Marsico
Department of Human, Philosophical and
Educational Sciences (DISUFF)
University of Salerno
Fisciano, Italy

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Preface

As reflected in its title, this *International Handbook of Psychology Learning and Teaching* was designed to be a comprehensive reference text devoted to presenting ideas for how to improve the learning and teaching of psychology worldwide. Its chapters are aimed at a broad audience, including psychology teacher trainees and new faculty members who are interested in the basics of how and what to teach, as well as more experienced professors who are interested in training psychology teachers or in evaluating and improving the effectiveness of their own teaching.

We were motivated to create the handbook partly because, although teaching and learning can be designed and evaluated from a general educational perspective, psychology, like all other academic disciplines, has its own traditions, course content, and approaches to teaching and learning, a phenomenon sometimes referred to as *pedagogical content knowledge* (cf. Koehler & Mishra, 2008). We wanted to showcase that knowledge by providing a comprehensive description of psychology's core goals, contents, and topics, as well as the methods, approaches, and resources available for teaching psychology in psychology programs and elsewhere.

We hope the handbook will also inspire psychology teachers to engage in research in the scholarship of teaching and learning (SoTL; e.g., Felten, 2013). SoTL has been defined as "the systematic study of teaching and learning, using established or validated criteria of scholarship, to understand how teaching (beliefs, behaviors, attitudes, and values) can maximize learning, and/or develop a more accurate understanding of learning, resulting in products that are publicly shared for critique and use by an appropriate community" (Potter & Kustra, 2011, p. 2).

In psychology, that community is growing dramatically as the role of pedagogical content knowledge in our discipline has received more and more attention in recent years from psychology teachers who conduct, share, and discuss research on psychology learning and teaching (Dunn et al., 2010). Their ideas and results are being published in such US journals as *Teaching of Psychology* and *The Scholarship of Teaching and Learning in Psychology*, as well as in *Psychology Learning and Teaching*, the journal of the European Society of Psychology Learning and Teaching (ESPLAT), and elsewhere. Their work is also being presented at numerous national and international teaching conferences (e.g., ESPLAT and the U.S.'s National Institute on the Teaching of Psychology) as well as in teaching strands at research-oriented international conferences such as those of the American Psychological Association, the

Association for Psychological Science, and the International Congress of Psychology. We hope that this handbook will contribute to, expand, and inspire further the discussion among members of this community.

The handbook's chapters were written by expert psychology teachers from all over the world and cover topics germane to the teaching of all core courses in psychology, whether taught in psychology programs or as part of curricula in other disciplines. Each chapter includes an introduction to its topic, provides some historical context, a review of relevant literature, a summary of theory- and evidence-based approaches to teaching course content, including in various educational and cultural contexts, and advice on best practices in those contexts. Some chapters also provide guidelines and checklists designed to support psychology teachers in their daily work.

The handbook includes three major sections, each of which contains several chapters. The first section, "Teaching Psychology as Main Discipline in Undergraduate and Graduate Programs," focuses on psychology teaching and learning as a main discipline in undergraduate and graduate psychology programs. The chapters in this section address each of the major psychological sub-disciplines and offers evidence-based advice on how best to teach the courses within those sub-disciplines. The second section, "Psychology Learning and Teaching for All Audiences," focuses on several target audiences within and outside tertiary education. The third section includes several chapters on "General Educational and Instructional Approaches to Psychology Learning and Teaching."

Because it covers all central fields of Psychology, all major target groups, and all major relevant educational and instructional approaches, we hope that this handbook will provide a solid base for psychology teachers worldwide, serving as a stimulus for SoTL research in psychology, as an introductory text for new teachers, and as a guide for those involved in the development of teacher training programs, course and curriculum design, syllabus writing, assessment of teacher and student performance, and the like.

December 2022

Joerg Zumbach
Douglas A. Bernstein
Susanne Narciss
Giuseppina Marsico

References

Dunn, D. S., Beins, B. B., McCarthy, M.A., & Hill, G. W. (Eds.). (2010). *Best practices for teaching beginnings and endings in the psychology major: Research, cases, and recommendations*. Oxford: University Press.

Felten, P. (2013). Principles of good practice in SoTL. *Teaching and Learning Inquiry, 1*(1), 121–125.

Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)? *Contemporary Issues in Technology and Teacher Education, 9*(1), 60–70.

Potter, M. K., & Kustra, E. (2011). The relationship between scholarly teaching and SoTL: Models, distinctions, and clarifications. *International Journal for the Scholarship of Teaching and Learning, 5*(1). http://www.georgiasouthern.edu/ijsotl

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Volume 1

About the Editors

Joerg Zumbach received his Diploma in Psychology in 1999 from Ruprecht-Karls-University Heidelberg, Germany. He got his Dr. phil. in Educational Psychology 2003 from Ruprecht-Karls-University Heidelberg, Germany. Since 2006 he is Full Professor for Science Teaching and Learning Research and e-Learning at the Paris-Lodron University Salzburg, Austria. He served there as head of department and co-director of the School of Education. He also was and is in different editorial boards (e.g., *Journal of Educational Multimedia and Hypermedia*, *International Journal of Learning Technologies*, *Journal of Interactive Learning Research*, *Computers in Human Behavior*, *Psychology Teaching and Learning*). He authored and co-authored various research articles and textbooks in the areas of Multimedia and Hypermedia Learning, Higher Education, Problem-Based Learning, and Violent Media and Aggression among others.

Doug A. Bernstein received his bachelor's degree in psychology at the University of Pittsburgh in 1964 and his master's and Ph.D. degrees in clinical psychology at Northwestern University in 1966 and 1968, respectively. From 1968 to 1998, he was on the psychology faculty at the University of Illinois at Urbana-Champaign where he served as Associate Department Head and Director of Introductory Psychology. He is currently Professor Emeritus at Illinois and Courtesy Professor of Psychology at the University of South Florida. In 2013, he stepped down after 30 years as chairman of the National Institute on the Teaching of Psychology, and in 2018 he founded the Biennial International Seminar on the Teaching of Psychological Science in Paris. He has written or co-authored a book on the teaching of psychology, as well as textbooks on introductory, clinical, and abnormal psychology and on criminal behavior and progressive relaxation training.

Susanne Narciss is full professor and head of the research team "Psychology of Learning and Instruction (PsyLI)" at the Technische Universitaet Dresden. Her current interests include research on (a) promoting self-regulated learning, (b) the role of motivation and metacognition in instructional contexts, (c) conditions and effects of interactive learning tasks, and (d) conditions and effects of informative tutoring feedback strategies. Her work on feedback strategies was considered cutting-edge by the American Association on Educational Communication and Technology (AECT) and was awarded the prestigious AECT Distinguished Development Award 2007. Susanne Narciss is not only a productive scholar but also dedicates her expertise, time, and effort to improve the teaching and learning of psychology. She has been member of the founding executive board of the European Society for Psychology Teaching and Learning (ESPLAT) and was elected ESPLAT's President in September 2021.

Giuseppina Marsico is Associate Professor of Development and Educational Psychology at the University of Salerno (Italy) and Visiting Professor at Ph.D. Programme in Psychology, Federal University of Bahia (Brazil). She is President Elect of the American Psychological Association – Division 52 International Psychology and President Elect of the European Society of Psychology Learning and Teaching (ESPLAT). She has 20 years of experience as a researcher, with a proven international research network. She is Editor-in-Chief of the Book Series Cultural Psychology of Education (Springer), Latin American Voices – Integrative Psychology and Humanities (Springer), co-editor of SpringerBriefs Psychology and Cultural Developmental Sciences (together with Jaan Valsiner), and Annals of Cultural Psychology: Exploring the Frontiers of Mind and Society (InfoAge Publishing, N.C., USA, together with Carlos Cornejo e Jaan Valsiner). She is also co-editor of *Human Arenas: An Interdisciplinary Journal of Psychology*, *Culture and Meaning* (Springer), and of *Trends in Psychology* (Springer); Associate Editor of *Cultural & Psychology Journal* (Sage) and *Social Psychology of Education* (Springer); and member of the editorial board of several international academic journals (i.e., IPBS – *Integrative Psychological & Behavioural Science*, Springer). Her academic tracks and list of publications include two complementary lines of investigations: (1) an educational-focused research activity where Giuseppina Marsico is the leading figure of the new field of Cultural Psychology of Education and (2) a cultural-oriented interdisciplinary perspective based on both theoretical and empirical investigation, focusing on the borders as a new ontogenetic perspective in psychology and other social sciences. Giuseppina Marsico has established a new research field called Developmental Mereotopology.

Contributors

Francesca Amenduni University of Rome 3, Rome, Italy

Ruggero Andrisano Ruggieri University of Salerno, Fisciano, Italy

Anna N. Bartel Department of Psychology, University of Wisconsin, Madison, WI, USA

Martin Baumann Department of Human Factors, Ulm University, Ulm, Germany

Melissa J. Beers The Ohio State University, Columbus, OH, USA

Pedro F. Bendassolli Universidade Federal do Rio Grande do Norte, Natal, Brazil

Douglas A. Bernstein Department of Psychology, University of South Florida, Tampa, FL, USA

Swarnima Bhargava School of Human Ecology, Tata Institute of Social Sciences, Mumbai, India

Lisa Durrance Blalock Department of Psychology, University of West Florida, Pensacola, FL, USA

Thomas Boll Department of Cognitive, and Behavioural Sciences, Institute for Lifespan Development, Family, and Culture, University of Luxembourg, Esch-sur-Alzette, Luxembourg

Annette Bolte Faculty of Psychology, Technische Universität Dresden, Dresden, Germany

Angela Uchoa Branco Department of Psychology, University of Brasilia, Brasilia DF, Brazil

Robert G. Bringle Indiana University Purdue University Indianapolis, Indianapolis, IN, USA

Brian L. Burke Psychology, Fort Lewis College, Durango, CO, USA

Joanne Butt School of Sport & Exercise Sciences, Liverpool John Moores University, Liverpool, UK

Stefano Cacciamani University of Valle D'Aosta, Aosta, Italy

Luna Carpinelli Department of Medicine, Surgery, and Dentistry 'Scuola Medica Salernitana', University of Salerno (Italy), Fisciano/Baronissi, Italy

Leighann R. Chaffee University of Washington, Tacoma, Tacoma, WA, USA

Nandita Chaudhary Department of Human Development and Childhood Studies, Lady Irwin College, University of Delhi, Delhi, India

Andrew Christopher Albion College, Albion, MI, USA

Lewis L. Chuang Institute for Informatics, Ludwig-Maximilians-Universität München, München, Germany

IfADo – Leibniz Research Centre for Working Environment and Human Factors, Dortmund, Germany

Kevin Click Department of Psychology, California State University, Chico, CA, USA

Fellipe Coelho-Lima Universidade Federal do Rio Grande do Norte, Natal, Brazil

Emanuela Confalonieri Catholic University of the Sacred Heart of Milan, Milan, Italy

Michael J. Cortese Department of Psychology, University of Nebraska at Omaha, Omaha, NE, USA

Jacquelyn Cranney Psychology, University of New South Wales, Sydney, NSW, Australia

Ruby A. Daniels Texas A&M University - San Antonio, San Antonio, TX, USA

Moritz M. Daum Department of Psychology, Developmental Psychology: Infancy and Childhood, University of Zurich, Zurich, Switzerland

Jacobs Center for Productive Youth Development, University of Zurich, Zurich, Switzerland

Maria Cláudia Santos Lopes de Oliveira Institute of Psychology, University of Brasília, Brasília, Brazil

Dana S. Dunn Moravian University, Bethlehem, PA, USA

Christopher J. Ferguson Stetson University, DeLand, FL, USA

Pablo Fossa Universidad del Desarrollo de Chile, Santiago, Chile

Jane A. Foster Department of Psychiatry and Behavioural Neurosciences, McMaster University, Hamilton, ON, Canada

Robert Gaschler Department of Psychology, FernUniversität in Hagen, Hagen, Germany

David Gibson Curtin University, Perth, Australia

Sonia Gondim Universidade Federal da Bahia, Salvador, Brazil

Ricardo Gorayeb School of Medicine, São Paulo University, Ribeirão Preto, Brazil

Thomas Goschke Faculty of Psychology, Technische Universität Dresden, Dresden, Germany

Samuel Greiff University of Luxembourg, Esch-sur-Alzette, Luxembourg

Martin Greisel Lehrstuhl für Psychologie m.b.B.d. Pädagogischen Psychologie, University of Augsburg, Augsburg, Germany

Regan A. R. Gurung Psychological Science, Oregon State University, Corvallis, OR, USA

Jane S. Halonen Department of Psychology, University of West Florida, Pensacola, FL, USA

Bridgette Martin Hard Duke University, Durham, NC, USA

Viviana Hojman Universidad del Desarrollo de Chile, Santiago, Chile

Julie A. Hulme School of Psychology, Keele University, Keele, Staffordshire, UK

Dirk Ifenthaler Curtin University, Perth, Australia

University of Mannheim, Mannheim, Germany

Stephanie A. Jesseau University of Nebraska-Omaha, Omaha, NE, USA

Gordana Jovanović Belgrade, Serbia

Mariam Katsarava Department of Psychology, FernUniversität in Hagen, Hagen, Germany

Maya M. Khanna Department of Psychological Science, Creighton University, Omaha, NE, USA

Mary E. Kite Ball State University, Muncie, IN, USA

Susanne Knappe Institute of Clinical Psychology and Psychotherapy, Technische Universität Dresden, Dresden, Germany

Evangelische Hochschule Dresden (ehs), University of Applied Sciences for Social Work, Education and Nursing, Dresden, Germany

Ingo Kollar Lehrstuhl für Psychologie m.b.B.d. Pädagogischen Psychologie, University of Augsburg, Augsburg, Germany

Veit Kubik Department of Psychology, Universität Bielefeld, Bielefeld, Germany

M. Beatrice Ligorio University of Bari, Bari, Italy

Marie Lippmann California State University, Chico, CA, USA

Mirella Manfredi Department of Psychology, Developmental Psychology: Infancy and Childhood, University of Zurich, Zurich, Switzerland

Tiziana Marinaci Department of Medicine, Surgery, and Dentistry 'Scuola Medica Salernitana', University of Salerno (Italy), Fisciano/Baronissi, Italy

Giuseppina Marsico Department of Human, Philosophical and Educational Sciences (DISUFF), University of Salerno, Fisciano, Italy

Rob McEntarffer Lincoln Public Schools, Lincoln, NE, USA

Jennifer M. J. McGee Department of Psychology, Oxford College of Emory University, Atlanta, GA, USA

Katherine McLay University of Queensland (AU), Brisbane, Australia

M. David Merrill Utah State University, St. George, UT, USA

Günter Mey University of Applied Sciences Magdeburg-Stendal, Stendal, Germany

Leslie A. Miller LanneM TM, LLC and Rollins College, Winter Park, FL, USA

M. Cristina Miyazaki School of Medicine, FAMERP, São José do Rio Preto, Brazil

Maria Elisa Molina Universidad del Desarrollo de Chile, Santiago, Chile

Monica Mollo University of Salerno, Fisciano, Italy

David G. Myers Hope College, Holland, MI, USA

Susanne Narciss School of Science - Faculty of Psychology, Psychology of Learning and Instruction, Technische Universitaet Dresden, Dresden, Sachsen, Germany

Luzelle Naudé University of the Free State, Bloemfontein, South Africa

Helmut Niegemann Saarland University, Educational Technology, Saarbrücken, Germany

Faith Ong Ngee Ann Polytechnic, Singapore, Singapore

Sebastian Pannasch Faculty of Psychology, Technische Universität Dresden, Dresden, Germany

Jennifer Parada Bellevue College, Bellevue, WA, USA

Scott Plous Wesleyan University, Middletown, CT, USA

Claudia Prescher Technische Universität Dresden, Dresden, Germany

Ayesha Raees Department of Human Development and Childhood Studies, Institute of Home Economics, University of Delhi, Delhi, India

Vanessa R. Rainey Department of Psychology, University of West Florida, Pensacola, FL, USA

Roger N. Reeb University of Dayton, Dayton, OH, USA

Paul Rhodes Clinical Psychology Unit, University of Sydney, Sydney, Australia

Lia da Rocha Lordelo Federal University of Recôncavo of Bahia, Santo Amaro da Purificação, Brazil

Ana I. Ruiz Alvernia University, Reading, PA, USA

U. Arathi Sarma Department of Psychology, University of Kerala, Thiruvananthapuram, Kerala, India

Juergen Sauer Department of Psychology, University of Fribourg, Fribourg, Switzerland

Giulia Savarese Department of Medicine, Surgery, and Dentistry 'Scuola Medica Salernitana', University of Salerno (Italy), Fisciano/Baronissi, Italy

Niclas Schaper Psychology, University of Paderborn, Paderborn, Germany

Manfred Schmitt Department of Psychology, University of Koblenz-Landau, Landau, Germany

Neil H. Schwartz Department of Psychology, California State University, Chico, CA, USA

Danilo Silva Guimarães Universidade de São Paulo, São Paulo, Brasil

Timothy A. Sisemore St. Louis Behavioral Medicine Institute, St. Louis, MO, USA

Sujata Sriram School of Human Ecology, Tata Institute of Social Sciences, Mumbai, India

Christoph Steinebach ZHAW Zurich University of Applied Sciences, School of Applied Psychology, Zürich, Switzerland

Arianna M. Stone Oregon State University, Corvallis, OR, USA

Luca Tateo University of Oslo, Oslo, Norway

Tissy Mariam Thomas Department of Psychology, University of Kerala, Thiruvananthapuram, Kerala, India

J. Lukas Thürmer Department of Psychology, University of Salzburg, Salzburg, Austria

Mila Tuli Department of Human Development and Childhood Studies, Institute of Home Economics, University of Delhi, Delhi, India

Maria Tulis Department of Psychology, University of Salzburg, Salzburg, Austria

Maria Carmen Usai Department of Educational Sciences, University of Genova, Genova, Italy

Jaan Valsiner Centre of Cultural Psychology, Department of Communication and Psychology, Aalborg University, Aalborg, Denmark

Sigmund Freud Privatuniversität, Vienna, Austria

Paola Viterbori Department of Educational Sciences, University of Genova, Genova, Italy

Robert Weinberg Department of Sport Leadership and Management, Miami University, Oxford, OH, USA

Kristin Whitlock Davis High School, Kaysville, UT, USA

Megan C. Wrona Fort Lewis College, Durango, CO, USA

Tatiana Yokoy School of Education, University of Brasília, Brasília, Brazil

Mirella Zanobini Department of Educational Sciences, University of Genova, Genova, Italy

Joerg Zumbach Department of Educational Research, University of Salzburg, Salzburg, Austria

Part I

Teaching Psychology as Main Discipline in Undergraduate and Graduate Programs

Teaching Introductory Psychology

1

Melissa J. Beers and Bridgette Martin Hard

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Abstract

One of the most popular courses taken by undergraduates in North America is introductory psychology. Although the course serves as a gateway to the psychology discipline, most students taking introductory psychology in North America are not psychology majors, instead representing a diversity of career interests. Acquainting such diverse students with the expansive discipline of psychology is a daunting task, made more daunting by the diversity of the course's format and instructors. It is difficult to imagine a single course that attempts to accomplish something so significant, with such breadth of content, in a context with so many variables and degrees of freedom. Yet, the introductory course is an opportunity

M. J. Beers (✉)
The Ohio State University, Columbus, OH, USA
e-mail: beers.3@osu.edu

B. M. Hard
Duke University, Durham, NC, USA
e-mail: bridgette.hard@duke.edu

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Springer International Handbooks of Education,
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to provide students' first exposure to some of the most exciting and influential ideas in the field – a tour of psychology's "greatest hits." In this chapter, we encourage teachers to understand and apply principles of effective course design in planning and teaching the course to maximize the benefits for both teaching and learning. We also review a framework for balancing breadth and depth while emphasizing the integrated nature of modern psychology. Introductory psychology provides a singular opportunity for teachers to grow in our understanding and appreciation of our discipline as well as to build our skills as evidence-based, scholarly teachers. While there are few courses in the psychology curriculum that are as challenging as introductory psychology, there are few courses as extraordinary in their far-reaching potential for impact.

Keywords

Teaching introductory psychology · Backward course design · Evidence-based teaching

Teaching Introductory Psychology

Psychology is one of the most popular majors on most North American college campuses. According to the US Department of Education, National Center for Education Statistics (NCES), psychology is the fourth most popular individual major overall, with 118,000 bachelor's degrees in psychology awarded in 2014–2015 alone (NCES, 2018). Nearly all these students are introduced to the field of psychology through an introductory course. Virtually every psychology department in the United States offers an introductory or general psychology course as a starting point for further study in the field (Norcross et al., 2016). Introductory psychology is required for the major at 98% of colleges in North America and is a prerequisite for all other psychology courses at 82% of colleges (Stoloff et al., 2010). Harry Potter once reflected: "every great wizard in history has started out as what we are now, students" (Rowling, 2003). Similarly, every psychological scientist contributing to new knowledge in the field today likely started their career in "Intro Psych."

Acquainting new students with the expansive discipline of psychology is a daunting task. As of 2019, the American Psychological Association (APA, 2017) had no fewer than 54 different divisions representing areas of specialization in psychology from brain science and cognitive psychology to climate and environmental psychology to forensic psychology and rehabilitation science. Psychology is not only a broad field, but it also has broad impact. As a "hub science," psychology influences advancements in fields such as medicine, public health, engineering, and education that span both theoretical and applied areas of inquiry (Boyack, Klavans, & Borerner, 2005). Thus, a course in introductory psychology could cover a seemingly endless set of possible topics and applications.

Introducing students to psychology is made even more daunting by the diversity of the course's students, format, and instructors. Most students taking introductory

psychology, at least in North America, are not psychology majors. An estimated 1.2–1.8 million students enroll in introductory psychology courses each year (Gurung et al., 2016); the majority to fulfill general curriculum requirements intended to equip students with a broad educational foundation for their future careers. Introductory psychology students are thus a diverse population representing all ages and walks of life and with every possible area of interest. Most students taking the course are unlikely to pursue additional formal study in psychology and thus are temporary visitors to the discipline, rather than future citizens. The characteristics of its students make introductory psychology an opportunity to engage, inform, and impact society on a remarkably large scale.

Because of this diversity in its students, introductory psychology is offered in virtually every course format imaginable. Depending on the institutional context, students may take the course in cavernous lecture halls seating hundreds or in small, interactive seminars. They may take the course partly or fully online, completing assignments in their kitchens or bedrooms early in the morning or late in the evening. In a few programs, the course can still be taken by mail as a "correspondence course." Course length within and across institutions can range from a multi-term series of two or three courses to an intensive 4- or 6-week concentrated course – even as a full year of study in secondary education (high school).

Teachers of introductory psychology are equally diverse, ranging from advanced postgraduate students to seasoned full professors. In most contexts, there is no specific degree or training requirement to teach introductory psychology. Some teachers of the course may have no formal training in psychology at all, as is the case for many teachers of psychology in high schools who are typically licensed to teach social studies or history.

In short, teaching introductory psychology may well be viewed by some new teachers as an impossible task. It is difficult to imagine a single course that attempts to accomplish something so significant, with such breadth of content, in a context with so many variables and degrees of freedom. As long-time teachers of this course (and trainers of those who teach the course), we are both well acquainted with its inherent challenges. We have also seen the transformational impact the course can have for students as well as instructors. For students, this course can dispel persistent and harmful myths about human behavior and develop skills and knowledge that can improve students' academic performance, resilience, and well-being long after they turn in their final assignments. Some of them may even decide to major in psychology after taking the course. Whatever the case, for teachers, the course is an opportunity to provide students' first exposure to some of the most exciting and influential ideas in the field – a tour of psychology's "greatest hits."

The goal of this chapter is to provide relevant history and guidance for instructors teaching this course. We will begin by briefly considering the history and evolution of the introductory psychology course in North America. Next, we will provide guidance for designing a contemporary course that strikes a sound balance between breadth and depth, using principles of backward design (e.g., Fink, 2003; Wiggins & McTighe, 2005). We will consider how to assess student learning as well as one's own teaching effectiveness, specifically, how to teach in an evidence-based way.

Whether you are teaching introductory psychology for the first, third, or thirtieth time, we hope this chapter will inspire you to approach teaching the course the same way that students ideally approach learning in your class: with intention, patience, persistence, and self-reflection. The experience of teaching introductory psychology can be both challenging and rewarding and can grow with you as you develop and as a teacher.

How Did We Get Here: The Evolution of Introductory Psychology

Introducing students to a field as broad as psychology requires designing a course with tremendous breadth. Instructors approaching the course in high schools, community colleges, and 4-year institutions across North America may regard all the possible topics to include in their courses and ask, "How can I cover all this?" The following quote conveys an all-too-common sentiment:

> "Many professors of psychology have been saying that the traditional design of Introductory Psychology is no longer appropriate for the typical, present-day student....now, most college students want some exposure to psychology not for career purposes but for intellectual and personal development. . .Yet academic psychology seems reluctant to reflect this change in values in the textbooks it uses. Writers of new textbooks seem determined to follow the traditional pattern of including a smattering of everything."

Would you believe these words were, in fact, written almost half a century ago, when psychology as a field was not even 100 years old? This quote from Lazarus (1974) captures a long-standing complaint that introductory courses seem to try to "do it all" and cover an unmanageable amount of information. How did we get where we are today, and where are we headed?

Little is known about the first psychology courses, but it seems that they were offered in the earliest days of the discipline. The first introductory psychology course taught at Ohio State University, for example, met in 1879 – the same year Wilhelm Wundt opened his laboratory in Leipzig – but no course syllabus or lesson plans remain. This particular course, like many others of the time, was taught by a philosophy professor and focused on the mind and brain – topics considered so complex and advanced that students had to be at least juniors to enroll.

Textbooks for introductory psychology, still a common feature in North American courses, began to appear in psychology's infancy at the turn of the twentieth century. Early courses might have used books authored by Wilhelm Wundt (in German, *naturlich*), John Dewey, George Ladd, or Edward Titchener. These texts were not entirely objective but were "treatises" that tended to advance the theoretical orientation of the authors (Weiten & Wight, 1992). For example, Titchener's, 1915 text *A Beginner's Psychology*, for example, was deeply rooted in the structuralist perspective, while John Watson's *Psychology from the Standpoint of a Behaviorist* (Watson, 1919) appealed to teachers who embraced the emerging behaviorist view of the field.

Perhaps the most highly regarded early text was William James' two-volume *Principles of Psychology* (James, 1890) or his abridged (500-page) *Briefer Course* (James, 1892). These volumes were considered the standard psychological texts in the United States and across Europe at the turn of the twentieth century, cementing James' reputation as the "father of American psychology." According to Hothersall (2004), "a whole generation of psychologists learned from these books, referring to them affectionately as 'the James' and 'the Jimmy' (p. 337)." James himself was considered an exceptional teacher of psychology and was notable for being one of the few professors of his day who allowed students to ask questions during his lectures at Harvard. To support teachers in applying lessons from psychology to education, James gave a series of lectures which he published as *Talks to Teachers* (James, 1899); chapters included *Psychology and the Teaching Art*, *Education and Behavior*, and *The Acquisition of Ideas*, *Interest*, *Attention*, and *Memory*. James' advice from 120 years ago is still sound today: "The art of remembering is the art of thinking. When we wish to fix a new thing in either our own mind or a pupil's, our conscious effort should not be so much to impress and retain it as to connect it with something else already there" (James, 1899, p. 148).

By the early 1970s, introductory psychology was an almost universal undergraduate course offering; an APA survey commissioned at that time found an introductory course was taught at 99% of all universities (Kulik, Brown, Vestewig, & Wright, 1973). Arguably the most significant factor in the growth and popularity of the introductory psychology course was the advancement in the United States of general education. The term refers to the requirement of a strong "common core" of foundational courses, independent of students' major program, that are intended to develop a broad, integrated base of knowledge and intellectual skills (O'Banion, 2016). As a cornerstone of most general education curricula, introductory psychology courses experienced soaring enrollments – for example, by the 1980s enrollment in general psychology at Ohio State University exceeded 8000 students a year at the main campus alone.

Course materials and resources increased to meet the growing demands of both instructors and students. But introductory "survey" courses taught at this time tended to review a broad array of research and consequently were content-heavy with little to no integration across topics. Students and instructors struggled with a lack of coherence, leading to recommendations to replace the single general survey course with an introductory curriculum of four or more courses, such as physiology, cognition, development, and social behavior (Senn, 1985). Others recommended revising the course to be a less content-intensive experience that incorporated skills and application of concepts to students' lives. For example, Walker and McKeachie (1967) recommended ten objectives for teachers of introductory psychology courses:

1. Communicate elementary concepts.
2. Communicate facts in support of the concepts.
3. Introduce the student to the full range of subject matter.
4. Integrate course material.
5. Communicate basic attitudes of the discipline.

6. Communicate the intrinsic interest of the subject matter.
7. Present the newest developments of the field.
8. Provide individual guidance and monitoring.
9. Develop selected intellectual skills.
10. Provide a suitable identification model for the student.

Notably, only half of these ten objectives focus on developing content knowledge (1–4, 7). Considering the prevailing approach to survey courses at the time, urging instructors of the course to communicate intrinsic interest, support skill development, and integrate ideas across the course constituted rather revolutionary guidance! These ten objectives for instructors were synthesized into three broad student-centered goals for introductory courses, putting more emphasis on personal development and application of skills (Senn, 1985):

1. Improved attitudes and skills, specifically an appreciation of the scientific method and its application to the study of human behavior.
2. Greater knowledge, meaning an understanding of core principles in the discipline as well as an ability to apply them to new situations.
3. Better personal adjustment, in the form of productivity, happiness, and social effectiveness.

It seems McKeachie's advice was ahead of its time, because in the mid-1980s, critics of the introductory course continued to bemoan its content-heavy nature, contending this structure ignored psychology's own fundamental principles of learning and memory (Lenthall & Andrews, 1985). For example, some of the most popular textbooks at the time had over 1500 references and covered an amount of content that reviewers described as "staggering" in an attempt to achieve "scholarly sophistication" (Weiten & Wight, 1992). Critics of these "encyclopedic" texts called for courses to be restructured thematically and integratively so that students would have a more holistic view of the field (Dimond & Senter, 1985; Lenthall & Andrews, 1985). Among the examples of texts that embraced this perspective were volumes by Gleitman (1981) and Myers (1986), which synthesized and clarified complex ideas and introduced pedagogical graphics and illustrations – innovative additions that aimed to help facilitate students' understanding of the concepts (Weiten & Wight, 1992).

The changing structure of textbooks across time also reveals patterns and trends in the evolution of the course. Weiten and Wight (1992) analyzed introductory textbook content from the 1890s to the 1980s and found most texts converged on a now-familiar set of topics organized by chapter: history, methods, biological bases of behavior, learning, memory, sensation/perception, language/thought, motivation/emotion, development, intelligence, consciousness, psychological disorders and treatments, personality, and social psychology. While the proportion of coverage each topic receives has changed over the years, these topics have consistently formed the core of the course – and preview the broader curriculum of the psychology major: a strong foundation of research methods and core content domains including the

biological basis of behavior, development, sociocultural issues, and cognition (Dunn, 2018). This core organization continues in many modern textbooks today (Griggs & Jackson, 2013) and parallels the way many courses are structured (Griggs, 2014). Yet, despite similarities in core topics, there remains great variability in the specific content that is covered in both textbooks and introductory psychology courses. For example, while chapters in different texts may have similar names, studies examining the content within these chapters reveal considerable variation in terms and theories discussed within (Griggs, Bujak-Johnson, & Proctor, 2004; Gurung et al., 2016; Zechmeister & Zechmeister, 2000).

A look back at the history of the introductory course thus reveals that, as psychology has grown and developed as a field, its introductory course has matured to include a relatively standard set of core topics and a focus that goes beyond content toward essential skills and applications. Yet, there has always remained tremendous variability in the way that introductory psychology is taught. For example, 1 study reviewed 158 syllabi for introductory courses and found great variability in whether courses were designed to meet specific learning objectives and even what those objectives might be (Homa et al., 2013). Ultimately, the content and character of introductory psychology is at the discretion of the individual instructor (or instructional team) as courses are designed and delivered.

Given the many varied formats and contexts for introductory courses, it seems unlikely (and untenable) that there can ever be a "one size fits all" approach that standardizes introductory psychology. Such an approach would be unnecessarily restrictive and potentially detrimental, in that it may well prevent instructors from making course decisions that best fit their institutional contexts and student needs. Mindful of this reality, the American Psychological Association has avoided being overly prescriptive in advising instructors who teach the course (e.g., APA, 2014; Gurung et al., 2016). Instead, it seems far more valuable to encourage teachers to understand and adopt principles of effective course design in planning and teaching the course to maximize the benefits for both teaching and learning. In the sections that follow, we describe these principles and specific strategies for implementing them within introductory psychology.

Weaving It All Together: The Importance of Backward Design

Many seasoned instructors of introductory psychology recall their early experience with course design as going something like this: open the assigned textbook, look at the table of contents, and assemble a course calendar that more or less follows the order of chapters, adding in as much content as you have time to cover during the academic term and administering an examination every few weeks. In other words, for generations of teachers in higher education, course planning involved far more consideration of what content to cover than what learning objectives students should meet by the end of the course.

A more effective process for planning a course involves *backward design*, in which courses are developed by "deconstructing" the learning process. Backward

design starts with the question, "what will students learn in my course, and how will I know they have learned it?" By prioritizing the desired end result of the teaching and learning process, we can ensure that our courses are organized to emphasize and support our goals for student learning (cf., Fink, 2013; Wiggins & McTighe, 2005). In courses planned primarily around content, instructors can only hope that students will latch on to important ideas in the flow of course material and demonstrate that knowledge later on. When courses are planned around student learning goals, assessment tools and teaching strategies align to meaningfully support learning. Starting with the end of the course in mind seems particularly challenging for an expansive course such as introductory psychology, yet that expansiveness is precisely why it is so important to work backward. An integrated, well-aligned course increases the likelihood that students will have a positive experience that results in learning.

Effective course design is a complex and iterative process, beginning with several key steps:

Consider your Context

Teaching any course involves making choices about what you will ask your students to do and why. External factors such as your institutional context (e.g., high school, community college, 4-year institution), student demographics, and the support structures available to you should influence the curricular choices you make. These situational factors present both challenges and opportunities for course design (Fink, 2013). For example, if you teach many students who are in their first year of college and/or are the first in their family to attend college ("first-generation college students"), you may need to provide more study skills resources to support their transition to higher education. While such situations can present challenges in planning, they simultaneously present opportunities to leverage course content (e.g., learning and memory) and develop learning activities that promote application of this content to students' personal experiences.

As another example, consider whether your course enrolls students who do not intend to be psychology majors or even to take another course in the field. Such students form the majority in introductory psychology classes at North American institutions, because they must take courses in many disciplines to fulfill a "general education" requirement. Their presence will challenge you to make the course content and assignments relevant to a broad range of interests but also gives you an opportunity to reach students who might not otherwise encounter psychology and to help them learn how psychology can benefit them personally and professionally. Other contextual factors to consider are the size of your course (15 or 500?), whether your course has a research or laboratory component, whether you will teach fully or partly online, and whether you will work with others in a coordinated course or with teaching assistants. In planning to teach the course, begin by considering the "big picture" surrounding your course and what resources and supports you will need to teach the course effectively and manageably.

Prioritize Learning Objectives

Your course learning objectives for introductory psychology may be defined by your institution or department, or you may have the freedom to determine some or all of these objectives for yourself. Once you have considered important contextual factors in your course, the next step in course planning is to identify the core learning objectives, or the most important "enduring understandings" you want students to remember, not just at the end of the course but 6 months or even 6 years later (Wiggins & McTighe, 2005). Enduring understandings are important, meaningful ideas that cut across specific topics and inform the structure of the course. While there is a vast amount of content that is helpful for students to know or is worth being familiar with, a well-designed course is organized around and prioritizes a small set of objectives. One enduring understanding common to many introductory courses is for students to recognize psychology as an empirical science, that is, that psychologists use scientific evidence to draw conclusions about behavior and mental processes. This is an idea that an instructor would want to make integral to the course design and revisit multiple times across multiple topics.

For example, Hardin (2016) describes a central organizing theme of "thinking like a psychologist" into her introductory course, meaning she prioritizes applying the process of scientific inquiry to create an impact on students' habits of mind. She structures her course so that as students encounter core topics, they are not merely memorizing facts but rather developing a sense of curiosity and critical thinking. She shapes their approach to acquiring new information by encouraging them to ask such questions as "what is the evidence for this claim," "is it possible to find evidence that would prove this claim to be false," and "what other explanations are there?"

The American Psychological Association's *Introductory Psychology Initiative* recently recommended a set of expected student learning outcomes to articulate what introductory psychology students should know and be able to do as a result of completing the course (Halonen et al., in press). Like enduring understandings, these objectives can help instructors identify and establish priorities for their introductory courses:

Psychology Content: Identify basic concepts and research findings:

1.1. Define and explain basic psychological concepts.
1.2. Interpret research findings related to psychological concepts.
1.3 Apply psychological principles to personal growth and other aspects of everyday life.

Scientific Thinking: Solve problems using psychological methods:

2.1. Describe the advantages and limitations of research strategies.
2.2. Evaluate, design, or conduct psychological research.
2.3. Draw logical and objective conclusions about behavior and mental processes from empirical evidence.

2.4. Examine how psychological science can be used to counter unsubstantiated statements, opinions, or beliefs.

Key Themes: Provide examples of psychology's integrative themes:

A. Psychological science relies on empirical evidence and adapts as new data develop.
B. Psychology explains general principles that govern behavior while recognizing individual differences.
C. Psychological, biological, social, and cultural factors influence behavior and mental processes.
D. Psychologists strive to promote respect for human diversity in its many forms.
E. Our perceptions and biases filter our experiences of the world through an imperfect personal lens.
F. Applying psychological principles can change our lives, organizations, and communities in positive ways.
G. Ethical principles guide psychology research and practice.

Compared to Walker and McKeachie's (1967) recommended course objectives presented earlier, the contemporary objectives are more student-centered than teacher-centered, articulating what students should know and be able to do at the end of the course rather than what instructors should do in order to teach it. The contemporary objectives also focus more on integrated themes and enduring understandings and emphasize skills that promote scientific thinking and ethical reasoning in psychology. Goals for student learning should be one's foremost consideration in planning to teach any course, but especially a course as broad as introductory psychology – not only to focus and streamline one's teaching, but to communicate to students what they should expect to learn in the course.

Align Assessments with Learning Goals

Once you have prioritized goals for student learning, the next step is to determine how you will know whether students have achieved the desired results. What should students be able to do to demonstrate they have learned, and what kind of assignments or activities give students an opportunity to practice and demonstrate their learning? These are questions of assessment that determine how instructors will structure student work and measure learning outcomes in the course. These decisions should be based not merely on what we want students to do within the limits of the course but rather what we want the long-term impact of the course to be.

All forms of assessment that are aligned to learning objectives provide data on students' mastery of the course learning objectives and also on their progress. Analyzing measures of student learning already present in the classroom such as

exams, assignments, or papers is known as *embedded assessment* (McCarthy, Niederjohn, & Bosack, 2011). Embedded assessments offer a rich set of data that instructors can use to understand student learning and inform teaching strategies. For example, if the results of tests or quizzes suggest that students are struggling with particular topics (e.g., heritability, schedules of reinforcement, or experimental research methods), instructors can consider the teaching strategies they use for these topics and adjust them to better support student learning.

Assessments not only measure learning, but they also *produce* learning by giving students opportunities to practice applying their knowledge and skills. For example, if a long-term goal for introductory psychology students is to be able to critically analyze claims about behavior they encounter in the media, an assessment could involve students reading news stories about research and evaluating whether the results are conveyed accurately given the nature of the evidence. An assignment might ask students to write a response to the article's author or propose a revision to the original article. Such an assessment would be considered "authentic" in the sense that it mimics a real-world task that involves meaningful application of knowledge beyond the classroom. "Authentic assessments" allow students to demonstrate their understanding of an objective and frequently involve complex tasks, problem-solving, and application of knowledge to meaningful problems. This kind of assessment gives students the opportunity to synthesize and apply what they are learning and can result in new meaning and knowledge (Mueller, 2018). In contrast to traditional forms of assessment such as exams, quizzes, and student response papers that only an instructor might see, authentic assessments give students opportunities to create work that can be shared outside the classroom. These can take many forms, such as blog posts, videos, tutorials, or teaching tools for other students (cf., Seraphin et al., 2018).

Of course, traditional forms of assessment like tests and quizzes can also produce learning. Indeed, a central goal in any foundational course is to build a strong knowledge base for future use and application. Research from cognitive science reveals a "testing effect": compared to just repeated studying, the retrieval practice provided by repeated testing enhances learning (Roediger & Karpicke, 2006; Roediger, Agarwal, McDaniel, & McDermott, 2011; Nguyen & McDaniel, 2015). Classroom tests and quizzes can thus boost long-term retention. Several studies show that when retested years after taking the course, students can remember a significant amount of information from introductory psychology (Hard, Lovett, & Brady, 2019; Landrum & Gurung, 2013). A challenge to harnessing the benefits of testing is that many psychology instructors are not trained in writing test items or constructing examinations, although many resources exist to learn to construct valid and reliable assessments of student learning (cf., Rodriguez & Albano, 2017; Xu, Kauer, & Tupy, 2016). Although most textbooks provide instructors with supplemental teaching resources and banks of test questions to use as a starting point, the structure of any exam still must be aligned with the overall course objectives.

Multiple forms of assessment are usually necessary in introductory psychology to capture progress toward the full range of course objectives and to maximally affect

students' knowledge and skills. While authentic assignments give students the opportunity to demonstrate their learning and apply knowledge to new issues and topics, traditional exams and quizzes boost retention and give students feedback on their mastery of a topic. Particularly in a foundational survey course, some combination of tests and authentic assignments is valuable. Mueller (2018) draws an analogy to assessing whether people are ready to have a driver's license: In many countries, new drivers must pass a knowledge test to demonstrate they understand the rules and regulations for driving (a traditional form of assessment), as well as a driving test to demonstrate they have the necessary skills (an authentic assessment). Ensuring success in both tasks is likely to produce the best long-term outcomes.

Plan Learning Experiences

Once instructors have identified key learning outcomes and planned for how they will assess them, the next question to consider is "What is the best way to support student learning to achieve those outcomes?" The first instructional strategy that comes to mind for many instructors is the most common technique in higher education: lecturing. Lectures are most likely to support student learning when instructors draw on the material they are teaching and apply principles from psychology to teaching psychology. Based on a review of research in learning science, Cerbin (2018) recommends that instructors can maximize the impact of learning in lecture by activating students' prior knowledge, effectively managing cognitive load during lecture, and creating opportunities for students to engage in deep, elaborative processing and retrieval practice, such as by asking students to make a prediction about the results of a study the instructor is explaining or by asking students to periodically answer questions about recent material.

The content of introductory psychology affords many opportunities to harness stories to enhance the meaningfulness, coherence, and memorability of lectures (Landrum, Brakke, & McCarthy, 2019). Psychology is, after all, mainly about people and people are natural protagonists in stories. Stories can illustrate important concepts or convey the history of the discipline in a narrative format, featuring such key figures as Phineas Gage, H.M., or Jean Piaget. As part of lecture, stories are easy to remember, provide deeper meaning to information, convey the values of the field, and help students see the relevance of psychology in their everyday lives (for more on the value of stories in teaching, see Brakke & Houska, 2015).

Although lecture has potential benefits, the technique can become too teacher-centered and has thus been criticized in recent years for putting students in a passive role (Bernstein, 2018). Incorporating more active forms of learning has been shown to produce student learning outcomes that are superior to traditional lecture in STEM fields (Deslauriers, Schelew, & Wieman, 2011; Weiman, 2014). Active learning can take many forms, from asking students to make and discuss their predictions about a study with a nearby peer (also known as "peer instruction") to more involved forms of experiential learning such as conducting in-class experiments, debating or discussing controversial topics, or asking students to engage in writing exercises

during class time. Indeed, the entire introductory courses can be planned and delivered via "flipped" or problem-based-learning approaches, in which students gain access to basic course content outside of class and spend their in-class time engaging with the instructor and other students as they apply that content to novel problems and situations (c.f., LoGiudice & Kim, 2016).

Bernstein (2018) cautions that there are not currently evidence-based guidelines for choosing and using active learning strategies. He advises that new teachers and teachers inexperienced with active learning techniques should take a measured approach, focusing on methods supported by the highest-quality evidence and that are most relevant and feasible for their teaching context. For example, a starting point for incorporating active learning into one's class may be to start with easy-to-incorporate strategies such as retrieval practice, asking students to make a prediction or write a minute paper reflection after watching a video. Gradually instructors can incorporate more complex or varied techniques, depending on the learning objective and intended assessment.

When applying backward design, decisions about what teaching and learning activities to use in introductory psychology should be driven primarily by the learning objective and planned assessment. For example, if student learning will be assessed with an application-focused exam, then teaching strategies should be selected to train students to apply concepts to the kinds of problems and questions that will ultimately appear on the exam. If, however, student learning will be assessed with a research project or proposal, then teaching and learning strategies should give students the opportunity to practice the skills they need to be successful on the assignment, such as developing original hypotheses and finding/using empirical research studies. In other words, decisions about how to teach should be based on helping students to gain the knowledge and skills that will be measured on the course assessments.

Core Contents and Topics: Striking the Right Balance

You may have noticed that the course design process described in this chapter has not yet considered what *content* to include. What to teach in an introductory course has been the subject of vigorous debate among teachers of this course. As we saw in reviewing the history of the course, decisions about what topics to include, how to present them, and how much to cover have traditionally dominated the course design process for introductory psychology. Backward course design emphasizes goals for student learning that are of a higher order than simply memorizing specific content. In backward design, decisions about content are made *after* learning objectives, assessment, and teaching strategies are planned. For some teachers of this course, this may be an uncomfortable process. You may be wondering, "how can I know what my assignments will be if I don't first know what content I will cover?" As mentioned earlier, the curriculum for introductory psychology in North America has more or less coalesced into 16 broad topics which parallel the main content domains of the psychology major and are (for the most part) consistent across texts in the discipline. For many instructors, the possibility of covering 16 broad topics is

overwhelming, as is the wealth of potential information that could be taught more deeply within each topic. With learning objectives as a guide, instructors still must make many decisions about what to include in their courses, and these decisions will naturally vary by institutional context and instructor.

The challenge of selecting course content led the APA to establish a working group to make recommendations for a "common core" that would guide instructors in making content choices while promoting more consistency in student experience and learning outcomes. The working group's recommendations (APA, 2014; Gurung et al., 2016) did not *prescribe* specific content the course should cover, but rather recommended a framework for balancing breadth and depth while emphasizing the integrated nature of modern psychology.

In this framework, instructors are encouraged to consider content as organized around five clusters of topics, or *pillars*, drawn from the APA Guidelines for the Psychology Major (APA, 2013). To ensure breadth of coverage across these pillars, the framework encourages instructors to select *at least two topics* from each pillar:

- Biological (neuroscience, sensation, consciousness).
- Cognitive (cognition, memory, perception, intelligence).
- Development (learning, development, language).
- Social and personality (social, personality, emotion, multicultural, gender, motivation).
- Mental and physical health (abnormal, health, therapies).

By encountering multiple topics from each of these five pillars, students can gain a more holistic appreciation of the discipline. Having this broad view should better equip them to see how psychology can apply in their personal and professional lives. The subset of topics that teachers select from each pillar reflects the content that works best in their institutional context as well as in relation to their own expertise and knowledge. Further, students may benefit from exposure to fewer topics covered in greater depth rather than to a wider array of topics covered only briefly.

Beyond including content from each of these five pillars, the recommendations also encouraged instructors to *integrate* content across units and to incorporate recurring themes that cut across each topic area, including research methods, cultural and social diversity, individual differences/variations in human functioning, applications to everyday life, and ethics. By encountering each theme in the context of each topic, students can learn what ideas unify the diverse field of psychology and appreciate the multifaceted and multiply-determined nature of human behavior and mental processes. Students can also learn how psychologists approach a given topic using various approaches and questions. For example, in a unit on lifespan development, cross-cutting themes might involve longitudinal methods for studying development over time, ethical considerations in conducting research with children and other vulnerable populations, how social and cultural practices impact development, how environmental influences impact gene expression to create individual differences, and how to apply research from developmental psychology to education or health care for elderly adults.

The challenge instructors face in making choices about content can also be an opportunity to tailor some content choices to the interests and needs of their students. For example, many students choose to take introductory psychology to prepare for medical school or other allied health professions. Instructors can incorporate medical examples throughout the course to appeal to such students. Instructors might highlight the connection between classical conditioning and drug tolerance, the potential for cognitive bias in physicians' decision-making, and how stereotypes can contribute to disparities in health care. Similarly, instructors can draw upon examples relating course content to business and industry, communications or public relations, psychology and the law, and important contemporary issues such as climate change or social justice. Better yet, instructors can create assignments that allow students to explore for themselves the connections between psychology and their own interests and planned careers.

It can be difficult for first-time instructors or advanced graduate student instructors to see these opportunities. Even highly experienced instructors can be challenged when teaching this course. Given that psychologists are trained primarily in one specific area of specialty (e.g., developmental, cognitive, social, clinical, and so on), teaching a broad introductory psychology course means that most instructors have little (if any) training in many of the topics covered in the course. Know that all instructors teaching this course are in the same boat, as illustrated by the fact that the entire books have been written about *Teaching What You Don't Know* (Huston, 2009). Fortunately, there are strategies you can use to overcome this challenge. First, capitalize on your own areas of strength as you are designing the course. Leverage the pillar model to incorporate topics you have the most expertise in or are most confident to teach, at least the first time. Remember that teaching is an iterative process and that each academic term you can make adjustments based on your students' outcomes and your own priorities to improve and enhance the course. Approach teaching with the same learning mindset you want to encourage in your students, that is, with curiosity and a willingness to learn alongside your students about topics you don't know well.

Another strategy for success is to leverage the knowledge and experience of others in your institution or social network. Colleagues can help you build your knowledge and resources in areas that are not your strength. For example, we were trained as social (Beers) and cognitive psychologists (Hard). Neither of us has had a single day of graduate training in abnormal psychology. Fortunately, we both work alongside other teachers of psychology whose training was primarily in clinical psychology. By sharing resources with one another, observing each other's classes, and talking informally about teaching strategies, we have built our skills and confidence teaching students about psychological disorders and treatments. In exchange, we have helped others build their resources to teach social and cognitive psychology. Many institutions have teams of instructors teaching introductory courses. If you are fortunate to have a teaching community for support, take advantage of it. For support beyond our own departments, use social media to extend your social networks. The Society for the Teaching of Psychology (STP) has an openly accessible Facebook page and many free teaching resources on their website (http://TeachPsych.org). You might even reach out to your own former professors or mentors for resources and guidance. Teaching conferences can also serve as

opportunities to connect with other teaching professionals, especially those who teach introductory psychology. In fact, the annual Psych One Conference (http://www.psychoneconference.org/) is dedicated specifically to the teaching of introductory psychology.

Ultimately, there are as many ways to teach introductory psychology as there are teachers of the course. Beyond traditional approaches covering content in separate units or chapters, a more advanced approach is to structure the course thematically, such as organizing the course around the development of workplace skills (Landrum, 2016), integrative concepts that cut across topics (Nordmeyer, Hard, & Gross, 2016), or by organizing the content around myths and illusions we experience in everyday life (Bernstein, 2017). In the latter model, instead of organizing an introductory course around topic areas, a course could be organized around common myths or misperceptions, like "subliminal messages can change your behavior" instead of a traditional lecture on persuasion or "eyewitness testimony is the best kind of evidence" instead of a traditional unit on memory. Instead of requiring students to memorize terms and concepts, such a model encourages students to research myths for themselves and evaluate the evidence for and against each hypothesis through discussion or group work.

In short, there is no one "right" way – or even one "best" way – to teach introductory psychology. This may be frustrating for many new instructors, but with experience, we've found it to be one of the things we love most about the course. Each of us has to consider our personal strengths, our students' needs, and our course and institutional learning objectives in making our teaching decisions. Additionally, it is important to leverage our skills as scientists to inform our teaching. We can be scholarly teachers by using evidence-based practices that empirical research has shown to have a positive impact on student learning (e.g., Dunn, Saville, Baker, & Marek, 2013). Evidence-based practices can be discovered by using scholarly articles that rigorously evaluate teaching practices and by examining evidence about our own students' learning by analyzing the embedded assessments in our own courses. We can also listen to our students and systematically collect feedback on their learning experiences at midterm and at the end of our courses. The recommendation to approach teaching in a scholarly way is not unique to introductory psychology, but is particularly relevant given that course's focus on applying the scientific method to understanding human behavior and mental processes. What better way to model a scientific mindset and approach for students than by applying it to our own teaching? For additional guidance on scholarly teaching, see McKeachie and Svinicki (2013) or Bernstein, Frantz, and Chew (2020).

Concluding Thoughts

For some students, an introductory psychology course sparks an interest that fires a career in psychology. For others, the course plants seeds of knowledge about wellness, interpersonal relationships, or development that bloom long after the course ends. We firmly believe that everyone who takes the course can benefit

from the generalizable knowledge and skills it affords, in their college careers and far beyond. No matter what problems or issues students seek to address in their future careers, understanding psychology is valuable. The discipline offers both an understanding of human behavior and a set of critical, scientific thinking strategies that are indispensable for addressing the most significant challenges facing society today. John Cacioppo, an ardent advocate for introductory courses, wrote, "Introductory Psychology is one – and perhaps the only – course in which we have the opportunity to teach our future public about the importance and impact of our scientific discipline" (Cacioppo, 2013, p. 309).

Introductory psychology is just as valuable for its instructors. This course presents a singular opportunity to take a bird's-eye view of our field, to examine human behavior and mental processes through varied lenses, and to uncover new and emerging findings alongside our students. Psychologists are largely trained in a narrow area of specialty, which can unfortunately result in subfields adopting a "siloed" structure. Introductory courses demand that we broaden our view of the field and examine how subfields complement and enhance one another. And most importantly, as we assess and evaluate our students' learning and make evidence-informed adjustments in our teaching methods, we grow and develop as teachers.

While there are few courses in the psychology curriculum that are as challenging as introductory psychology, there are few courses as extraordinary in their far-reaching potential for impact. Introductory psychology courses strengthen and support a department's psychology major and fuel research programs through research participation of introductory psychology students (Hard & Gross, 2016). What students learn contributes to their well-being both as individuals and citizens of their community and the world.

Resources for Teaching Introductory Psychology

The American Psychological Association's Introductory Psychology Initiative:

Learn more about the APA's most recent recommendations for the introductory psychology course:

https://www.apa.org/ed/precollege/undergrad/introductory-psychology-initiative/

Lesson plans for teaching introductory psychology from APA's Teachers of Psychology in Secondary Schools (TOPSS):

https://www.apa.org/ed/precollege/topss/lessons/

The Society for the Teaching of Psychology (APA Division 02):

Explore free E-books and other resources for psychology instructors: http://teachpsych.org/

A free E-book for new teachers of introductory psychology, published by the Society for the Teaching of Psychology (STP):

Afful, S. E., Good, J. J., Keeley, J., Leder, S., & Stiegler-Balfour, J. J. (2013). *Introductory Psychology teaching primer: A guide for new teachers of Psych 101.*

Retrieved from the Society for the Teaching of Psychology website: http://teachpsych.org/ebooks/intro2013/index.php

A free STP e-book on storytelling in teaching, including examples and teaching resources:

Brakke, K., & Houska, J. A. (Eds.). (2015). *Telling stories: The art and science of storytelling as an instructional strategy.* Society for the Teaching of Psychology. Retrieved from the Society for the Teaching of Psychology web site: http://teachpsych.org/ebooks/tellingstories.html

A collection of essays from introductory psychology instructors describing a variety of thematic approaches to teaching the course:

Dunn, D. S. & Hard, B. M. (Eds.). (2016) *Thematic Approaches for Teaching Introductory Psychology.* Boston: Cengage Learning.

A collection of essays from introductory psychology instructors describing their philosophies, course designs, and techniques:

Sternberg, R.J. (Ed.) (1997). *Teaching introductory psychology: Survival tips from the experts*. Washington, DC: American Psychological Association.

A collection of science-focused lesson plans from the Association for Psychological Science (APS) to reorganize introductory psychology content around persistent myths and misconceptions:

https://www.psychologicalscience.org/members/teaching-psychology/reinventing-introductory-psychology

A collection of popular myths and misconceptions about psychology that can provide examples and resources for helping students think critically and evaluate evidence:

Lilienfeld, S. O., Lynn, S. J., Ruscio, J., & Beyerstein, B. L. (2011). 50 great myths of popular psychology: Shattering widespread misconceptions about human behavior. John Wiley & Sons.

A comprehensive guide for preparing and teaching any course in psychology:

Bernstein, D. A., Frantz, S., & Chew, S. (2020). *Teaching psychology: A step by step guide.* (third ed.) New York: Routledge.

A peer-reviewed collection of case studies for undergraduate and graduate STEM education including teaching notes and resources from the National Center for Case Study Teaching in Science:

http://sciencecases.lib.buffalo.edu/cs/

References

American Psychological Association. (2013). *APA guidelines for the undergraduate psychology major 2.0*. Washington, DC: Author. Retrieved from www.apa.org/ed/resources.html.

American Psychological Association. (2014). *Strengthening the common core of the introductory psychology course*. Washington, DC: American Psychological Association, Board of Educational Affairs. Retrieved from www.apa.org/ed/governance/bea/intro-psych-report.pdf.

American Psychological Association, Working Group on Introductory Psychology Assessment. (2017). *Assessment of outcomes of the introductory course in psychology*. Retrieved from http://www.apa.org/ed/precollege/undergrad/index.aspx.

Bernstein, D. (2018). Does active learning work? A good question, but not the right one. *Scholarship of Teaching and Learning in Psychology, 4*, 290–307.

Bernstein, D. A. (2017). Bye-bye intro: A proposal for transforming introductory psychology. *Scholarship of Teaching and Learning in Psychology, 3*, 191–197.

Bernstein, D. A., Frantz, S., & Chew, S. (2020). *Teaching psychology: A step by step guide* (3rd ed.). New York, NY: Routledge.

Boyack, K. W., Klavans, R., & Borerner, K. (2005). Mapping the backbone of science. *Scientometrics, 64*(3), 351–374.

Brakke, K., & Houska, J. A. (Eds.). (2015). *Telling stories: The art and science of storytelling as an instructional strategy*. Society for the Teaching of Psychology. Retrieved from the Society for the Teaching of Psychology web site: http://teachpsych.org/ebooks/tellingstories.html

Cerbin, W. (2018). Improving student learning from lectures. *Scholarship of Teaching and Learning in Psychology, 4*, 151–163.

Deslauriers, L., Schelew, E., & Wieman, C. (2011). Improved learning in a large-enrollment physics class. *Science, 332*, 862–864.

Dimond, R. E., & Senter, R. J. (1985). An organizational framework for the teaching of basic psychology. In L. Benjamin, R. Daniel, & C. Brewer (Eds.), *Handbook for teaching introductory psychology*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Dunn, D. S. (2018). On the primacy of introductory psychology. In D. S. Dunn & B. Martin Hard (Eds.), *Thematic approaches for teaching introductory psychology* (pp. 1–9). Boston, MA: Cengage Learning.

Dunn, D. S., Saville, B. K., Baker, S. C., & Marek, P. (2013). Evidence-based teaching: Tools and techniques that promote learning in the psychology classroom. *Australian Journal of Psychology, 65*, 5–13.

Fink, L. D. (2003). *Creating significant learning experiences: An integrated approach to designing college courses*. San Francisco, CA: Jossey-Bass.

Gleitman, H. (1981). *Psychology*. New York, NY: Norton.

Griggs, R. A. (2014). Topical coverage in introductory textbooks from the 1980s through the 2000s. *Teaching of Psychology, 41*, 5–10.

Griggs, R. A., Bujak-Johnson, A., & Proctor, D. L. (2004). Using common core vocabulary in text selection and teaching the introductory course. *Teaching of Psychology, 31*, 265–269.

Griggs, R. A., & Jackson, S. L. (2013). Introductory psychology textbooks: An objective analysis update. *Teaching of Psychology, 40*, 163–168.

Gurung, R. A. R., Hackathorn, J., Enns, C., Frantz, S., Cacioppo, J. T., Loop, T., & Freeman, J. (2016). Strengthening introductory psychology: A new model for teaching intro psych. *American Psychologist, 471*(2), 112–124.

Halonen, J. S., Thompson, J. L. W., Whitlock, J., Landrum R. E., & Frantz, S. (in press). Measuring meaningful learning in introductory psychology: The IPI student learning outcomes. In R. A. R. Gurung & G. Neufeld (Eds.), *Transforming introductory psychology: Expert advice on teaching, training, and assessing the course*. American Psychological Association.

Hard, B. M., Lovett, J. T., & Brady, S. T. (2019). What do students remember about introductory psychology, years later? *Scholarship of Teaching and Learning in Psychology, 5*, 61–74.

Hardin, E. E. (2016). Seeing the world like a psychologist. In D. S. Dunn & B. Martin Hard (Eds.), *Thematic approaches for teaching introductory psychology* (pp. 187–203). Boston, MA: Cengage Learning.

Homa, N., Hackathorn, J., Brown, C., Garczynski, A., Solomon, E., Tennial, R., . . . Gurung, R. A. R. (2013). An analysis of learning objectives and content coverage in introductory psychology syllabi. Teaching of Psychology, 40, 169–174.

Hothersall, D. (2004). *History of psychology*. New York, NY: McGraw-Hill.

Huston, T. (2009). *Teaching what you don't know*. Harvard University Press.

James, W. (1890). *The principles of psychology* (Vol. 1–2). New York, NY: Holt.
James, W. (1892). *Psychology, briefer course*. New York, NY: Holt.
James, W. (1899). *Talks to teachers: Psychology, and to students on some of life's ideals*. London, England: Longmans, Green.
Kulik, J. A., Brown, D. R., Vestewig, R. E., & Wright, J. (1973). *Undergraduate education in psychology*. Washington, DC: American Psychological Association.
Landrum, R. E. (2016). A skills theme for the introductory psychology course. In D. S. Dunn & B. M. Hard (Eds.), *Thematic approaches for teaching introductory psychology*. Boston, MA: Cengage Learning.
Landrum, R. E., Brakke, K., & McCarthy, M. A. (2019). The pedagogical power of storytelling. *Scholarship of Teaching and Learning in Psychology, 5*, 247–253.
Landrum, R. E., & Gurung, R. A. (2013). The memorability of introductory psychology revisited. *Teaching of Psychology, 40*, 222–227.
Lazarus, R. A. (1974). A riddle review: An author speaks. *Teaching of Psychology, 1*, 41–42.
Lenthall, G., & Andrews, D. (1985). Psychological seduction: Effective organization of the introductory course. In L. Benjamin, R. Daniel, & C. Brewer (Eds.), *Handbook for teaching introductory psychology*. Hillsdale, New Jersey: Lawrence Erlbaum Associates.
LoGiudice, A. B., & Kim, J. A. (2016). A focus on problem-based learning. In D. S. Dunn & B. Martin Hard (Eds.), *Thematic approaches for teaching introductory psychology* (pp. 46–65). Boston, MA: Cengage Learning.
McKeachie, W., & Svinicki, M. (2013). *McKeachie's teaching tips*. Cengage Learning.
Mueller, J. (2018). *What is authentic assessment?* Retrieved from http://jfmueller.faculty.noctrl.edu/toolbox/index.htm
Myers, D. G. (1986). *Psychology*. New York, NY: Worth.
National Center for Education Statistics. (2018). *Fast facts: Most popular majors*. Retrieved from https://nces.ed.gov/fastfacts/display.asp?id=37.
Nguyen, K., & McDaniel, M. A. (2015). Using quizzing to assist student learning in the classroom: The good, the bad, and the ugly. *Teaching of Psychology, 42*, 87–92.
Norcross, J. C., Hailstorks, R., Aiken, L. S., Pfund, R. A., Stamm, K. E., & Christidis, P. (2016). Undergraduate study in psychology: Curriculum and assessment. *American Psychologist, 71*, 89–101.
Nordmeyer, A., Hard, B. M., & Gross, J. J. (2016). Using integrative concepts as a theme in introductory psychology. In D. S. Dunn & B. M. Hard (Eds.), *Thematic approaches for teaching introductory psychology*. Boston, MA: Cengage Learning.
O'Banion, T. (2016). A brief history of general education. *Community College Journal of Research and Practice, 40*, 327–334.
Rodriguez, M., & Albano, A. (2017). *The college instructor's guide to writing test items: Measuring student learning*. New York, NY: Routledge.
Roediger, H. L., & Karpicke, J. D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science, 17*, 249–255.
Rowling, J. K. (2003). *Harry potter and the order of the phoenix*. New York, NY: Listening Library.
Senn, D. J. (1985). Introductory psychology: Should it be taught as a general survey class? In L. Benjamin, R. Daniel, & C. Brewer (Eds.), *Handbook for teaching introductory psychology*. Hillsdale, New Jersey: Lawrence Erlbaum Associates.
Seraphin, S. B., Grizzell, J. A., Kerr-German, A., Perkins, M. A., Grzanka, P. R., & Hardin, E. E. (2018). A conceptual framework for non-disposable assignments: Inspiring implementation, innovation, and research. *Psychology Learning and Teaching, 18*, 84–97.
Stoloff, M., McCarthy, M., Keller, L., Varfolomeeva, V., Lynch, J., Makara, K., Simmons, S., & Smiley, W. (2010). The undergraduate psychology major: An examination of structure and sequence. *Teaching of Psychology, 37*, 4–15.
Titchener, E. B. (1915). *A beginner's psychology*. New York, NY: Macmillan.
Walker, E. L., & McKeachie, W. J. (1967). *Some thoughts about teaching the beginning course in psychology*. Belmont, CA: Brooks/Cole.

Watson, J. B. (1919). *Psychology from the standpoint of a behaviorist*. Philadelphia, PA: Lippincott.
Weiman, C. (2014). Large-scale comparison of science teaching methods sends clear message. *PNAS, 111*, 8319–8320.
Weiten, W., & Wight, R. D. (1992). Portraits of a discipline: An examination of introductory psychology textbooks in America. In C. L. Brewer, A. Puente, & J. R. Matthews (Eds.), *Teaching of psychology in America: A history* (pp. 453–504). Washington DC: American Psychological Association.
Wiggins, G., & McTighe, J. (2005). *Understanding by Design* (2nd ed.). Alexandria, VA: ASCD.
Xu, X., Kauer, S., & Tupy, S. (2016). Multiple-choice questions: Tips for optimizing assessment in-seat and online. *Scholarship of Teaching and Learning in Psychology, 2*, 147–158.
Zechmeister, J. S., & Zechmeister, E. B. (2000). Introductory textbooks and psychology's core concepts. *Teaching of Psychology, 27*, 6–11.

Learning and Teaching in Clinical Psychology

2

Susanne Knappe

Contents

Abstract

Clinical Psychology (abnormal psychology) addresses, though is not limited to, behavioral and mental health issues faced by individuals across the life span including intellectual, emotional, psychological, social and behavioral maladjustment, disability and discomfort, as well as severe psychopathology. Core elements to its practice are psychological assessment, clinical evaluation, and psychotherapy. The field bridges to other disciplines within Psychology as well as to the neurosciences, psychiatry and medicine, public health, as well to

S. Knappe (✉)
Institute of Clinical Psychology and Psychotherapy, Technische Universität Dresden, Dresden, Germany

Evangelische Hochschule Dresden (ehs), University of Applied Sciences for Social Work, Education and Nursing, Dresden, Germany
e-mail: susanne.knappe@tu-dresden.de

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biology, pedagogic, and educational psychology. The science-practitioner model aims at integrating scientific research and clinical practice for curricula spanning from basics of describing human behavior across the life span to the science of behavior change. To these aims, students in Clinical Psychology are trained in basic research and clinical skills, including knowledge of psychological theory and practice, sensitive listening and questioning skills, abilities and strategies to cope with emotionally demanding situations, as well as research skills and scientific methods, along with academic, teamworking and communication skills. Following a student-centered approach in teaching, learning of course material is supplemented by initiating reflections of attitudes, enhancing thinking skills, and helping students to mature into more ethical or compassionate individuals. In order to direct student's learning activities, teachers use lectures, invite special guests and topics, present standardized patients and enroll students in role plays, support in-class activities using experiential learning, as well as between-class assignments in course-linked labs and hands-on-learning (internships). Teaching Clinical Psychology comes along with a particular responsibility for the teacher, namely to be capable of the desire to increase self-referential thinking versus to protect the student's welfares, and to balance between entertainment and education. Hence, the chapter closes with four premises of an experienced teacher and author of one of the most famous textbooks in the field that may serve as guiding principles for teaching in Clinical Psychology and likely beyond.

Keywords

Psychopathology · Psychological assessment · Experiential learning · Abnormal psychology

Introduction

Clinical Psychology is an integration of the science, theory, and clinical knowledge on human behavior and behavior change for the purpose of understanding, preventing, and relieving psychologically based distress or dysfunction and to promote subjective well-being and personal development (APA, 1996; Plante, 2005; Wittchen, Knappe, & Hoyer, 2021). Clinical Psychology addresses, though is not limited to, behavioral and mental health issues faced by individuals across the life span including intellectual, emotional, psychological, social, and behavioral maladjustment, disability and discomfort, minor adjustment issues, as well as severe psychopathology. In the USA, the term abnormal psychology is usually preferred over Clinical Psychology, which dominates in the European community. Core elements to its practice are psychological assessment, clinical evaluation, and psychotherapy, although clinical psychologists also engage in research, teaching, consultation, forensic testimony, and program development and administration (Brain, 2002). The field bridges to other disciplines within Psychology as well as to the

neurosciences, psychiatry, and medicine, public health as well to biology, pedagogic, and educational psychology.

Because of its central relevance for therapeutic services, the American Psychological Association refers to Clinical Psychology as "(. . .) the psychological specialty that provides continuing and comprehensive mental and behavioral health care for individuals and families; consultation to agencies and communities; training, education and supervision; and research-based practice. It is a specialty in breadth — one that is broadly inclusive of severe psychopathology — and marked by comprehensiveness and integration of knowledge and skill from a broad array of disciplines within and outside of psychology proper" (URL from 07.03.2021, https://www.apa.org/ed/graduate/specialize/clinical). In many countries, Clinical Psychology is a regulated mental health profession and administration of psychotherapy requires a specific license.

The field of Clinical psychology was substantially influenced by the experimental work of Wilhelm Wundt in Leipzig, Germany, in the late 1890s. Wundt founded the first formal laboratory for psychological research and thereby helped to establish psychology as a separate science from other disciplines. He collaborated with prominent psychologists, psychiatrists, and philosophers of his time. For example, Wundt and Emil Kraeplin studied psychopathology, and developed and formalized a wide range of psychological methods. Clinical psychology in the sense of a mental health profession is generally considered to have begun in 1896 with the opening of the first psychological clinic at the University of Pennsylvania by Lightner Witmer. In the first half of the twentieth century, Clinical Psychology was focused on psychological assessment, with little attention given to treatment of mental health problems. This changed after the 1940s when World War II resulted in the need for a large increase in the number of trained clinicians. At least in the US-American countries and from there, also in many European countries, three main educational models have been developed: the Clinical Science model which is primarily focused on research, the practitioner-scholar model focusing on clinical theory and practice, and the science-practitioner model which aims at integrating scientific research and practice (Norcross & Karpiak, 2012).

Purposes and Rationale of the Curriculum in Clinical Psychology

Clinical Psychology spans towards a multitude of specialties such as clinical health, clinical child, forensic, clinical gerontopsychology, community, clinical neuropsychology, family psychology, and pharmacotherapy (for those with prescription privileges). Clinical Psychology encompasses all ages, multiple diversities, and varied systems. This variety is also reflected in the number of occupational areas: Clinical psychologists are most commonly employed in independent practice (41%) and higher education (26%), medical schools (8%), Veteran's Affairs settings (5%), and various hospitals and clinics, each averaging about 4% (Norcross & Karpiak, 2012). Other locations include schools, residential treatment centers, and corporations.

To meet the breadth and depth of this variety, curricula in Clinical Psychology teach advanced theoretical and scientific knowledge on (APA, https://www.apa.org/ed/graduate/specialize/clinical):

- Understanding of psychopathology and diagnostic/intervention considerations
- Mental health issues across the life span based on a solid understanding of psychopathology
- Assessment: ability to integrate and synthesize personality test data with additional standardized assessment measures
- Consultation: ability to consult with other health and behavioral health care professionals and organizations regarding severe psychopathology, suicide, and violence
- Research base: engagement with specific research and critical review of science, knowledge, and methods pertaining to those areas identified as distinct to Clinical Psychology

Hence, the curriculum covers basics of describing human behavior across the life span as well as the science of behavior change (Nielsen et al., 2018), at best substantiated by research knowledge and skills.

Core Teaching and Learning Objectives

Clinical psychologists work to reduce psychological distress in people with mental or physical health problems by providing services to individuals, families, and groups with mental health problems or mental disorders. Based on psychological theories, clinical psychologists assess, diagnose, and treat people with acute concerns and chronic conditions. Clinical psychologists interview patients and sometimes family members or friends, administer diagnostic tests, and provide therapy to individuals and their families. Typical responsibilities of the job include:

- Assessing clients' behavior and needs via observation, interviews, and psychometric tests
- Developing, administering, and monitoring appropriate treatment therapies and strategies
- Undertaking research
- Writing reports
- Providing support and advice to caregivers
- Meeting, advising, and liaising with other health care providers and professionals
- Helping clients to make positive changes to their lives

Three quarters of clinical psychologists conduct psychotherapy, accounting for an average of 35% of professional time; 58% routinely perform diagnosis or assessment; and approximately 50% are involved in teaching, clinical supervision, consultation, research, and administration on a weekly basis (Norcross & Karpiak, 2012).

Lessons for all Clinical Psychology Students

Norcross and Karpiak (2012) formulated four lessons that all psychology students, from those enrolled in the introductory course to those completing an advanced elective in Clinical Psychology, can master. These lessons map directly on research directions in the field: (1) understanding the strong connection between clinical work and psychological science that (ideally) characterizes modern Clinical Psychology, (2) commitment to evidence-based practice, (3) commitment to adapting treatment to the person and its environment, and (4) becoming all that a clinical psychologist can be (in contrast to providing only psychotherapy). To these aims, students in Clinical Psychology are trained in basic research and clinical skills, including knowledge of psychological theory and practice, sensitive listening and questioning skills, abilities and strategies to cope with emotionally demanding situations, as well as research skills and scientific methods, along with academic, teamworking, and communication skills (Table 1).

There is, however, no absolute distinction between learning objectives for undergraduate versus majors or graduate, albeit functional competencies are usually more often taught and trained in major psychology courses or graduate studies. Most undergraduates who choose to be psychology majors are interested in psychotherapy, and a majority of these students are not especially interested in investigative scientific thinking. Some psychology majors with practice interests become literate in psychological science, they rarely come to view psychology as a scientific field or psychological science as of prominent value to clinical pursuits (e.g., Holmes & Beins, 2009). Practice as clinical psychologist, i.e., provision and administration of psychotherapy, usually requires additional (graduate or postgraduate) education and training.

Graduate Education in Clinical Psychology

The master's degree in psychology with focus on Clinical Psychology and Psychotherapy usually follows a modular structured curriculum over four semesters. Students acquire all the necessary knowledge and skills in diagnostics, conversation, disorder models, intervention procedures, as well as clinical research methods and evaluation, and get insights into subareas of Clinical Psychology or related disciplines, e.g., occupational fields.

In Europe, much of the education and training in Clinical Psychology is at the bachelor and master's level, with the latter usually being a necessary prerequisite for graduate or postgraduate psychotherapeutic training and studies. There are, however, noteworthy differences across the curricula across universities and across countries.

In Australia, psychology is a regulated health profession under the Australian Health Practitioner Regulation Agency via the Psychology Board of Australia. Accordingly, a clinical psychologist undertakes 8 years of education and training in the assessment, formulation, diagnosis, and psychological treatment of mental health problems to become endorsed by the Psychology Board of Australia (PsyBA) which regulates the registration as a psychologist under the National Registration

Table 1 Foundational and functional research and clinical skills in Clinical Psychology (URL https://www.marquette.edu/psychology/documents/competencies-rubric.pdf)

Foundational competencies	
Reflective practice/self-assessment	Practices within the boundaries of competencies; demonstrates commitment to lifelong learning; engages with scholarship; capable of critical thinking; demonstrates a commitment to the development of the profession
Scientific method	Demonstrates a respect for scientifically derived knowledge; understands research and research methodology; understands biological bases of behavior, cognitive-affective bases of behavior, and life span human development
Relationships	Demonstrates capacity to relate effectively and meaningfully with individuals, groups, and/or communities
Individual/cultural diversity	Awareness and sensitivity in working professionally with diverse individuals, groups, and communities who represent various cultural and personal background and characteristics
Ethical/legal standards	Application of ethical concepts and awareness of legal issues regarding professional activities individuals, groups, and organizations. Advocating for the profession
Interdisciplinary systems	Professional and competent cooperation with colleagues and peers in related disciplines
Functional competencies	
Psychological evaluation	Assessment, diagnosis, and conceptualization of problems and issues of individuals, groups, and/or organizations
Psychological interventions	Interventions designed to alleviate suffering and to promote health and well-being
Consultation	The ability to provide expert guidance or professional assistance in response to a client's needs or goals
Research and evaluation	The generation of research that contributes to the scientific knowledge base and/or evaluates the effectiveness of various professional activities
Supervision	Supervision and training of professionals
(optional) teaching	Demonstrates rudimentary understanding of teaching theories and has gained some relevant experience in teaching

and Accreditation Scheme (2010). A 3-year accredited undergraduate psychology sequence is followed by a 1-year accredited psychology studies for completing an accredited honors degree or postgraduate diploma in psychology, and an additional 1-year internship pathway or postgraduate study. The current standard is to complete the MPsych, MPsych/PhD or DPsych for that area of practice, followed by a registrar program. Entry into the registrar program can only be achieved once the candidate has completed an MPsych degree, or for MPsych/PhD and DPsych students, once they have completed all coursework and placement requirements, and made sufficient progress on their thesis. Participation in a registrar program is required for registered psychologists who wish to qualify for an area of practice endorsement in one of the nine PsyBA-approved areas of practice (clinical neuropsychology, clinical psychology, community psychology, counselling psychology, educational and

developmental psychology, forensic psychology, health psychology, organizational psychology, and sport and exercise psychology). Detailed information about these requirements are set out in the area of practice endorsement registration standard; supporting information is provided in the guidelines for area of practice endorsement (https://www.psychologyboard.gov.au/endorsement.aspx).

In the UK, standards for proficiency for clinical psychologists are set out by the Health and Care Professions Council, and the British Psychological Society accreditation criteria for training in Clinical Psychology. These theoretical frameworks are deemed suitable for Clinical Psychology training as they target studies to describe and understand the complexities of human development. By paying attention to biological, psychological, environmental, social, and cultural factors, curricula aim to chart the diverse pathways that may contribute to the development of psychological difficulties, or conversely optimal functioning. An example for a strong focus on clinical science comes from the Clinical Psychology program of Harvard. The main emphasis of the program is research, especially on severe psychopathology. The program and course work is committed to training clinical psychologists whose research advances scientific knowledge of psychopathology and its treatment, and who are capable of applying evidence-based methods of assessment and clinical intervention. Requirements for admission and the curriculum are available online (https://psychology.fas.harvard.edu/clinical-psychology).

In Canada, Clinical Psychology study programs usually require a minimum of 300 hours of practicum training for the MA degree, and a minimum of 700 additional hours for the PhD degree (1000 hours at the MA and PhD levels combined). An additional 1000 h of practicum prior to the year-long predoctoral internship is recommended. Students are required to engage in research across their enrollment in Clinical Psychology study programs (www.cpa.ca).

To allow for comparison and in recognition of studies in Clinical Psychology across different countries and educational systems, the European Federation of Psychologists' Association (EFPA) has set a European standard of education and professional training in psychology. EuroPsy is not a license in a particular country, but a European qualification that complements national standards. For example, standards for education (at least 5 years) and supervised practice (at least 1 year) and who have signed a statement of ethical conduct can obtain EuroPsy. Any psychologist who meets this standard can obtain a certificate and be included in the Register of European Psychologists. The model is called "EuroPsyT – A framework for education and training of psychologists in Europe" and was established by EFPA in 2001. Note that the holder of the specialist EuroPsy Certificate in Psychotherapy qualifies for the European Certificate in Psychotherapy (which is issued by the European Association for Psychotherapy).

Doctoral and Higher Education in Clinical Psychology

Training for doctoral psychology fellows is often organized in summer schools, doctoral programs, or graduate academies. Most of them follow curricula that aim to

teach in-depth knowledge, training of and special competences in clinical research and practice (Table 2).

For example, the University of London's Doctorate in Clinical Psychology is the largest professional training course for clinical psychologists in the *UK*. The course

Table 2 Competencies in clinical research and practice, illustrated by individual competencies

Communication and interpersonal skills • Communicates effectively • Forms positive relationships with others • Manages complex interpersonal situations • Demonstrates self-awareness as a professional
Individual and cultural diversity • Demonstrates awareness of diversity and its influence • Develops effective relationships with culturally diverse individuals, families, and groups • Applies knowledge of individual and cultural diversity in practice • Pursues professional development about individual and cultural diversity
Professional values, attitudes, and behavior • Displays professional behavior • Engages in self-assessment and self-reflection • Demonstrates accountability • Demonstrates professional identity • Engages in self-care essential for functioning effectively as a psychologist
Ethical and legal standards • Demonstrates awareness of ethical and legal standards applicable to health service psychology practice, training, and research • Recognizes and manages ethical and legal issues in health service psychology practice, training, and research • Adheres to the APA ethical principles and code of conduct
Assessment • Conducts clinical interviews • Appropriately selects and applies evidence-based assessment methods • Collects and integrates data • Summarizes and reports data
Intervention • Formulates case conceptualizations and treatment plans • Implements evidence-based interventions • Monitors the impact of interventions
Consultation and interprofessional/interdisciplinary, and systems-based practice • Provides consultation (e.g., case-based, group, organizational systems) • Engages in interprofessional/interdisciplinary collaboration • Engages in systems-based practice
Supervision • Seeks and uses supervision effectively • Use supervisory feedback to improve performance • Facilitates peer supervision/consultation • Provides individual supervision (if applicable)
Research and scholarship • Displays critical scientific thinking • Uses the scientific literature • Implements scientific methods

provides a first-rate training in clinical psychology, leading to a doctoral qualification accredited by the UK's Health and Care Professions Council (HCPC) and the British Psychological Society (BPS). The Course's overarching aim is to "train independently minded, scientifically-oriented and compassionate clinicians who are committed to anti-discriminatory practice and capable of taking a leadership role in health services at home or abroad" (https://www.ucl.ac.uk/clinical-psychology-doctorate/teachingprogramme/teach_docs/teach_curriculum, URL from April 14, 2021).

Similarly, doctoral trainings in *Canada* are accredited by the Canadian Psychological Association (www.cpa.ca). To become a psychologist in Canada, after obtaining a bachelor's degree in psychology, one must attend graduate school and obtaining a master's degree and/or doctoral degree. At the PhD level, one can obtain a PhD in clinical or experimental psychology, or a PsyD. In a PhD program, students normally take courses, pass comprehensive examinations, conduct original research, and write and defend their dissertation. For those wishing to provide psychological services to clients (i.e., PhD in clinical psychology), they have to spend at least one additional year interning and receiving supervision. Thus, a PhD program in clinical psychology requires research and practitioner expertise.

Given the history of the field, psychological assessment and intervention are pivotal to the field. Already in the early 1950s, the Boulder Conference (Raimy, 1950) identified personality appraisal (assessment) as one of the core areas in Clinical Psychology, including "all the methods available to the clinical or non-clinical psychologist for evaluating the individual and groups of individuals (. . .) in addition to testing methods, (. . .) interviewing, observation techniques and alike" (Raimy, 1950, p. 69). That is, knowledge on the theories and methods of diagnostic assessment and evaluation is required. More recently, the American Psychological Association accreditation recommended Clinical Psychology doctoral programs to train students in psychological assessment (APA, 1995, Guidelines and Principles for Accreditation of Programs in Professional Psychology, Domain B, Section 3 C, p. 6) in order to acquire substantial understanding of and competencies in the definition and diagnoses of mental health issues and mental disorders.

Similarly, clinical psychologists are expert in providing psychotherapy, so higher education programs focus on training in at least one of the four primary theoretical orientations – psychodynamic, humanistic, cognitive-behavioral therapy, and systems or family therapy (Lambert, 2013), sometimes also with special focus on children and adolescents versus adults versus older adults. Examples are mapped in training guidelines for various forms of specialty training within Clinical Psychology (e.g., training for clinical scientists, training for cognitive-behavioral therapists, training for behavioral health practitioners). Each of these guideline rests on the assumption that doctoral students will receive foundational training in core areas (e.g., psychopathology, evidence-based assessment, evidence-based treatment) and will receive clinical supervision in the development of core clinical skills (e.g., case formulation, differential diagnosis, treatment/intervention conceptualization, ethics, sociocultural competence). Training in these core competencies is usually organized in structured programs consisting of multiple experiences and across a 2–3-year

period. The progress of fellows in developing these competencies is assessed by supervisors and advisors informally throughout the year and sometimes also formally through written assessments.

Core Contents and Topics of Clinical Psychology

Following the four lessons listed by Norcross and Karpiak (2002) and in line with Kramer, Bernstein, and Phares (2019), and Wittchen et al. (2021), core contents in Clinical Psychology include:

- Basic features, methods, and strategies of clinical assessment
- The variety of clinical interventions such as psychodynamic and humanistic psychotherapies, behavioral and cognitive-behavioral psychotherapies, system or family therapies, including their theoretical principles, empirical evidence as well as variations across settings, translation into prevention and intervention strategies
- Knowledge on the clinical phenomenology, diagnostic features, epidemiological characteristics of mental disorders according to current diagnostic classificatory systems and across the life span
- Knowledge on research designs, methods, statistical analyses, and procedures to plan, conduct, and evaluate research in the field

The sheer amount of theories makes it impossible to provide a full list of theories and associated research paradigms. Clinical Psychology has strong associations with other fields in psychology to map the development of adaptive and maladaptive behavior across the life span, such as with developmental psychology and attachment theory, as well key cognitive, interpersonal, and social processes that shape development throughout life. Since understanding of the development, onset, and course of mental disorders plays a pivotal role in the field, the vulnerability-stress model (or diathesis-stress-model) provides an atheoretical heuristic approach to explain the onset, manifestation, or trajectory of a disorder, as the result of an interaction between predisposing risk or vulnerability factors (the diathesis), and stress caused by life experiences. The heuristic was introduced by Zubin and Spring in 1977 for Schizophrenia (Zubin & Spring, 1977), but still is compelling today due to its simplicity and applicability across developmental ages, disorder categories, and cultures. The heuristic does not explain why or how vulnerability and stress work together, but it allows to collect evidence so far and to delineate research questions and hypotheses on the development of mental disorders.

Traditionally, knowledge of and skills in basic features, methods, and strategies of clinical assessment are considered as fundamental for clinical psychologists. Cross-reading of recent guidelines and current curricula suggest three general themes in assessment courses (Childs & Eyde, 2002), namely (1) knowledge about psychological assessment techniques including an understanding of

psychometric concepts such as reliability, validity, objectiveness as well as of other issues such as professional ethics (who to test, why, critical evaluation), legal issues, and assessment of diverse populations; (2) training in psychological assessment techniques including supervised practice in selecting assessment methods, administering and scoring, interpreting, and communicating assessment results; (3) training in psychological assessment techniques in course-linked labs as well as hands-on-learning. Assessment courses predominantly teach intelligence and personality assessment, and often to a much lesser degree, behavioral assessment in adults. Also, some courses also cover clinical assessment in children and adolescents.

Given the relevance of assessment courses, Childs and Eyde (2002) listed for components for assessment training programs:

- Coursework in psychometrics, such as validity, reliability, as well as in general measurement principles based on test/item bias, classical test theory, and item response theory.
- Coursework in types of assessment, the assessment of specific populations (i.e., by age or culture), and the use of specific instruments, test development, and norming.
- Course-linked labs where assessment techniques and the use of specific instruments are taught through closely supervised assessment exercises, with students usually assessing volunteers (often friends, family, or fellow students with the stipulation that assessment results remain undisclosed to the volunteer).
- Internships in a clinic or hospital, in which actual clients are assessed by the student, usually under the supervision of a licensed psychologist (psychotherapist).

Preferably, assessment trainings are combined with trainings in communication and interpersonal skills, diagnoses, and intervention for optimal integration of theory, research, and clinical practice. Still though, comprehensive assessment curricula would encompass clinical interviewing and behavioral observation as well as formal psychological testing and coursework in basic psychometric concepts, professional ethics, legal issues, and assessment of diverse populations (Childs & Eyde, 2002).

The second core content field relates to clinical interventions, which is marked by at least four leading models guiding clinical psychology practice (https://www.ucl.ac.uk; Hoyer, Knappe, & Wittchen, 2021). *Behavior therapy* is delineated from theories, evidence-based knowledge and skills for developing behavioral conceptualizations to psychological distress found across the life span. In its first substantial amendment of Cognitive Behavior Therapy, individual cognitions (i.e., beliefs, expectations, attitudes, schemes) are considered in addition to observable antecedents and consequences of human behavior. Based thereupon, *Cognitive Behavior Therapy* is grounded on (diverse) cognitive models to understand individuals' distress and its etiology. In fact, current evidence suggests that mental disorders can be best understood and treated from a cognitive behavioral perspective (such as

anxiety, obsessive compulsive disorder, and post-traumatic stress disorder). More recent amendments to Cognitive Behavioral Therapy include Acceptance Commitment Therapy, Mindfulness-Based Stress Reduction, or Schema Therapy (Hoyer & Knappe, 2021). The development of adaptive and maladaptive behavior (mental disorders) can also be conceptualized from the perspective of *Psychoanalytic Psychotherapy*. According to the origins of Freud's psychoanalytic theory of personality development, personality is formed through conflicts among three fundamental structures of the human mind: the id (unconscious source of primitive sexual, dependency, and aggressive impulses), the superego (subconsciously interjects societal mores, setting standards to live by), and the ego (representing a sense of self, mediating between realities of the moment and psychic needs and conflicts) (Freud, 2020). Since then, numerous psychoanalytic schools evolved been developed, applying the core concepts also to the conceptualization, assessment, and treatment of mental disorders (Frosh, 2012; Lemma, 2015). More recently, *Systemic Therapy* has been delineated form the theoretical developments and clinical applications of systems theory over the past 30 years, shifting the individual-centered focus to a variety of contexts for individual work, family work, and systemic consultation.

During the twentieth century, psychology moved into the realm of the paradigmatic science (Scotti, Jacoby, Cohen, & Hicks Patrick, 2010). Developing a strong proficiency in research design and statistical analysis has become a critical aspect of the psychologist identity in the USA and in many other countries around the world. Psychologists thus need at the very minimum to be familiar with various research designs and statistical techniques, and some psychologists should also be able to effectively teach these techniques and contribute to the development of new statistical designs and techniques (Field, 2017; Scotti et al., 2010). In addition to traditional statistical techniques, such as analysis of variance (ANOVA), more recent graduate and doctoral programs also cover advanced statistical skills such as structural equation modelling, multilevel modelling, hierarchical linear modelling, and other (Aiken, West, & Millsap, 2008). Furthermore, the Committee on Accreditation of the American Psychological Association (APA, 2013) requires all accredited doctoral programs in professional psychology to include courses in research methodology and techniques of data analysis in their curricula. Ord, Ripley, Hook, and Espamer (2016) surveyed 153 APA-accredited doctoral programs in clinical and counselling psychology, and conducted a review of 320 statistics course syllabi. Results indicated relative consistency among courses and programs in the concepts that were covered and the materials that were utilized. Moreover, all programs required at least one course in basic research design and statistics that addressed at least simple statistics analyses such as descriptive statistics, ANOVA, and multiple regression. SPSS was the most commonly used statistical software program, and most courses had statistics labs to teach students the practical use of computer programs. In the past 5 years, statistical software programs that were predominantly used for research activities in Clinical Psychology have been included in the curricula as well, such as STATA, MATLAB, R, and others.

Teaching, Learning, and Assessment in Clinical Psychology

Clinical Psychology is likely a discipline within the field of Psychology and Health Sciences where students are especially motivated to learn the content and skills. Pearlman and McCann (1999) referred to Clinical Psychology as the most popular of the specialized content classes in the undergraduate psychology major, maybe because students expect the course to clarify personal questions about mental health of family and friends and because students desire to learn how to manage the impact of mental disorders in their own lives (Connor-Greene, 2001). At the same time, students taking Clinical Psychology may also believe to have or have had the symptoms of the particular syndrome about which they are learning (i.e., "first-year-medical-student syndrome"). Thus, teachers are especially responsible to (re-) frame the sheer facts and need to be prepared that the action of teaching produces reaction in students beyond learning about theories and skills (i.e., self-reference, see below).

Broadly, teaching Clinical Psychology (and most likely other related disciplines as well) can be based on three pedagogical approaches (Halonen, 2005), namely (1) lecture centered, (2) diagnosis-centered, and (3) outcome-centered. The lecture-centered approach (1) uses clinical stories to help students extract critical concepts from the stories to convey basic course contents. For example, the lecturer illustrates the case of a patient or experiences from treatment. There is a range of prominent patient histories documented, such as the case of Bertha Pappenheim (Anna O) that illustrates the impact of previous traumas and subconscious ideas on the conscious mind, and gave rise to the use of "talking therapy," along with hypnosis and regression, to identify the possible causes of mental disorders (Freud, 2020). The teacher will then outline that Breuer's work with Berta Pappenheim significantly formed the psychoanalytic theories on hysteria and treatment methods. Lecturing can be highly efficient as loads of information is presented in quite a short time. However, students remain passive and thus, also learning is likely to be passive. When it comes to more recent (i.e., current cases), the lecturer runs risk of violating confidentiality and the patient's right of privacy. Thus, cases are strictly required to be anonymized, such as Breuer and Freud did with the story of Bertha Pappenheim who was usually named as Anna O.

Alternatively, the diagnoses-centered approach (2) focuses on diagnostic criteria, as depicted in current diagnostic classificatory systems of the APA (2013) or WHO (1992). Students are being taught to delineate an accurate diagnosis in response to a clinical story. This is an analytic process that requires active learning, rather than absorbing information from a lecture. Some students develop sincere enthusiasm for the diagnostic process (Halonen, 2005), while others find dealing with diagnostic criteria, thresholds, and taxonomy tedious.

As an intermediate approach that includes both lectures and the delineation of diagnoses is reflected by the outcome-centered approach (3), which teaches Clinical Psychology "as a liberal art in a science context rather than as a clinical entertainment or predoctoral training" (Halonen, 2005, p. 44). That is, an outcome-centered approach defines desired student achievement as competencies in clinical research

and practice as illustrated above. Hence, learning of course material or facts is one preferred outcome, especially when it comes to the need for exams. However, important learning outcomes may also include changing the student's attitudes, enhancing thinking skills, and helping students to mature into more ethical or compassionate individuals (Halpern & Desrochers, 2005). Thus, teachers are well advised to use didactic elements that help to create a stimulating learning atmosphere, for example, lectures and seminars, special guests and topics, standardized patients and role plays, in-class activities using experiential learning, between-class assignments and supervision of clinical practice training by experienced therapists, etc.

Lectures. Allow for questions, even in large lectures. Students are then required to keep a minimum of attention, may feel welcomed and respected for their status: as Zimbardo pointed out "there are no right answers to discover but their perceptions and insights to uncover "(Zimbardo, 2005, p. 16).

Seminars are usually formed of smaller groups of students and thus allow discussions of theory and research driven published work, facilitated by an academic member of staff. Seminars focus on competencies rather than fact-based knowledge, aiming to develop and promote the students' ability to critically examine the evidence by paying close attention to the results of published research and examine the validity and reliability of conclusions drawn. Students are sometimes asked to read one or two key articles or chapters that reflect an important area for debate within academic clinical psychology, with a particular emphasis on the interface between theory and practice. These sessions provide a unique environment for students to lead discussions and engage in academic debate in a discursive manner, with the guidance of members of the academic team. Seminars also provide an opportunity to practice formal academic or clinical presentations and to develop their capacity to communicate complex clinical material in a clear and concise manner (https://www.ucl.ac.uk/clinical-psychology-doctorate/teachingprogramme/teach_docs/teach_curriculum).

Invite special guests, so students meet the expert. This tool is especially helpful in case the teacher is less familiar with a special topic or to allow for discourses. In Clinical Psychology, inviting patients to the class can be informative for students (i.e., to experience a given mental health problem from the perspective of the patient), for teachers (i.e., communication and interpersonal skills of the students), as well as the therapist of the patient (i.e., using the situation in class as behavioral observation or even more, given informed consent of the patient, as therapy experience). Also, learning about the realities of professional work in clinical research and practice can be promoted by direct experiences in service learning, featuring guest-speakers, asking students to chronicle their course of their career.

Standardized patients support practice-oriented teaching in clinical psychology and psychotherapy. They help students to test and experience the administration and outcome of prototypical interventions, and students may also experience themselves as counsellor or therapist.

Multiple in-class activities and *between-class assignments* help to engage students with the material. The latter is often based on homework such as reading and discussing literature, presenting research papers or writing essays about a given topic.

Experiential learning. One core didactic element in Clinical Psychology is experiential learning which refers to the process of learning through experience, and which can be more specifically defined as "learning through reflection on doing." Students conduct exercises in order to reflect the patient's role, therapist's behavior, and to observe and learn from others. Notably, students are free to choose not to participate in exercises. Hence, the social context of the classroom, the ambience of the setting, or the place of a particular course in the overall schedule can make a difference. An example is described in Box 1.

Box 1 "What's It Like to Reveal Personal Information About Yourself in Psychotherapy. Why Do Clients Show "Resistance?" (Suler, http://truecenterpublishing.com/tcp/resist.html, URL from 09.03.2021)

The students are instructed to write down on a small piece of paper something important and personal about themselves that they have never told anyone else – a secret wish, fantasy, feeling, belief, or something from their past. If they can't think of anything, they are suggested to write down something they have told maybe only one or two people who are close to them. The teacher then promises sincerely that no one will see what they have written. When the students are finished, they are asked to fold the paper up several times, very tightly. The teacher then walks around the room and asks some students, one at a time, if they will hand the paper. A few do so with little worry, or a few refuse, but most of the students will comply but with some hesitation. For those who do agree, the teacher takes the paper and does one of the following, usually in a humorous way:

- Ask them if you can open it (but refrain from doing so).
- Hold it to your head and pretend you can mind-read it.
- "Carelessly" toss it into the air
- Ask if you can give it to someone else (but don't do so).
- Stick it into your pocket and pretend to forget it's there (always give it back).
- Take one person's paper in your right hand, another in your left, wave your arms back and forth over each other, and pretend that you have confused whose secret is whose

This exercise illustrates putative reactions of patients to diagnostic assessments (i.e., in clinical interviews), to the therapist's approach into the very private feelings, thoughts, or behaviors of the client. For example, students discuss how they would have felt if the paper was read by someone: anxiety, anger, embarrassment, shame,

helplessness – the same feelings that clients struggle with in psychotherapy, and that may account for their "resistance." How would the therapist react to your revealing such information?

Of note, instructions like these have direct, likely also, self-referential importance to students (cf. Snyder, 2005). So teachers (instructors) should be aware of the repercussions of their instructions on how students react and think about themselves.

Supervision is particularly relevant for graduate or postgraduate students when they start clinical work with "real" patients. That is, learning to apply treatment techniques in practice is often challenging, and in order to consolidate theory-practice links, and to enhance practical skills learned on placement, students are required to regularly attend individual or group supervision. Trainees bring clinical material that is discussed in their group, moderated and guided by an experienced clinical psychology supervisor. His/her task is to ensure that all trainees are competent in the treatment techniques by the end of their training and to ensure patient safety. The overarching aim is to support trainees in developing their understanding of treatment theory and their capacity to apply this in clinical practice.

Challenges and Lessons Learned

Curriculum design and implementation is a challenging task and requires addressing several alignment issues, including the alignment of the goals and affordances of (1) the academic discipline with those of the diverse professional fields in which the graduates of this discipline will work, (2) the curriculum with the goals and resources of the local settings, and (3) the curriculum with the goals and capabilities of the target students. Furthermore, the current state of art in an academic domain such as Clinical Psychology is constantly progressing, professional domains are changing depending on societal affordances and/or technical developments, and students' goals and capabilities are diverse and also changing (cf. Narciss, 2019).

In the past 25 years, Clinical Psychology curricula from colleges, universities up to doctoral training programs put emphasis on evidence-based practice in Clinical Psychology (Beck et al., 2016; Maki & Syman, 1997) which may be regarded as a turn from the long-lasting claim for empirical-supported treatment. It may also be regarded as a future trend, emerging from lessons learned in empirical-supported treatment. Here again, the interplay between clinical research and practice serves as an invaluable source of professional vitality and growing fascination (Norcross & Karpiak, 2012). Also, the emerging emphasis on internationalizing curricula in Clinical Psychology by including international dimensions of abnormal behavior enfolds a growth opportunity for teaching future scholars (Halonen, 2005).

Course concepts have also almost consistently included examples of application-oriented courses in Clinical Psychology, providing practical exercises in which students gain initial experiences with psychotherapeutic techniques on personally relevant problems. In case seminars, students apply their acquired skills to treat an actual outpatient case, while translating basic psychological knowledge into

an individualized treatment plan. For example, the Master-seminar "Different approaches to psychotherapy in practice" (Philipps-Universität Marburg, Germany) offers the opportunity to explore six different patients coming from a variety of treatment setting (Wilhelm, Rief, Haberkamp, von Blanckenburg, & Glombiewski, 2020). Nonetheless, new modules for teaching practical skills are needed in order to meet the extensive requirements for a license to practice psychotherapy, for example, as in Germany. The innovative method of acting or simulation patients (standardized patients) seems to be particularly well suited to train and reflect on skills in clinical psychological communication. Experienced therapists' views indicate that very realistic interactions with patients can be simulated with reasonable effort. The students' evaluations reflect high satisfaction with the new teaching method. In addition, the pre-post comparison of the participating students shows an increased therapeutic self-efficacy – especially for the topics which were actually practiced (Alpers, & Steiger-White, 2020).

Clinical Psychology has gone through substantial development in the past decades with enormous increase in knowledge on research methods, designs, and strategies, increase in the provision of empirical supported treatments and health care utilization that have informed standards of proficiency in the field. Clinical Psychology has become a health profession, comparable to other, i.e., medical, professions. The challenge is to assert next to other health caregivers, to identify common grounds on the one hand, and to preserve and promote the expertise specific to Clinical Psychology on the other.

At least, also the Covid-19 pandemic has stimulated teaching and learning in almost every academic field and across occupational areas worldwide. Hence, blended learning and online-based learning have gained massive attention. For the field of Clinical Psychology, a number of challenges arise from social distancing between teachers and students, as well as patients and therapists. Until 2020, Clinical Psychology and in particular learning the clinical practice of administering interventions was predominantly based on face-to-face observational learning and training under supervision. Here, legal regulations (i.e., need for face-to-face contacts to qualify for psychotherapy in some countries), data protection and security, or ethical concerns (i.e., availability of the therapist or therapy strategies in acute crises) have challenged teaching concepts in Clinical Psychology.

Teaching, Learning, and Assessment Resources

Teaching Clinical Psychology (as most likely any other filed) can be considered as a privilege since teachers are trusted to teach their knowledge, skills, and expertise to others. So teaching goes beyond providing knowledge or specific information from one (expert) to another (any student); it can also be seen as a linchpin that decides on whether the student's motivation is appreciated and promoted. At the same time, teaching is a reciprocal process that emphasized the role of the student as an active agent in the learning process (Halpern & Desrochers, 2005). The idea of student-centered learning also requires the teacher to direct the student's learning activities.

That is, teachers present the facts, but at the same time, these facts likely have self-reference for the individual student. As a consequence, students may develop (promote, affirm) new and more sophisticated views about other people and about themselves (Snyder, 2005). This process adds responsibility to those who teach Clinical Psychology, especially when it comes to students presenting with mental health issues. Course contents likely deal with information about how students view themselves and also information about mental health of their own or their friends and families. So teachers need to be capable of the desire to increase self-referential thinking and keeping the balance with regard to protect the student's welfares (Snyder, 2005).

In line with teaching as a reciprocal process, commitment of both the teacher and the students is helpful. Think back over the course of your own education and recall those teachers who really made a difference for you (Snyder, 2005). What do you remember of these teachers, and do you have an idea what has made this learning experience so memorable? From a teacher, we would expect knowledge and expertise of past and ongoing developments in the field, but also commitment to teaching, creativity, humor, and understanding of the student's need. Teachers can contribute to the student's commitment to learning by acknowledging that (some) learning will require cognitive effort, sustained attention, and hard work. At the same time, teachers put a lot of work into tasks such as grading papers, meeting with students, planning demonstrations, and other engaging classroom activities (Halpern & Desrochers, 2005).

Recommendations for Teaching

Teaching is so much more than didactic information exchange; teaching can also serve as an agent of change, not only in Clinical Psychology. So how to stimulate this process? It may be that teachers who never stop being curious, who continually work on their teaching skills to keep it fresh for both the students and themselves, are better able to elicit interest and enthusiasm for the course content than others. However, keeping the balance between entertainment and education is needed to promote learning of facts, competencies, and skills, and to meet the motivation of both students and yourself as the teacher.

When it comes to didactic skills, ask for help from more senior teachers and take advantage of further training in teaching skills, for example, on blended learning and use of digital media to reach students even aside the campus. Though it might be tempting to present as much information as possible, to bridge to other contents or courses – also keep in mind, that the amount of data and details that can be processed, is limited (at least in the very moment of presenting information). So keep it simple and focus on three to four key points (take home messages). Plan, test, and update demonstrations, as a successful demonstration often has a major impact on student's commitment and interest in the field. Also make clear from the beginning what is needed to do in order to succeed (to pass the exam in this course).

Following Zimbardo's Premises on Teaching

Philipp G. Zimbardo, author of a prominent textbook providing a comprehensive introduction into the field of psychology that almost every student comes across in the first courses of psychology, described four premises for teaching. They are based on his extensive teaching experiences in undergraduates and involve making it (1) memorable, (2) right, (3) relevant, and (4) better next time: The more interesting the subject, the greater the memory strength. So teachers, who are able to describe psychological theories and promote students to relate to some personally relevant aspects, will likely promote deeper encoding and the more the content of the course will qualify as memorable. Also, read the primary resources and acknowledge your limits in expertise, rather than present half-truths. Rethink, use students' evaluations and feedback on your course to rework the introduction or how to chunk the big ideas, to integrate better examples, to improve the pacing or overall tempo.

These premises may serve as guiding principles for teaching, though not only in Clinical Psychology.

Further Reading Suggestions for Clinical Psychology Teachers

- (Clinical) psychological associations in your country often accredit curricula for undergraduate, graduate, and postgraduate education aiming to promote the professional development in the field. For example, the Australian Clinical Psychological Association (www.acpa.org) supports the requirements of the Psychology Board of Australia (PsyBA) for Continuing Professional Development (CPD); the British Psychological Society (BPS) set out what is considered necessary for safe and effective clinical practice in the UK, describe what professionals must know, understand and be able to do at the time they apply to join the HCPC Register (April 2021; https://www.bps.org.uk/news-and-policy/hcpc-standards-proficiency). These resources can inform teachers about county-specific requirements and proficiency in Clinical Psychology.
- *www.eaclipt.org* The European Association of Clinical Psychology and Psychological Treatment (EACLIPT) was founded in 2017 with the aims to foster research, education, and dissemination of scientifically evaluated findings on diagnostics and classification of mental disorders, psychological and psychobiological mechanisms of health and disease, psychological treatments, psychotherapy, prevention and rehabilitation, health care issues in mental disorders, and dissemination and implementation of evidence-based psychological treatments. The Journal Clinical Psychology in Europe is the official Journal of the EACLIPT and is available as open access resource. In addition, there is an annual congress of the EABCT reporting latest developments in clinical research and practice.
- *Prominent textbooks* in Clinical Psychology on the national and international level have been edited by Kramer et al. (2019) and Barlow (2014). They likewise provide excellent introductions to the field and it may simply depend on the lecturer's preference which one to choose. For Kramer et al., they provide a

scholarly portrait of the history, content, professional functions, and the future of Clinical Psychology. The textbook of Comer and Comer (2018) is widely adopted on Clinical Psychology courses and collects, explains, and illustrates theoretical approaches, starting from assessment procedures and diagnostic classification, mental disorders across the life span, their biological underpinnings up to treatment planning and evaluation. With respect to Clinical Psychology in non-Western countries, the casebooks by Lange and Davidson (2015) and Rich, Jafaar, and Barron (2020) provide comprehensive case formulations on the diagnosis, classification, and treatment of mental disorders in Asia, with special focus on the critical sociocultural, clinical, and health issues and perspectives in psychology in South East Asia.

- *Courses on research designs and statistical analyses* are usually required as mandatory, though some students find it difficult to engage in probability estimates, variance, sample size calculations, etc. A standard reference in the field was provided by Pedhazur and Pedhazur Schmelkin (2013); for a lively and enthusiastic application, check out the bestselling textbook "Discovering Statistics using IBM SPSS Statistics: and sex and drugs and rock n' roll" by Andy Field which is accompanied by social media activities and webpages such as https://www.discoveringstatistics.com
- The sheer number of textbooks on representatives of the four primary theoretical orientations as well as the more recent developments in the field of psychotherapy makes it almost impossible to pick a selection. Read as much as you can. When it comes to *understanding underlying therapeutic agents, active ingredients, and mechanisms of behavior change*, you may wish to follow the classic by Strupp (1993) and his research at Vanderbilt University. Initially focused on the empirical study of therapeutic techniques by the beginning of the 1950s, the work soon drew attention to therapists' attitudes toward the patient and the manner in which these attitudes were intertwined with therapists' clinical judgments and their communications to the patient.
- John Suler provides a plenty of *ideas and resources for teaching courses* in Clinical Psychology, especially at the undergraduate level, with strong preference for *experiential and hands-on learning.* Many of his ideas are presented on the webpage http://truecenterpublishing.com/tcp/tcp.html, but for more detailed information, refer to his books, manuals, and essays. Of note, Suler just recently published the Instructor Manual for Cyberpsychology (Suler, 2016) on how people think, feel, and behave in online environments. The manual includes a sample syllabus, student exercises, and online resources, and may be inspiring for teachers with online-teaching requirements.
- The Society for the Teaching of Psychology (STP, www.teachpsych.org) provides peer-reviewed teaching and advising materials for Clinical Psychology and other fields in psychology, for use to all teachers of psychology from school teachers, to undergraduate and graduate teaching. The resources are available as open access documents and can pertain to any aspect of teaching, spanning from abnormal/clinical/counselling psychology to statistics and research methods.

- The European Society of Psychology Learning and Teaching (www.esplat.org) aims to advance the learning and teaching of scientific psychology at all educational levels on the basis of scientific evidence. The associated journal *Psychology Learning and Teaching (PLAT)* publishes research articles, reviews, target articles and corresponding comments, as well as reports on good and innovative learning, teaching, and assessment practices in Clinical Psychology and other fields of psychology.
- Similarly, though not limited to Clinical Psychology, *online platforms* provide open access learning resources for students and teachers, for example, www.coursera.org and www.psychologylecturer.com, with the latter particularly focusing on digital learning scenarios using video tutorials and demonstrations, podcasts, chat bots, etc.
- Zimbardo's plea for "*Optimizing the power and magic of teaching,*" i.e., reflecting his four premises on teaching, is summarized in a peer-review article, and though published in 2005, his arguments are timeless.

References

Aiken, L. S., West, S. G., & Millsap, R. E. (2008). Doctoral training in statistics, measurement, and methodology in psychology: Replication and extension of Aiken, West, Sechrest, and Reno's (1990) survey of PhD programs in North America. *American Psychologist, 63*, 32–50.

Alpers, G. W., & Steiger-White, F. (2020). Standardized patients in university-level psychology programs: Introduction of an innovative method to strengthen practice-oriented teaching in clinical psychology and psychotherapy. *Verhaltenstherapie, 30*(2), 104–116.

American Psychiatric Association (APA). (2013). *Diagnostic and statistical manual of mental disorders, fifth edition (DSM-5)*. Arlington: American Psychiatric Association.

American Psychological Association. (1995). *Guidelines and principles for accreditation of programs in professional psychology.* Washington, DC: Author.

American Psychological Association. (1996). *About clinical psychology. American Psychological Association, Division 12 Society of Clinical Psychology,* URL /http:/www.apa.org/divisions/div12/aboutcp.html

American Psychological Association. (2013). *Guidelines and principles for accreditation of programs in professional psychology.* Washington, DC: American Psychological Association.

Barlow, D. (2014). Oxford handbook of clinical psychology. OUP USA; Updated edition,

Beck, G., Castonguay, L. G., Chronis-Tuscano, A., Klonsky, E. D., McGinn, L. K. & Youngstrom, E. A. (2016). *Evidence based psychology: Models for the graduate curricula in clinical psychology.* Prepared by the Division 12 Task Force on teaching evidence based practice in Clinical Psychology. URL https://div12.org/teaching-evidence-based-practice-in-clinical-psychology-new-material/

Brain, C. (2002). *Advanced psychology: Applications, issues and perspectives*. Cheltenham: Nelson Thornes.

Childs, R. A., & Eyde, L. D. (2002). Assessment training in clinical psychology doctoral programs: What should we teach? What do we teach? *Journal of Personality Assessment, 78*(1), 130–144.

Comer, R. J., & Comer, J. S. (2018). *Abnormal psychology* (10th ed.). Worth.

Connor-Greene, P. A. (2001). Family, friends, and self: The real-life context of an abnormal psychology class. *Teaching of Psychology, 28*, 210–232.

Field, A. (2017). *Discovering statistics using SPSS* (5th ed.). Sage Publications.

Freud, S. (2020). *Studien ueber Hysterie: Fruehe Arbeiten zur Neurosenlehre (1892–1899)*. Inktank Publishing.

Frosh, S. (2012). *A brief introduction to psychoanalytic theory*. Red Globe Press.
Halonen, J. S. (2005). Abnormal psycholoy as liberating art and science. *Journal of Social and Clinical Psychology, 24*(1), 41–50.
Halpern, D. F., & Desrochers, S. (2005). Social psychology in the classroom. Applying what we teach as we teach it. *Journal of Social and Clinical Psychology, 24*(1), 51–61.
Holmes, J. D., & Beins, B. C. (2009). Psychology is a science: At least some students think so. *Teaching of Psychology, 36*, 5–11. https://doi.org/10.1080/00986280802529350.
Hoyer, J., & Knappe, S. (2021). Verhaltenstherapie [behavior therapy]. In J. Hoyer & S. Knappe (Eds.), *Klinische Psychologie und Psychotherapie* (3rd ed.). Heidelberg: Springer.
Hoyer, J., Knappe, S., & Wittchen, H.-U. (2021). Klinisch-Psychologische und Psychotherapeutische Verfahren: Ein Überblick. [clinical-psychological and psychtherapeutic schools: An overview]. In J. Hoyer & S. Knappe (Eds.), *Klinische Psychologie und Psychotherapie* (3rd ed.). Heidelberg: Springer.
Kramer, G. P., Bernstein, D. A., & Phares, V. (Eds.). (2019). *Introduction to clinical psychology* (8th ed.). Cambridge University Press.
Lambert, M. J. (Eds.). (2013). Bergin & Garfield (2013). *Bergin and Garfield's handbook of psychotherapy and behavior change* (6th ed.). Wiley.
Lange, G., & Davidson, J. (Eds.). (2015). *Clinical psychology in Singapore: An Asian casebook*. NUS Press.
Lemma, A. (2015). *Introduction to the practice of psychoanalytic psychotherapy* (2nd ed.) Wiley-Blackwell.
Maki, R. H., & Syman, E. M. (1997). Teaching of controversial and empirically validated treatments in APA-accredited clinical and counseling psychology programs. *Psychotherapy, 34*(1), 44–57.
Narciss, S. (2019). Curriculum design for (non-)psychology programs – A reflection on general and specific issues, and approaches on how to address them: Comment on Dutke et al., 2019. *Psychology Learning and Teaching, 18*(2), 144–147.
Nielsen, L., Riddle, M., King, J. W., & NIH Science of Behavior Change Implementation Team. (2018). The NIH science of behavior change program: Transforming the science through a focus on mechanisms of change. *Behavior Research and Therapy, 101*, 3–11.
Norcross, J. C., & Karpiak, C. P. (2012). Teaching clinical psychology: Four seminal lessons that all can master. *Teaching of Psychology, 39*(4), 301–307.
Ord, A. S., Ripley, J. S., Hook, J., & Espamer, T. (2016). Teaching statistics in apa-accredited doctoral programs in clinical and counseling psychology: A syllabi review. *Teaching of Psychology, 43*(2), 221–226.
Pearlman, B., & McCann, L. I. (1999). The most frequently listed courses in the undergraduate psychology curriculum. *Teaching of Psychology, 26*, 177–182.
Pedhazur, E. J., & Pedhazur Schmelkin, L. (2013). *Measurement, design, and analysis: An integrated approach*. Psychology Press.
Plante, T. (2005). *Contemporary clinical psychology*. New York: Wiley.
Raimy, V. C. (Ed.). (1950). *Training in clinical psychology*. Prentice Hall: Englewood Cliffs.
Rich, G. J., Jafaar, J. L., & Barron, D. (Eds.). (2020). *Psychology in Southeast Asia. Sociocultural, clinical, and health perspectives*. New York: Routledge.
Scotti, J. R., Jacoby, V. M., Cohen, S., & Hicks Patrick, J. (2010). Design and analysis. In J. C. Thomas & M. Hersen (Eds.), *Handbook of clinical psychology competencies* (pp. 367–396). New York: Springer.
Snyder, C. R. (2005). Dispelling the fable of those who can, do, and those who can't, teach. *Journal of Social and Clinical Psychology, 24*(1), 1–2.
Strupp, H. H. (1993). The Vanderbilt psychotherapy studies: Synopsis. *Journal of Consulting and Clinical Psychology, 61*(3), 431–433.
Suler, J. (2016). *Psychology of the digital age: Humans become electric*. New York: Cambridge University Press.

Wilhelm, M., Rief, W., Haberkamp, A., von Blanckenburg, P., & Glombiewski, J. A. (2020). Master's graduates as state-licensed psychotherapists – Both a challenge and an opportunity: Practical university teaching concepts in clinical psychology and psychotherapy. *Verhaltenstherapie, 30*(2), 117–227.

Wittchen, H.-U., Knappe, S., & Hoyer, J. (2021). Was Ist Klinische Psychologie? Definitionen, Konzepte und Modelle [What is clinical psychology? Definitions, concepts and models]. In J. Hoyer & S. Knappe (Eds.), *Klinische Psychologie und Psychotherapie* [Clinical psychology and psychotherapy] (3. Vollst. überarb. Aufl). Heidelberg: Springer.

World Health Organization (WHO). (1992). *The ICD-10 classification of mental and behavioural disorders: Clinical descriptions and diagnostic guidelines*. Geneva: World Health Organization.

Zimbardo, P. G. (2005). Optimizing the power and magic of teaching. *Journal of Social and Clinical Psychology, 24*(1), 11–21.

Zubin, J., & Spring, B. (1977). Vulnerability: A new view of schizophrenia. *Journal of Abnormal Psychology, 86*(2), 103–126.

Mapping Normality: Teaching Abnormal Psychology

3

Brian L. Burke and Megan C. Wrona

Contents

Abstract

This chapter provides a framework for developing an undergraduate course in abnormal psychology. Authors make recommendations about how to structure the course and outline necessary competencies, including the M.A.P.S. framework for understanding the limits of diagnostic classification systems. By identifying challenges associated with defining abnormality, problems with a strict medical model for understanding mental illness, not understanding the etiology of symptoms, pigeonholing individuals, and only paying attention to superficial

B. L. Burke (✉)
Psychology, Fort Lewis College, Durango, CO, USA
e-mail: burke_b@fortlewis.edu

M. C. Wrona
Fort Lewis College, Durango, CO, USA
e-mail: mcwrona@fortlewis.edu

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symptoms, the authors suggest ways to ensure that students view the classification of mental disorders through a critical lens and take a wider view of diagnosis. Concrete tools and sample activities are included to help instructors expand their teaching repertoire for abnormal psychology.

Keywords

DSM · ICD · Diagnosis · Abnormal · Mental illness · Symptoms · Active learning · Disorders · Etiology · Medicine · Learning objectives · Case studies

Introduction

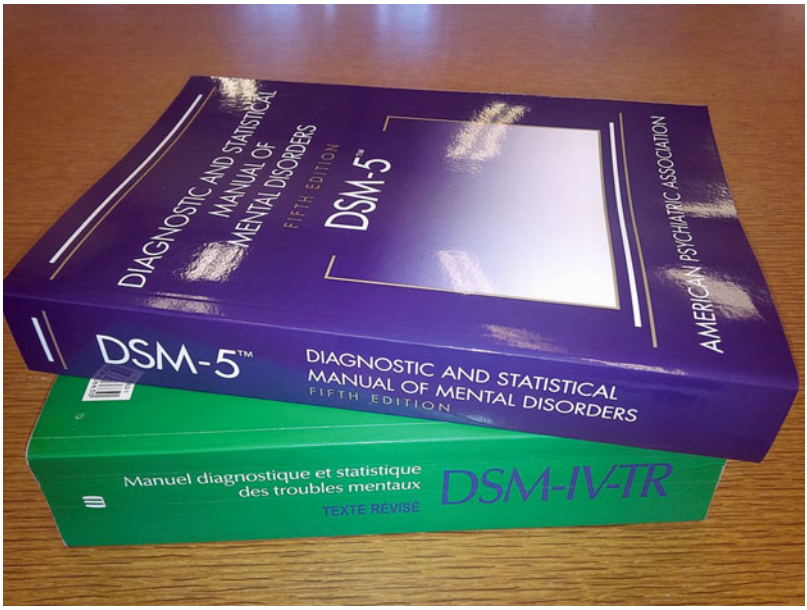
Teaching a course in abnormal psychology is a rare opportunity and a delightful adventure. Of all the courses in psychology and beyond, students are typically most interested in learning about abnormal psychology. In fact, we have removed the prerequisite courses from our abnormal psychology class where we teach so that students from a wide variety of majors can access what we consider the core "export" of psychology – understanding psychological disorders and how to work with people who suffer from them. Accordingly, the content in an abnormal psychology course is often recommended for students in a range of healthcare professions, including physical therapy and medicine, due to its importance for dealing with people. Furthermore, an abnormal psychology class presents unique opportunities to reduce bias surrounding mental illness. Whereas contact with people diagnosed with disorders is the best stigma-reduction technique, education is also promising and can be accomplished as part of course content coverage (Strassle 2018). Finally, one of the privileges of teaching abnormal psychology is also its greatest risk or burden, which is that the content often prompts students in the class to share about their own or family members' battles with the very mental disorders you are discussing. If handled skillfully, this can be an opportunity for students to access resources on campus or in the community that could help them or their family members in their recovery.

Foundations of an Abnormal Psychology Course

In terms of content, the central material of a typical abnormal psychology course is centered around a list of diagnosable mental disorders. For those who use a textbook (e.g., Burke et al. 2016), it is almost always built around the *Diagnostic and Statistical Manual of Mental Disorders*, currently DSM-5 (APA 2013), or its counterpart, the *International Statistical Classification of Diseases and Related Health Problems* (ICD-11, World Health Organization 2019). Often, the stage is set with a couple of introductory lectures to provide historical context, research methods, and biopsychosocial models used to understand mental disorders. Then, the DSM or

ICD classification system is explained. The remainder of the course constitutes an investigation of each of 15–20 major categories of mental disorders ranging from depression and anxiety to schizophrenia, autism, and Alzheimer's disease. For each disorder, content chiefly coalesces around three aspects: (a) diagnosis, the symptoms that comprise the diagnostic criteria of DSM/ICD and the way these disorders are identified; (b) cause, what research has shown us thus far about biological, psychological, and social factors that create or maintain the disorder; and (c) treatment, which biological (medication) and psychosocial (therapy) approaches have been effective in reducing symptoms of the disorder and promoting recovery.

Despite its ubiquity, the DSM and ICD classification systems have been criticized for lack of cultural sensitivity and for taking a disease-oriented categorical (e.g., depressed vs. non-depressed) rather than continuous (i.e., how depressed is the person) approach to describing psychological disorders. Nevertheless, virtually every textbook of abnormal psychology is organized around the DSM/ICD, and all hospitals or mental health settings to our knowledge are oriented toward its usage (DSM throughout North America and DSM or ICD internationally depending on the setting). Thus, as we will elucidate further below, we recommend highlighting the limitations of the DSM/ICD system (Frances 2013) along with its benefits at the very onset of your course. As Joel Paris (2013) puts it, the goal is for students to learn the classification system but not to blindly believe it.



The Diagnostic and Statistical Manual of Mental Disorders, one of two books (along with the ICD) used worldwide for the classification of mental disorders. (Public domain image by F.RdeC. Available at https://commons.wikimedia.org/wiki/File:DSM-5_%26_DSM-IV-TR.jpg)

Setting the Scene

Even though students often want to jump right into a discussion of the specifics of mental disorders (the "sexy" parts of the course), we believe it is essential – and well worth the investment – to spend some time setting the stage before you drill down deeper. We recommend taking time to focus on three broad strands of topical material in the first few days of class: defining abnormality, understanding the language of the DSM/ICD, and introducing the theoretical models of etiology/cause.

Defining abnormality. First, it is valuable to discuss the definition of abnormal psychology. Many students (and instructors!) may be uncomfortable with the title of "abnormal psychology" as this title itself implies the true existence of normal and abnormal behavior. Societally, abnormal tends to conjure negative feelings and associations and reduces the nuance of behavior into categorical terms. Our understanding of abnormal behavior has changed over the years, as evidenced by the revisions to the DSM and ICD over time. One prominent example is the history of homosexuality as a diagnosis in early versions of the DSM. The diagnosis of homosexuality was removed in 1973, largely due to research indicating that homosexuality was not pathological as well as mounting cultural and societal pressure for the APA to reconsider its stance on homosexuality (Drescher 2015). Meanwhile, the World Health Organization (WHO) only removed homosexuality from its ICD classification with the publication of ICD-10 in 1992 (Burton 2015).

The question of what constitutes a mental disorder and the corollary issue of what is and is not "abnormal" are foundational elements of courses in abnormal psychology and provide rich opportunities for critical thinking. The vast majority of abnormal psychology textbooks address the definition of abnormality as defined through a psychological disorder within their first pages (see, e.g., Comer 2011; Burke et al. 2016). This definition often sparks rich classroom discussion regarding the difficulty of identifying and naming psychological dysfunction, including the usage of the term disorder itself (Rounsaville et al. 2002). What is abnormal for one person may not be for another, and these symptoms in the DSM/ICD are generally defined from one cultural context. Psychiatrist Thomas Szasz (1996) argued that our culture has pathologized behavior to the extreme and that "abnormal" behavior is not necessarily the problem of an individual but rather society's response to the individual. For example, Szasz believed that attention-deficit hyperactivity disorder is not a diagnosis per se but rather the result of age-inappropriate standards placed on children (e.g., sitting in a kindergarten classroom with worksheets and minimal play time).

In efforts to more clearly acknowledge that "abnormal" occurs across a spectrum, the DSM-5 introduced an updated definition of a mental disorder that builds on the modern notion of a harmful/distressing dysfunction. The new definition retains the ideas of distress/disability, cultural context, and individual dysfunction found in DSM-IV (APA 1994), but adds the concepts of emotion regulation and developmental processes:

> A mental disorder is a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning. Mental disorders are usually associated with significant distress or disability in social, occupational, or other important activities. An expectable or culturally approved response to a common stressor or loss, such as the death of a loved one, is not a mental disorder. Socially deviant behavior (e.g., political, religious, or sexual) and conflicts that are primarily between the individual and society are not mental disorders unless the deviance or conflict results from a dysfunction in the individual, as described above. (APA 2013, p. 20)

Note that ICD-11 has a very similar definition:

> Mental, behavioural and neurodevelopmental disorders are syndromes characterized by clinically significant disturbance in an individual's cognition, emotional regulation, or behaviour that reflects a dysfunction in the psychological, biological, or developmental processes that underlie mental and behavioural functioning. These disturbances are usually associated with distress or impairment in personal, family, social, educational, occupational, or other important areas of functioning. (https://icd.who.int/browse11/lm/en#/http%3a%2f%2fid.who.int%2ficd%2fentity%2f334423054)

By including "emotion regulation" in its revised definition, DSM-5 and ICD-11 affirm that mental health does not arise so much from reducing certain emotions but rather from adaptively managing the range of human "positive" and "negative" emotions. This reflects researchers' rapidly growing understanding of the deep primary roles played by human affective systems (Davidson et al. 2000; Sander 2013). Further, the inclusion of "developmental processes" as a potential area of dysfunction emphasizes the move toward a lifespan developmental approach to classification (Klott 2012).

Understanding the language of the DSM/ICD and disorders. The second major goal before delving into the specifics of diagnoses is to establish a baseline understanding of the language of the DSM/ICD and how we talk about disorders. The language of these classification manuals is sometimes complex and obtuse, so translating it into simpler language helps to make the information more palatable. For instance, one textbook (Burke et al. 2016) has a feature called *DSM-5 in Simple Language*, which describes the diagnostic criteria for depression as follows.

The person shows at least five of the following nine symptoms most days for two or more weeks:

1. Sad mood
2. Lack of interest or pleasure in activities

Physical changes, like:

3. Low energy
4. Sleeping more or less than usual
5. Eating more or less than usual
6. Moving faster or slower than usual

Changes in thinking, like:

7. Thinking negative thoughts about himself or herself
8. Trouble making decisions
9. Thoughts of suicide

In this way, complicated terms like hypermotor agitation or retardation (used in both the DSM-5 and the ICD-11) are decoded so that the student can comprehend more clearly what each symptom means and how to spot it. Additionally, it is helpful to introduce terms that students may be unfamiliar with, such as "comorbidity" and "differential diagnosis."

Finally, in an effort to destigmatize mental disorders and increase compassion and empathy for those who experience them, expectations should be set at the beginning of the semester about appropriate language to use. For example, helping students understand that casually using psychological terms (e.g., "I can't stop cleaning my dorm room; I am so OCD") can minimize the very real distress of people who suffer from such disorders. Similarly, talking with students about the negative implications of labeling a person solely as disorder (e.g., "She's a Borderline") and providing them tools for alternative language (e.g., "she is a person with borderline personality disorder") serves to humanize people with mental illness. Opening this discussion to the class can help them set ground rules for students' comfort and set the expectation of mutual respect.

Introduction of theoretical models for etiology. The third and final introductory topic that we recommend for a successful course in abnormal psychology is to define and unpack current models and explanatory lenses by which to optimally understand psychological disorders. For us, we begin with the biopsychosocial perspective because this model considers contributing factors in the development of mental health disorders in terms of three vital categories (biological, psychological, and social). Students may enter the class with a bias toward one of these categories of causes, but the presentation of how these three contributors interact helps deepen student understanding of disorders and the need for varied intervention options. Biological components of mental disorders encompass the medical/disease model, genetics, and other physiological contributions to the disorder (e.g., brain injury) and often utilize psychotropic medication as a primary arm of treatment. Psychological aspects that contribute to the development of a disorder include motivations, cognitions, and a person's (potentially misguided) behavioral attempts to solve their problems, with important cross-links to stand-alone courses in personality psychology. Treatments center around psychotherapy, ranging from psychodynamic approaches to cognitive-behavioral therapy. Social factors acknowledge the important layers of media, culture, and family history and add group treatments and social advocacy as treatment interventions. One effective way to teach the biopsychosocial model is to take any recent human-caused event from the news or a character from a movie (e.g., Eeyore from Winnie the Pooh) and ask the class to generate possible causal explanations for the event or for the character's personality. The instructor can jot down those answers in three distinct categories of causes:

biological, psychological, and social/cultural. The point can then be emphasized that anything involving humans (or even Eeyores) – including a person's mental disorder – can be optimally explained by considering and exploring the interactions among these three categories.

Original Winnie-the-Pooh stuffed toys. Clockwise from bottom left: Tigger, Kanga, Edward Bear (a.k.a Winnie-the-Pooh), Eeyore, and Piglet. (Public domain image by Spictacular. Available at https://commons.wikimedia.org/wiki/File:The_original_Winnie_the_Pooh_toys.jpg)

General Competencies

By the end of any undergraduate course in abnormal psychology, the authors believe that several key competencies should be achieved by the students. This class affords an opportunity for students to learn basic information about mental illness that can be applied in their future lives. For example, it is not expected (or appropriate) for a student to leave this course with the ability to clinically diagnose depression. However, if students can recognize common signs of depression, they may be able to help a friend or family member seek professional help. Similarly, a student who enters a medical or healthcare-related profession will hopefully be able to recognize sudden changes in behavior in a patient that might suggest the need for an outside referral.

To that end, one of the core competencies for this course is to help students to understand the prevalence of mental illness and its basic signs and symptoms.

Students are often surprised when presented with prevalence data. By highlighting this and inviting students to talk openly about mental illness in the course, students will ideally leave with a reduced tendency to see a stigma related to mental health problems and an enhanced ability to challenge stereotypes they may encounter. For example, one of our students who was a business major identified that the most impactful part of the course for him was learning about suicidality and the associated pain a person is feeling. He described that he used to view suicide as a selfish act (a common misperception!) but he now understood the inaccuracy of that belief. He further explained that his approach to talking about suicide with others would be very different in the future.

Another core competency of an abnormal psychology class is to help students understand the development of mental health problems. As described previously, these problems exist in a social and cultural context, and this should not be neglected. By helping students understand the biopsychosocial model and Urie Bronfenbrenner's ecological perspective (1979), students are able to better grasp the interconnected factors that contribute to mental illness. For example, if an American Indian or other indigenous college student is seeking treatment for depression, Bronfenbrenner's ecological perspective reminds clinicians that the student's roommate (microsystem), family (mesosystem), recent loss of a parent's job (exosystem), and cultural upbringing (macrosystem) all interact with the student's presentation and treatment. Additionally, the final layer of Bronfenbrenner's model, the chronosystem, acknowledges the historical trauma of indigenous peoples in the United States and elsewhere (see Hartmann et al. 2019) and how this may also impact the individual's symptoms.

Competencies Related to the Limitations of the DSM/ICD: M.A.P.S. of the Territory

In addition to the overarching competencies described above, abnormal psychology courses should explore the limitations of diagnosis and the DSM/ICD manuals. Whereas we do not want to discredit these classification systems completely or minimize their real benefits, it is important for students to understand their limitations and the ever-evolving nature of these manuals. We believe that students should be able to grasp four foundational principles that highlight shortcomings of the DSM/ICD system. These principles are illustrated by the acronym M.A.P.S. – medical myths, attempted answers, prejudicial pigeonholing, and superficial syndromes.

M = *Medical myths*. Despite the urgings of powerful drug companies and the potential increases in diagnosis of mental disorders in DSM-5 (Frances 2012) and ICD-11 (Reed et al. 2019), the medical model alone cannot explain mental illness, and pills are not always (or even often) the optimal first-line treatment for most psychological disorders (Hofmann et al. 2012), with the exception of bipolar disorders (Smith et al. 2007) and schizophrenia (Miyamoto et al. 2012). Furthermore, the biological/medical model is only one lens through which we view

disorders, and the biological/genetic underpinnings have not yet been firmly established for any of the mental disorders in DSM/ICD (Paris 2013). It is tempting to take the simplest route possible to explaining mental disorders, for instance, to view depression as resulting merely from low serotonin levels in the brain. But understanding mental disorders as diseases stemming from a single cause is over-simplified and sometimes just plain wrong (this is where an understanding of the biopsychosocial model and the ecological perspective are so critical!).

Relatedly, it has been widely acknowledged that the categorical nature of the DSM/ICD, which is grounded in a medical model of symptomology, is problematic (Kotov et al. 2017). Whereas criteria often must be written with a requisite number of symptoms (e.g., five of nine symptoms of depression, two symptoms of substance use disorders), these numbers are often arbitrarily assigned and may not reflect distress of an individual. For example, if clients only exhibit four symptoms of depression, they may not be diagnosed with depression even though they may be just as impacted as those who exhibit six symptoms of depression. Many experts suggest the need for a more dimensional approach to the DSM/ICD in order to describe the range of symptoms more accurately (Kotov et al. 2017). In accordance with this view, more dimensional approaches have been incorporated into the ICD-11 classification, particularly for personality disorders and primary psychotic disorders (Reed et al. 2019). Students in an abnormal psychology course would benefit from understanding this ongoing categorical/dimensional debate with regard to diagnostic classification systems.

A = *Attempted answers*. We view mental disorders not as diseases but as a collection of potentially interrelated symptoms – subjective observations (by people themselves or those around them) indicating that something might be wrong. However, these symptoms often arise as the person's attempted solution to a problem. For instance, delusions may create meaning for people who are depressed; compulsive behaviors (e.g., handwashing) may temporarily reduce the anxiety caused by obsessional thoughts (e.g., worries about getting sick); children with autism may seek sameness/rituals to manage their social discomfort; and children with ADHD may overstimulate themselves to "wake their brains up." It is vital to understand *why* specific symptoms might emerge in specific situations and what function they might serve for the person who may have generated them. By strictly looking at DSM/ICD criteria and symptoms, students may miss the underlying reason for the exhibited behaviors, which may be a key to successful treatment. Yet another good example of "attempted answers" can be seen with the rising rates of anxiety and depression amidst the 2020 global pandemic as people try to cope with the unthinkable and unexpected.

P = *Prejudicial pigeonholes*. "Pigeonholing" an individual by placing the person into a diagnostic category or attaching a DSM or ICD label can sometimes be problematic. Even in modern times, the labels included in each version of the DSM/ICD and first-line treatments are partly reflections of historical trends and sociocultural attitudes. For example, as noted previously, homosexuality was included in past versions of the DSM/ICD, and several scholars still argue that the remaining sexual disorders in DSM/ICD, now called paraphilic disorders, should be

removed as well (Silverstein 2009). Pigeonholing someone, or unfairly judging the person as belonging to a particular group, can have dire consequences. For example, DSM diagnostic criteria codify "masculine-based assumptions about what behaviors are healthy and what behaviors are crazy" (Kaplan 1983), and this shows up especially in diagnosis of personality disorders.

In one study (Ford and Widiger 1989), psychologists read a case history that illustrated either antisocial personality disorder (APD; diagnosed more often in males) or histrionic personality disorder (HPD; diagnosed more often in females). Psychologists were either told that their case involved a female or male client. For the antisocial case, the psychologists failed significantly more often to diagnose APD for the female (15%) than for the male (42%). The reverse was true for the HPD case; the psychologists significantly underdiagnosed this disorder in males (44%) compared with females (76%). The diagnosis of personality disorders in DSM-5 may result in prejudicial gender-based pigeonholing using data that go beyond the relevant symptoms of each client. It is noteworthy, however, that ICD-11 completely overhauls the section on personality disorders, which is where it most clearly departs from the DSM-5 system (Reed et al. 2019). The clinician now first determines whether the individual's clinical presentation meets the ICD-11's general diagnostic requirements for personality disorder, which is then labeled as mild, moderate, or severe, and measured in terms of five trait domains with an optional qualifier termed "borderline pattern" (Reed et al. 2019). It is not yet clear whether this new classification scheme for personality disorders represents a clear step forward (Watts 2019).

Furthermore, the DSM and ICD were initially conceptualized and written from the perspective of a medical model in a Western culture. Whereas this approach offers a wealth of information, it may be limited in its ability to accurately understand conditions and/or symptoms over a range of cultures and social contexts. For example, an individual may present with symptoms that are consistent with psychosis but are actually more closely related to spiritual experiences within a culture where they might not be considered problematic. In another instance, a therapist working with an individual who recently experienced an event in which they were racially discriminated against may need to consider that the client's feelings of depression may be clearly warranted and not pathological per se. If the clinician only focuses the individual symptoms rather than the cultural and environmental situations, treatment is likely to be misguided and less effective. Accordingly, both classification systems are improving in this regard with each iteration. Culture-related information was systematically incorporated based on a review of the literature on cultural influences on psychopathology and its expression for each ICD-11 diagnostic grouping (Reed et al. 2019), and the DSM-5 has a section that outlines how to take culturally relevant information into account when conducting a diagnostic assessment.

S = *Superficial symptoms*. The last several versions of the DSM (III, IV, and 5) and the ICD (10, 11) have had high interrater reliability in diagnoses because the diagnostic criteria are chiefly based on superficial signs and symptoms. In other words, diagnosis is made using features that clinicians or clients can easily observe, such as depressed mood, overt restlessness, or hypervigilance, rather than by any deeper understanding of cause. Whereas we diagnose medical diseases like diabetes

based on blood sugar data and biopsies, research does not currently enable us to accurately diagnose depression based on any causal elements – i.e., low serotonin or genes or brainwave activities may be related to depression but are not reliable markers for its diagnosis. In our view, we are therefore left merely with what we can see or what the person tells us without any medical tests. We have used humorous photos in which cactus plants are diagnosed with mental disorders to illustrate the key caveat that both DSM and ICD systems are based on observable syndromes rather than diseases per se (Paris 2013). In your abnormal psychology class, we urge you to explore abnormality behind the cactus (and people!) to get at what causes these disorders and how to treat them, and not just how to spot them based on surface characteristics.

The goal of any good abnormal psychology course should be to get beyond the superficial view of signs and symptoms, such as this photo of a cactus diagnosed with dissociative identity disorder due to its apparent splitting into two distinct "alters" or alternate identities. (Source: Brian L. Burke, Atacama Region, Chile)

To sum up, M.A.P.S. outlines four foundational principles essential to any serious study of abnormal psychology and suggests that the diagnosis of mental disorders is frequently based on oversimplified medical assumptions and surface characteristics of human beings, as well as influenced by sociopolitical climate and stereotypes, rather than on a profound and real understanding of mechanism and cause. As Paris puts it (2013, pp. 183–184):

> Thirty-odd years after DSM-III, we are still in the dark about the nature of most disorders. . .Advances in neuroscience have not succeeded in explaining ANY mental disorder. Genetics has raised more questions than it can answer. Neurochemistry turns out to be much more complex than most people believed. And the beautiful pictures of neuroimaging will be seen by future generations as, at best, suggestive and, at worst, primitive. Clinical observation and consensus from experts, rather than hard facts, are still the guiding forces behind the manual.

Additional Learning Objectives

In addition to the competencies delineated above, an abnormal psychology course may also have the following superordinate learning objectives: First, that students will learn about different potential careers related to identifying and treated mental illness, ranging from counseling, social work, and psychology to nursing and psychiatry. Second, whereas cognitive-behavioral therapy (CBT) is not the only treatment that is effective for a wide variety of mental disorders, it has the strongest evidence base for its usage and is the most customizable (David et al. 2018; Hofmann et al. 2012). Because of this, students should practice how to design CBT that specifically fits what research has uncovered about a particular mental disorder. For instance, studies have revealed that many people with panic disorder fear their own internal bodily cues for anxiety; accordingly, optimal treatment involves interoceptive exposure to induce a panic attack in treatment and then learn to endure/desensitize to the physical cues of anxiety (Barlow 1989). Once students have read about the basic tenets of CBT, they can brainstorm in groups and try to generate aspects of this groundbreaking treatment from their own budding understanding of panic disorder. This, of course, has cross-links to other stand-alone psychology classes, notably those in counseling and psychotherapy.

Teaching Methods

We have provided an overview of *what* content should be included in an abnormal psychology course, and we turn now to a focus on the *how* – the process and pedagogical tools that you can employ to bring the content to life for your students. Like many courses, abnormal psychology is most effectively taught when a range of approaches is employed to appeal to varied student learning preferences. We provide some of our best ideas below; our hope is that some of these activities will be useful in your classrooms as well.

Instructor's manual. Those who use a textbook will find that most of them offer instructor's manuals with teaching tips arranged around specific pieces of content. These types of materials are especially useful for new instructors or those who may be teaching this course for the first time.

Dynamic lectures. Although research continues to show the value of incorporating active learning into college classrooms (Mello and Less 2013), segments of organized and engaging lectures remain important (Bligh 2000). Students typically have many questions about psychological disorders, and so time should be left for questions and answer sessions as well as class discussion about the material. Given the extensive content in an abnormal psychology course (i.e., diagnostic criteria, treatment, etc.), brief lectures often help with providing basic information that is then illuminated via other teaching methods below.

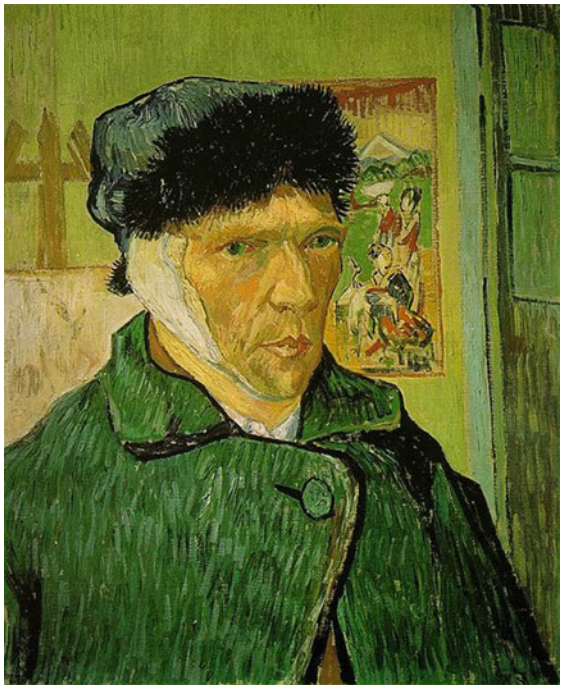
Videos. Utilizing videos can be an especially helpful way to demonstrate how symptoms might actually appear in a particular person. Often textbooks provide supplemental materials with video examples, and a number of clinical presentation videos can be found online. For instance, there are free online video labs available for use at https://www.academicmediasolutions.com/burke-abnormal-psychology-2e-ovl.

Contemporary and famous examples of mental illness can also be impactful in reducing stigma as students may relate more closely to examples that are already familiar to them. For example, Demi Lovato, a child Disney star and current pop artist, is recognizable to many current undergraduate students in the United States. Her 2017 *Simply Complicated* documentary details her struggle with bipolar disorder, substance abuse, and disordered eating. In the documentary, she discusses the tangible ways in which her symptoms influenced her life and career. Adele, Lena Dunham, J.K. Rowling, Dwayne Johnson, Ruby Rose, and Kristen Stewart are other international celebrities who have spoken candidly about their own challenges with mental illness.

J.K. Rowling, for example, confirmed that the dementors in her *Harry Potter* series were a symbol for depression (White 2016): "It was entirely conscious. And entirely from my own experience. Depression is the most unpleasant thing I have ever experienced. It is that absence of being able to envisage that you will ever be cheerful again. The absence of hope. That very deadened feeling, which is so very different from feeling sad. Sad hurts but it's a healthy feeling. It's a necessary thing to feel. Depression is very different." Showing clips of these dementors in class can help bring the feeling that Rowling describes to life for students who may not have experienced depression themselves.

Dementor puppet from "The Making of Harry Potter" at the Warner Brothers Studio Tour in London, UK. (Public domain image by Peyton Eyre from Lille, France. Available at https://commons.wikimedia.org/wiki/File:Dementor_(8514403186).jpg)

Other visual material. PowerPoint and other presentation programs were designed as visual media, so it is valuable to include powerful images and artwork wherever possible in your presentation of abnormal psychology material (Tyler and Likova 2012). In addition to photos of a dementor to illustrate depression or of Saguaro cacti in the apparent throes of various psychological disorders, you can use the work of famous artists who may themselves have suffered from mental illness, including Vincent van Gogh's self-portraits, which may provide a clue as to his experience with depression and possibly bipolar disorder. Further, Edvard Munch's iconic paintings (*The Scream*, *Anxiety*, and *Despair*) can effectively illustrate the similarities and differences between a panic attack, generalized anxiety, and depression, all of which he reports having experienced first-hand (Rothenberg 2015).



An 1889 self-portrait by Vincent van Gogh with a bandaged ear. (Public domain image from the web museum. Available at https://commons.wikimedia.org/wiki/File:VanGogh-self-portrait-with_bandaged_ear.jpg)

Research articles. As stated above, we want students to get beyond the superficial diagnostic criteria of DSM/ICD and into the etiological realm of the plethora of interacting known and theorized causes of these psychological disorders. One way of facilitating this process is to have students gain an appreciation for how the causal theories are tested and refined – i.e., scientific research in the field

of abnormal psychology. A possible assignment is to have students – individually or in groups – find a study in the psychology literature using your library's topical database (e.g., PsycINFO) and summarize its key findings either in writing or as a short (10-min) oral presentation to the class. We have pairs of students sign up at the beginning of the term for a specific topic area on the course syllabus, and then they come up at some point during the class period on their chosen topic to present a current research study to the class. Alternatively, class periods could be devoted to "micro-research" projects wherein students conduct group research in class using electronic journal databases or other appropriate online resources and formulate a presentation of their ideas within one class session.

In vivo experiences. Another way to foster a deep understanding of mental disorders is to allow students to "experience" the symptoms. This can be a tricky task and should be presented thoughtfully in order to not trivialize the real experiences of those with mental illness. For example, Depression Quest (http://www.depressionquest.com/) is an online tool that allows students to walk through what depression feels like, including some of the associated cognitions and feelings, while considering choices that might improve or worsen symptoms. As students progress through the simulation, they are asked to make decisions that then impact the information they receive as they continue. There is no end to this simulation, which signifies the potential risk for relapse and highlights the need for ongoing management of our own self-care and mental health.

In-class simulations can also illustrate disorders more vividly. In one demonstration (developed by Dr. Lori Ernsperger) designed to simulate experiences of those with autism, students are asked to form groups of three and assigned a role/task. Two students are instructed to talk with one another about a common topic while ignoring the third student. The third student is asked to communicate details of the sensory system to their peers (information provided on their instruction sheet) and interject this information into the conversation whenever possible. Following this brief interaction, time should be devoted to processing the experiences of students in each role. This leads to a discussion about the potential isolation and frustration that individuals with autism may experience as well as ideas for how neurotypical individuals might be able to respond more openly to them. The materials and questions for this activity can be found on page 39 of the document at http://airpnetwork.org/sites/default/files/2017-02/autism_friendly_youth_organizations.pdf.

Another example of a class simulation is a short activity designed to quickly mirror the experience of auditory hallucinations. In this paired activity, one student completes basic math problems, while the other plays the role of auditory hallucinations and talks to the person with negative statements, such as "you can't do this," "you are worthless," "you won't succeed," etc. After the simulation, students who were working on the math problems are invited to describe their experience and speculate on how this might impact a person who experiences regular auditory hallucinations, which are frequently negative and self-deprecating.

If possible and depending on your class size and other practical constraints, you can inject even more high-impact educational experiences (HIPs; Kuh 2008) into

your abnormal psychology classes, including internships in or visits to a hospital or mental health setting and/or guest speakers who come to your class to discuss their personal experiences with specific mental disorders. Students generally respond very well to these types of activities as the disorders become more real, not just lists of symptoms in a textbook or other readings.

Application to the self. One benefit of teaching abnormal psychology is that many of the concepts and symptoms are familiar to students even if they themselves do not have a specific diagnosis (though many will have at least one!). For instance, almost every college student is able to identify with the feeling of anxiety. To help demonstrate the relationship between anxious thoughts and feelings and behaviors (and how anxious thoughts may intensify and rise to the level of a diagnosis), simple polling software (such as www.polleverywhere.com) can be used to generate common anxious thoughts and associated negative cognitions. Anonymous polling may allow students to be more honest in their responses and receive real-time feedback. Figure 1 shows a word cloud generated from one abnormal psychology class when students were asked to describe something they worried about in the past week. The follow-up question, shown in Fig. 2, asks students to go deeper and identify a worry they have that they would not typically share with others. As evidenced by the responses shown here, the negative thoughts of "I'm a failure" or "I'm not good enough" can then be used to demonstrate the cognitive triangle in CBT (the relationship between thoughts, feelings, and behaviors). After mapping out associated feelings, students are asked to generate alternative thoughts and how those thoughts might lead to improved mood for an individual with anxiety. After completing this activity, students can be encouraged to challenge some of their own negative thinking patterns the next time they encounter a stressful event.

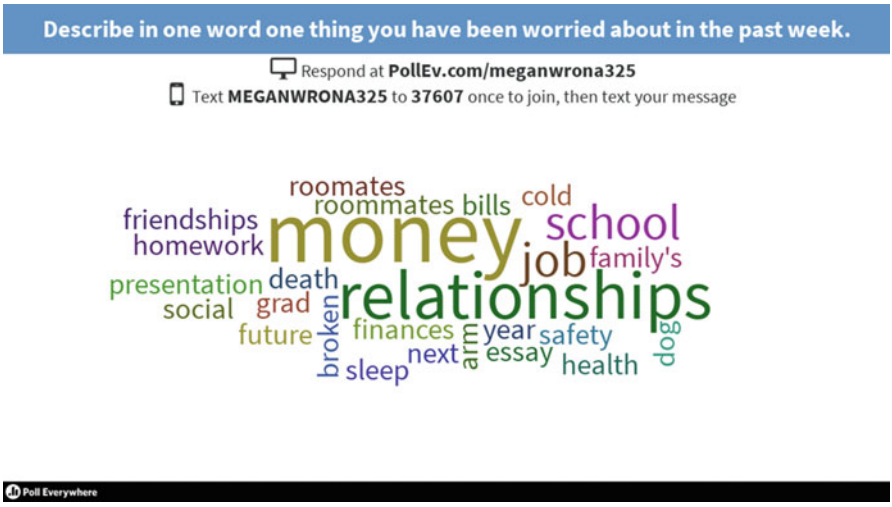


Fig. 1 Abnormal Psychology Class - "What You Worry About" Word Cloud

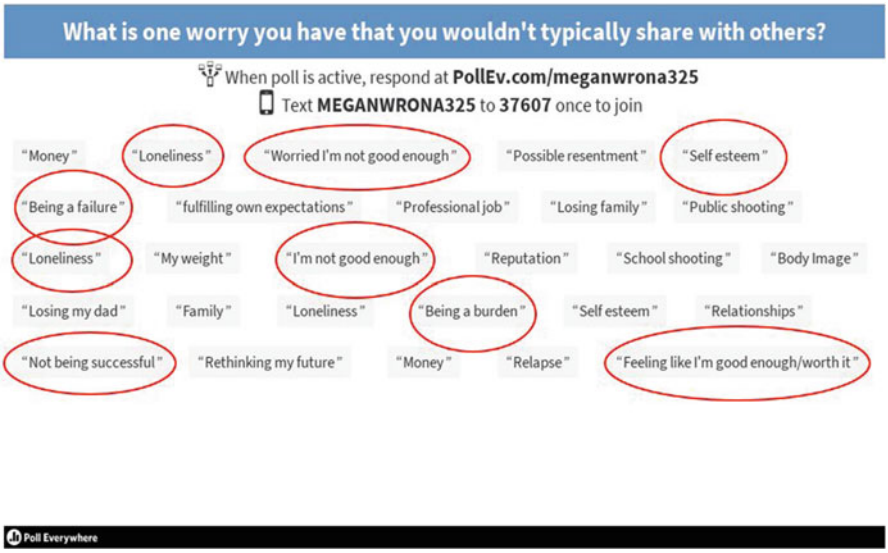


Fig. 2 Abnormal Psychology Class - "Secret Worry" Poll

Another assignment that relates back to the definition of a mental disorder discussed above is to have students explore one of the *Conditions for Further Study* found in DSM-5's Section III (e.g., Internet Gaming Disorder, Caffeine Use Disorder), which are also among the newest disorders included in ICD-11 (Reed et al. 2019). Students can write a case study illustrating how they or a "friend" might fit the definition of having a mental disorder based on use of video games or caffeine (both used very frequently by today's students). Students' case studies can (a) identify a dysfunction in psychological, biological, or developmental processes and (b) describe what a clinically significant disturbance in cognition, emotion regulation, or behavior would look like. Students can conclude the assignment by addressing whether or not they believe these new conditions are best conceptualized as mental disorders as per ICD-11 or left out of the official disorder list as per DSM-5.

Integrating structured trainings. Another method of teaching in abnormal psychology is to integrate opportunities for trainings related to the concepts in the course that can also give students certifications that might be valuable for their current or future jobs. Specifically, both of the authors of this chapter now incorporate brief (1-class) suicide intervention trainings into abnormal psychology content. Suicidality is a common symptom of several disorders and an increasing concern internationally. By providing an evidence-based training, such as Question, Persuade, and Refer (QPR; https://qprinstitute.com/), students learn about the signs and symptoms of suicidality and develop tangible skills to help people they may encounter in their own life. Another such program is Mental Health First Aid (https://www.mentalhealthfirstaid.org/).

Case studies and conceptualizations. Although students are not trained to professionally diagnose after the completion of an abnormal psychology course, activities that allow students to practice diagnosing are generally interesting and engaging for students. One assignment that lets students be creative and explore their own interests is to ask students to diagnose a character in a movie or a television show. In this assignment, students write a case conceptualization of the character including presenting problem, background information, diagnostic impressions, and treatment recommendations. Students generally describe this assignment as fun and like that they get to watch a movie or show as part of their school work! This written conceptualization can also be paired with a brief presentation of the character, with short video clips to illustrate the symptoms that were observed.

One of the most classic and effective techniques to engage all students in a classroom is to employ the jigsaw method (Aronson 1978), wherein each student is privy to specific information that they then need to share with a group in order to complete a collaborative task. Groups of 4–5 students can work on case in which each student is given a different part of the case material to read in class (e.g., one student gets the person's past medical history, another the presenting episode, another the previous treatment or family history, etc.). Each group therefore has an expert on each particular aspect of the case example, and so each student has to contribute and share individual perspectives and information with the group in order to answer questions collaboratively on diagnosis, cause, and treatment of the case.

Case studies can also be useful in demonstrating the complexity of comorbidity. For example, in the case described in the box on this page, Jen is clearly exhibiting symptoms of depression, but students may be less likely to pick up on symptoms associated with attention-deficit hyperactivity disorder (ADHD). Her ADHD symptoms may be interacting with her depression, however, and it would be helpful to address both in treatment planning for Jen.

Finally, in a comprehensive, experiential approach suggested by Jane Halonen of the University of West Florida (Neufeld and Landrum 2017), students can gain experience in diagnosing and clinical interviewing when you invite a former student or teaching assistant to come into your class to role play a client. In this activity, students are given no information about the client and must use their knowledge of symptoms, criteria, developmental background, and sociocultural beliefs to ask the appropriate questions in order to home in on a potential DSM/ICD diagnosis. This experience helps students learn more about the difficulty of identifying symptoms and the nuances of diagnosis that can be challenging to capture simply through memorizing a list of symptoms.

Summary

In sum, teaching abnormal psychology is one of our favorite jobs because it provides a rich opportunity for instructors to influence the way people understand and relate to mental illness. By laying a solid foundation for content and expectations

at the beginning of the semester through exploring the meaning of abnormality, understanding the language of the DSM/ICD, and learning the models that explain the multitude of contributors to the development of mental disorders, instructors can delve into the details of these fascinating disorders with a range of evidence-based teaching techniques. Ideally, students should leave this course with increased compassion and empathy for people with mental illness, an understanding of the basic signs and symptoms of various disorders, and a critical and holistic view of diagnosis. Students are often engaged and hungry to learn more in this course, which tends to make the varied teaching techniques we describe here even more effective.

Final Teaching Tips

1. **Facilitate stigma reduction**. An abnormal psychology course provides an excellent opportunity to educate others about psychology and mental disorders, which in turn can serve to reduce the stigma often experienced by people with mental illness (Strassle 2018). As an instructor, you can make a real difference in how mental illness is perceived.
2. **Recognize that course content can be uncomfortable**. Given that at least one in five people struggle with mental illness (NIMH 2017), many students in your class have likely been affected in a significant way by these disorders. As such, we recommend that teachers be sensitive and considerate to students who have personal or family histories of mental disorders. Whether or not to use actual "trigger warnings" for the course content, however, is highly debatable (see Lilienfeld et al. 2018, for a thorough coverage of the debate taking place in North America).
3. **Make the material applicable**! Like most content, students learn best when they can apply concepts and ideas to their own lives. Whereas we do not want students to diagnose themselves or others, we do want them to be able to recognize symptoms that may indicate that professional help may be warranted.
4. **Encourage students to think critically about diagnosis**. Help students understand the complexity of diagnosis and some of the inherent flaws of the DSM/ICD classification systems. A diagnosis often carries a lot of weight and students should understand the implications.
5. . . . **But, don't throw out the DSM/ICD systems completely**. Even though these are not perfect diagnostic tools, they are still the primary ones used to diagnose mental disorders worldwide and to foster critical communication within the field of psychology and beyond.
6. **Focus on the biopsychosocial and multicultural nature of diagnosis**. Given the challenges with the DSM/ICD and their emphasis on pathology, you can help students conceptualize symptoms and diagnosis from a more holistic approach. Even if you are a medical doctor, you are teaching what is, above all, a psychology class.
7. **Don't get bogged down by content**. Diagnosing is complicated and there is *no* way to cover all of the material in the DSM/ICD thoroughly in a single semester.

We thus suggest that you follow the interests of your students to ensure that the content that they are exposed to really sinks in and stays with them beyond exams. For example, a student may not remember the difference between positive and negative symptoms of schizophrenia in 5 years, but they will likely remember how it felt when they tried to complete math problems while experiencing simulated auditory hallucinations.

8. **Remember that students tend to love this class**! Students frequently identify abnormal psychology as one of their favorite undergraduate courses. Students are truly interested in the course precisely because they already see how the content overlaps with their own experiences and those of others close to them. This interest gives you, as the educator, an advantage that makes the class feel even more rewarding for your students and for yourself.

Further Reading

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Arlington, VA: Author.

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM), published by the American Psychiatric Association (APA), offers a common language and standard criteria for the classification of mental disorders. It is used by clinicians, researchers, psychiatric drug regulation agencies, health insurance companies, pharmaceutical companies, the legal system, and policy makers together with alternatives such as the ICD Classification of Mental and Behavioural Disorders (see below). The DSM is in its fifth edition, the DSM-5, published on May 18, 2013. The DSM evolved from systems for collecting census and psychiatric hospital statistics and from a US Army manual. Revisions since its first publication in 1952 have incrementally added to the total number of mental disorders and removed those no longer considered to be mental disorders due to expert consensus.

Barnhill, J. W. (Ed). (2014). *DSM-5: Clinical Cases*. Washington, DC: American Psychiatric Publishing.

This text, published shortly after the release of the DSM-5, includes case examples of most of the clinical diagnoses in the DSM. The text is organized by categories of disorders, and case studies are provided for each of the diagnoses within a category. Cases range in complexity and a discussion of the appropriate diagnosis is included. This is an excellent resource for realistic case study scenarios to use in the classroom.

Frances, A. (2012). *The Health Care Blog: Everything you always wanted to know about the Health Care system. But were afraid to ask* [blog]. https://thehealthcareblog.com/blog/tag/allen-frances/

Dr. Alan Frances was Chair of the DSM-IV Task Force and has since been writing about his thoughts on healthcare in general and mental health more specifically. His blog began as a scathing but trenchant critique of DSM-5 and its perceived pandering to drug companies and has been expanded to encompass other related topics such as the political economy of DSM, what doctors do when they do not know what to do, the medicalization of modern life, and the perils of over-diagnosing mental illness.

Neufeld, G., & Landrum, E. (Producers). *Psych sessions: Convos about teaching and stuff* [Audio podcast]. Retrieved from https://psychsessionspodcast.libsyn.com/

Garth Neufeld and Eric Landrum host this podcast, which is a series of interviews with top educators in the field of psychology. Interviews include information about the individual educators and as well as rich discussion about teaching pedagogy, practices, and innovation. Podcast guests share their teaching ideas and perspectives. Although this podcast does not focus exclusively on abnormal psychology, many of the principles and ideas can be applied across a range of psychology courses.

Paris, J. (2013). *The intelligent clinician's guide to the DSM-5*. New York: Oxford University Press.

The Intelligent Clinician's Guide to the DSM-5 explores all revisions to the latest version of the Diagnostic and Statistical Manual and shows clinicians how they can best apply the strong points and shortcomings of psychiatry's most contentious resource. Written by a professor of psychiatry, this book uses evidence-based critiques and new research to point out where DSM-5 is right, where it is wrong, and where the jury's still out. Along the way, *The Intelligent Clinician's Guide to the DSM-5* sifts through the many public controversies and clinical debates surrounding the drafting of the manual and shows how they inform a modern understanding of mental disorders, diagnosis, and treatment.

Peterson, C. (2006). The Values in Action (VIA) Classification of Strengths: The un-DSM and the real DSM. In M. Csikszentmihalyi & I. Csikszentmihalyi (Eds.), *A life worth living: Contributions to positive psychology* (pp. 29–48). New York: Oxford University Press.

Positive Psychology's answer to the DSM and ICD is the VIA (Values in Action) Classification of Strengths. This is work undertaken by Chris Peterson and Martin Seligman that lists character strengths and virtues instead of abnormal/pathological symptoms or syndromes. The Values in Action (VIA) Classification of Strengths project means to complement the DSM and ICD by focusing on what is right about people and specifically about the strengths of character that make the good life possible. The VIA classification was the first major project deliberately developed from the perspective of positive psychology. Seligman and Peterson admit that many other thinkers have articulated what makes good character but what is different about their work is their attempt to define and measure these

strengths. Their VIA Inventory of Strengths is a self-report questionnaire of 240 items which can be completed online for free at http://www.authentichappiness.sas.upenn.edu.

Society for the Teaching of Psychology, www.teachpsych.org

The Society for the Teaching of Psychology (STP), also known as Division 2 of the American Psychological Association, maintains a website rich in resources and information about teaching, including teaching abnormal psychology. Specifically, clicking on the resource link will lead instructors to e-books, websites, teaching competencies, and more. Of note, within the resource section, instructors can find a wealth of information through Project Syllabus, which is a repository of sample syllabi that have been submitted by instructors and peer-reviewed. These syllabi include ideas for texts, grading, assignments, and more.

Szasz, T.S. (1974). *The myth of mental illness: Foundations of a theory of personal conduct.* New York: Harper & Row.

Thomas Szasz was a staunch critic of the DSM/ICD classification systems and warned of the dangers of society over-pathologizing mental illness. His perspective is invaluable to instructors as they consider the strengths and weaknesses of the DSM/ICD and the implications of diagnoses on society.

World Health Organization (2019, July). *International classifications of diseases* (ICD). https://icd.who.int/en/

This is the only current legitimate competitor and alternative to the DSM-5, especially outside of North America, although in practice the two manuals are frequently employed in a complementary manner (e.g., DSM-5 and insurance companies use ICD codes for diagnosis and reimbursement). The *International Statistical Classification of Diseases and Related Health Problems* (ICD) is the bedrock for health statistics. It maps the human condition from birth to death: any injury or disease we encounter in life – and anything we might die of – is coded, including mental disorders. ICD is widely used and recognized internationally and is updated every 20–30 years with minor revisions even more frequently, much like the DSM (above).

Case Study

Jen is a 29-year-old woman who presents to your clinic in distress. She reports a significant decrease in her mood due to conflict with her husband and problems at work. She reports feeling depressed most of the time and has withdrawn from many of her typical activities. She starts crying almost

(continued)

immediately during the session and says she cries multiple times a day without knowing why. She says that she had lost about 10 pounds in recent months, without the intent to lose weight. She also reports that she cannot sleep through the night and consequently feels like she does not have energy to do anything or concentrate for long. When asked directly about suicidal thoughts, she reports that she sometimes thinks about how her family might respond if she died but denies any intent to harm herself.

In the interview, Jen fidgets and has a hard time sitting still. She tearfully tells you that she is in a major fight with her husband of 1 year because he is ready to have children but she fears that she is "too disorganized to be a good mother." As you break down some of the processes that have led to her current crises, you learn that she has difficulty with time management and does indeed tend to be disorganized. She chronically misplaces everyday objects like her keys and runs late to appointments. Although she wants her work to be perfect, she is prone to making careless mistakes. The struggle for perfection makes starting a new task feel very stressful, leading her to procrastinate. As a consequence, she has recently received a number of warnings from her boss related to missing deadlines for assignments and errors in her work, which has led to her acute fear of being fired. As her performance at work has plummeted and she has grown increasingly anxious and doubting of herself, she has grown even more pessimistic about starting a family.

Cross-References

- ▶ Basic Principles and Procedures for Effective Teaching in Psychology
- ▶ Problem-Based Learning and Case-Based Learning

References

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Arlington: Author.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington: Author.

Aronson, E. (1978). *The jigsaw classroom*. Oxford: Sage.

Barlow, D. (1989). Behavioral treatment of panic disorder. *Behavior Therapy, 20*(2), 261–282. https://doi.org/10.1016/s0005-7894(89)80073-5.

Bligh, D. A. (2000). *What's the use of lectures?* San Francisco: Jossey-Bass.

Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, MA: Harvard University Press.

Burke, B. L., Trost, S., deRoon-Cassini, T., & Bernstein, D. (2016). *Abnormal psychology* (2nd ed.). Solon: Academic Media Solutions.

Burton, N. (2015, September 18). When homosexuality stopped being a mental disorder. *Psychology Today.* Retrieved from https://www.psychologytoday.com/us/blog/hide-and-seek/201509/when-homosexuality-stopped-being-mental-disorder

Comer, R. J. (2011). *Fundamentals of abnormal psychology* (6th ed.). New York: Worth.

David, D., Cristea, I., & Hofmann, S. G. (2018). Why cognitive behavioral therapy is the current gold standard of psychotherapy. *Frontiers in Psychiatry, 9*, 4. https://doi.org/10.3389/fpsyt.2018.00004.

Davidson, R. J., Jackson, D. C., & Kalin, N. H. (2000). Emotion, plasticity, context, and regulation: Perspectives from affective neuroscience. *Psychological Bulletin, 126*, 890–909. https://doi.org/10.1037//0033-2909.126.6.890.

Drescher, J. (2015). Queer diagnoses revisited: The past and future of homosexuality and gender diagnoses in DSM and ICD. *International Review of Psychiatry, 27*(5), 386–395. https://doi.org/10.3109/09540261.2015.1053847.

Ford, M. R., & Widiger, T. A. (1989). Sex bias in the diagnosis of histrionic and antisocial personality disorders. *Journal of Consulting and Clinical Psychology, 57*(2), 301–305. https://doi.org/10.1037/0022-006X.57.2.301.

Frances, A. (2012). DSM 5 is guide not bible – Ignore its ten worst changes [Web logpost]. In *DSM-5 in Distress*. Retrieved 20 May 2013 from http://www.psychologytoday.com/blog/dsm5-in-distress/201212/dsm-5-is-guidenot-bible-ignore-its-ten-worst-changes

Frances, A. (2013, January 7). *Last plea to DSM-5: Save grief from the drug companies* [Blog post]. Retrieved 29 Aug 2013 from http://www.huffingtonpost.com/allen-frances/saving-grief-from-dsm-5-a_b_2325108.html

Hartmann, W. E., Wendt, D. C., Burrage, R. L., Pomerville, A., & Gone, J. P. (2019). American Indian historical trauma: Anticolonial prescriptions for healing, resilience, and survivance. *American Psychologist, 74*(1), 6–19.

Hofmann, S. G., Asnaani, A., Vonk, I. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive Therapy and Research, 36*, 427–440. https://doi.org/10.1007/s10608-012-9476-1.

Kaplan, M. (1983). A woman's view of DSM-III. *American Psychologist, 38*(7), 786–792. https://doi.org/10.1037/0003-066X.38.7.786.

Klott, J. (2012). *DSM-5: Revolutionizing diagnosis and treatment* [DVD]. Eau Claire, WI: CMI Education Institute.

Kotov, R., Kruegar, R. F., Watson, D., Achenbach, T. M., Althoff, R. R., … Zimmerman, M. (2017). The hierarchical taxonomy of psychopathology (HiTOP): A dimensional alternative to traditional nosologies. *Journal of Abnormal Psychology, 126*(4), 454–477. https://doi.org/10.1037/abn0000258.

Kuh, G. D. (2008). High-impact educational practices: What they are, who has access to them, and why they matter. *American Association of Colleges and Universities*. https://www.aacu.org/leap/hips

Lilienfeld, S. O., Ceci, S. J., & Williams, W. M. (2018, October 18). The one-time-only trigger warning. *Inside Higher Ed*. Retrieved from https://www.insidehighered.com/views/2018/10/18/way-handle-trigger-warnings-develop-one-time-only-one-opinion

Mello, D., & Less, C. A. (2013). Effectiveness of active learning in the arts and sciences. *Humanities Department Faculty Publications & Research. Paper 45*. Retrieved from http://scholarsarchive.jwu.edu/cgi/viewcontent.cgi?article=1044&context=humanities_fac

Miyamoto, S., Miyake, N., Jarskog, L. F., Fleischhacker, W. W., & Lieberman, J. A. (2012). Pharmacological treatment of schizophrenia: A critical review of pharmacology and clinical effects of current and future therapeutic agents. *Molecular Psychiatry, 17*, 1206–1227. https://doi.org/10.1038/mp.2012.47.

National Institutes of Mental Health. (2017). *Mental Illness*. Retrieved from https://www.nimh.nih.gov/health/statistics/mental-illness.shtml

Neufeld, G., & Landrum, E. (2017, October). *E006: Jane Halonen: Mastery and Magic of Teaching* [Audio podcast]. Retrieved from https://www.iheart.com/podcast/263-psychsessions-conve-29214144/episode/e006-jane-halonen-mastery-and-magic-29220630/

Paris, J. (2013). *The intelligent clinician's guide to the DSM-5*. New York: Oxford University Press.

Reed, G. M., First, M. B., Kogan, C. S., Hyman, S. E., Gureje, O., Gaebel, W., et al. (2019). Innovations and changes in the ICD-11 classification of mental, behavioural and neurodevelopmental disorders. *World Psychiatry, 18*(1), 3–19. https://doi.org/10.1002/wps.20611.

Rothenberg, A. (2015, March 24). Creativity and mental illness II: The scream. *Psychology Today*. Retrieved from https://www.psychologytoday.com/us/blog/creative-explorations/201503/creativity-and-mental-illness-ii-the-scream

Rounsaville, B. J., Alarcón, R. D., Andrews, G., Jackson, J. S., Kendell, R. E., & Kendler, K. (2002). Basic nomenclature issues for DSM-V. In D. J. Kupfer, M. B. First, & D. A. Regier (Eds.), *A research agenda for DSM-V* (pp. 1–29). Washington, DC: American Psychiatric Association.

Sander, D. (2013). Models of emotion: The affective neuroscience approach. In J. Armony & P. Vuilleumier (Eds.), *The Cambridge handbook of human affective neuroscience* (pp. 5–53). New York: Cambridge University Press.

Silverstein, C. (2009). The implications of removing homosexuality from the DSM as a mental disorder. *Archives of Sexual Behavior, 38*, 161–163. https://doi.org/10.1007/s10508-008-9442-x.

Smith, L. A., Cornelius, V., Warnock, A., Tacchi, M., & Taylor, D. (2007). Pharmacological interventions for acute bipolar mania: A systematic review of randomized placebo-controlled trials. *Bipolar Disorders, 9*, 551–560. https://doi.org/10.1111/j.1399-5618.2007.00468.x.

Strassle, C. G. (2018). Reducing mental illness stigma in the classroom. *Teaching of Psychology, 45* (4), 351–357. https://doi.org/10.1177/0098628318796922.

Szasz, T. S. (1996). *The meaning of mind: Language, morality and neuroscience*. New York: Praeger.

Tyler, C. W., & Likova, L. T. (2012). The role of the visual arts in enhancing the learning process. *Frontiers of Human Neuroscience, 6*, 8.

Watts, J. (2019). Problems with the ICD-11 classification of personality disorder. *The Lancet Psychiatry, 6*(6), 461–463.

White, H. (2016). 22 J.K. Rowling Facts That Prove She Is ACTUALLY a Magical Human. *Popsugar*. Retrieved on 8 Aug 2019 from https://www.popsugartech.com/photo-gallery/41180052/image/41180427/Rowling-created-Dementors-metaphor-depression

World Health Organization (2019, July). *International classifications of diseases* (ICD-11). Retrieved 13 July 2019 from https://icd.who.int/en/

Sensation and Perception

4

Robert Gaschler, Mariam Katsarava, and Veit Kubik

Contents

Abstract

Often being covered in introductory psychology, the topic of sensation and perception offers ample opportunity to strengthen identification of students with psychology. On the one hand, this is due to the many recipes for classroom demonstrations of specific effects which should help to create durable memories of what it is to be in a psychology course. Reviewing these recipes, we draw attention to the challenges of linking classroom events to core content. On the

R. Gaschler (✉) · M. Katsarava
Department of Psychology, FernUniversität in Hagen, Hagen, Germany
e-mail: robert.gaschler@fernuni-hagen.de

V. Kubik
Department of Psychology, Universität Bielefeld, Bielefeld, Germany

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other hand, the topic can be presented such that its central role for future work as a psychologist (e.g., in organizational or industrial psychology) becomes clear. It offers many opportunities for future psychologists to apply their methodological and content knowledge to tackle societal, economic, and ecological challenges. On the other hand, the topic can be used as a starting point to discuss core theoretical questions of psychology. Work in science studies suggests that sensation and perception are the domains where other science disciplines often need input from psychology.

Keywords

Grouping · Top-down influences · Psychology of science · Data graphs · Metaphors of attention · Change blindness · Human-machine interaction · Environmental psychology

Introduction

The literature on teaching psychology contains various recipes to convey the content of perceptual phenomena (see Table 5) to students. In these recipes, readers can easily grasp the scientific fascination that researchers have for specific phenomena and for psychology in general. Asking students what they remember from introductory psychology, students often mention classroom demonstrations – such as using prism goggles, in which the visual field can be shifted to the right or the left (VanderStoep, Fagerlin, & Feenstra, 2000), though only few events were recalled from class that were primarily relevant to the course material. This state of affairs is unfortunate but can be enhanced. Importantly, learning material on sensation and perception can be presented and learned in ways that make events better memorable and linked to core contents of the course material. Before we will provide recipes for teaching specific concepts (see Table 5, for a summary), we will illustrate the central role that the topic of *sensation* and *perception* can have in the curriculum of psychology.

From Telescope to Data Graph

Topics of sensation and perception strongly relate to the foundations of psychology as a science. Work in psychophysics was driven by the demands of early astronomers and particle physicists to better understand the limitations of the human perceptual system (cf. Brewer, 2012). Stars have, for instance, been ordered by brightness since the time of ancient Greek astronomers, calling for profound understanding of the human capabilities to perceive brightness and differentiate different levels of brightness, promoting the development of psychophysics (e.g., the Weber-Fechner law). In some cases, psychological research on perception revealed that alleged discoveries were not related to an external object at astronomic distance but instead could tell

about the characteristics of an internal object nearby: the human brain. For instance, repeated observations of canals on Mars were early on attributed to the specific wiring of the perceptual system. Even when this fact was known, these canals were "perceived" as if they were existent (cf. Evans & Maunder, 1903). Early on, students can be introduced to the primacy of psychological knowledge: as humans rely on their sensations and perceptions, science disciplines build on psychological knowledge about the human perceptual system. Discussing the role of the human observer in other research disciplines might increase identification of the students with psychology and convey that exchange with other disciplines is strengthening the own discipline.

There are many examples from history of science that underline the role of psychological processes by direct observation, and they often involve the power of expectations in perceptual processes (Brewer, 2012). For instance, in discovering planets, it has proven highly important to know where to search. In 1846, Urbain Le Verrier reported to Johann Galle a deviation between the observed orbit of Uranus and predictions based on mechanics by Newton. Receiving this letter just days before a starry night, Johann Galle was able to discover Neptune within a few hours. Another more recent example of how perceptual limitations and expectations in astronomy can interact is the discovery of the Pluto moon Charon in 1990. In earlier photographs, the moon Charon was already detectable (i.e., elongation of Pluto due to atmospheric turbulences), but was not yet discovered. One reason was that observers did not have the expectations to find a moon at such a short distance from a planet.

Furthermore, there are various examples in the history of particle physics, in which scientists – guided by their expectations – discovered events or objects that in fact are not existent (cf. Brewer, 2012; Galison, 1997). For instance, Rutherford and Chadwick had observed light flashes under the microscope when targeting some (but not other) chemicals with specific radiation (i.e., alpha rays). They concluded that flashes occur only for elements that emit protons. However, the Vienna laboratory of Pettersson and Kirsch reported to have observed light flashes with virtually all probes. The experimental conditions (e.g., darkness before the test starts) were identical except for the expectations that differed between research groups: observers of the Vienna group continued to report light flashes even when (unbeknown to them) the source was replaced.

The interplay of perceptual limitations and expectations can also be demonstrated with data graphs. According to Brewer (2012), psychology of science should focus on this topic, as direct observation has become rare in science, while researchers view their object of study through data graphs instead. For example, Lewandowsky, Ballard, Oberauer, and Benestad (2016) showed that data graphs on climate change that raise opposing interpretations by climate skeptics and mainstream researchers are interpreted consensually in case the same data graphs are used with labels that are not relevant for climate change. Compared to numbers in tables, data graphs provide us with access to relational information at low effort (c.f. Schnotz & Bannert, 2003). For instance, we can perceive differences and variability in different measures at a glance. Yet, using the power of the perceptual system to grasp characteristics of data

sets might come at the cost that in some cases perceptual biases lead to systematic errors. For instance, means are systematically underestimated in bar graphs (c.f. Godau, Vogelgesang, & Gaschler, 2016), suggesting that a different graph format (e.g., point graphs) should be chosen when an unbiased impression of the mean level is important. Students of psychology can learn these regularities and how the fit between communication purpose and data graph format can be empirically determined.

Data graphs are frequently used to convey research results to educational target groups (e.g., at schools), the public (e.g., the media), and the scientific community, specifically when conducting and communicating interdisciplinary research (cf. the Fifth Assessment Report of the United Nations Intergovernmental Panel on Climate Change; IPCC, 2014). Data graphs from public sources are central in debates on climate change. Students of psychology should learn how to select formats that can be easily and correctly comprehended by the specific target audience and should learn how to identify and quantify motivational biases in perception of data graphs of high societal relevance. For instance, the blind expert test conducted by Lewandowsky et al. (2016) might serve as a basis of student projects in research practice courses.

Purposes and Rationale of the Curriculum in Sensation and Perception

Qualification frameworks for future psychologists by the American Psychological Association (APA, 2013, 2018;) as well as on the European level (Lunt, Job, Lecuyer, Peiro, & Gorbena, 2014) emphasize that the curriculum should enable students to apply psychological knowledge in the field: “Professional psychologists apply psychology and psychological knowledge and understanding to real-life questions in order to enhance the well-being and effectiveness of individuals, groups and systems” (Lunt et al., 2014, p. 20). The APA guidelines for psychology undergraduate majors list five generic goals the curriculum should pursue which can be linked to examples from the domain of sensation and perception (Table 1).

Sensation and Perception within Areas of Applied Psychology

Lunt et al. stress that specialized theoretical and practical training usually takes place within an area of applied psychology. The most prominent areas of application are clinical and health psychology (working in the health system), followed by educational psychology (working in education), and work and organizational psychology (working in organizations and industry). While most of the teaching concerning sensation and perception takes place in the bachelor program before students have lectures and seminars in the area of applied psychology, applied questions should be integrated early to motivate students and to help in contextualizing their knowledge. With respect to clinical and health psychology, this might, for instance, involve

Table 1 Five goals for undergraduate psychology majors (APA, 2013) and examples from sensation and perception

Five goals for undergraduate psychology major	Issues in sensation and perception
Knowledge base in psychology	Profound knowledge about functions and structures involved in perception is needed to comprehend theoretical questions, understand and master appropriate methods, and deliver approaches to practical problems
Scientific inquiry and critical thinking	Theorizing, methodological, and empirical basis to question lay-concepts of vision and other senses
Ethical and social responsibility in a diverse world	Cultural diversity affects perceptual processes (c.f., Kitayama, Duffy, Tadashi, & Larsen, 2003; Luria, 1976)
Communication	By displaying data in graphs, we make use of the powerful computational system of visual perception. Yet, visual biases and neglect of information can result if purpose and format of information do not match. Appropriate design and usage of data graphs should be informed by empirical psychological research. The latter can help to uncover motivated cognition in graph interpretation (e.g., climate data, Lewandowsky et al., 2016)
Professional development	Using knowledge on sensation and perception can, for instance, be used to pursue career goals by applying self-regulation prompts, using flowcharts for project management or achieving high layout quality and usability in (electronic) presentations, portfolios, and CV

Fig. 1 Adaptation of the example provided by Wertheimer (1938). For many observers, the form determines what is being perceived, and the elements it consists of are not easily recognized despite the high number of prior encounters

covering work on the role of body image disturbance in the onset, maintenance, and relapse of anorexia nervosa (i.e., Glashouwer, Veer, Adipatria, Jong, & Vocks, 2019), the impact of visual feedback (cf. Wittkopf, Lloyd, & Johnson, 2018) and age on pain perception (Lautenbacher, Peters, Heesen, Scheel, & Kunz, 2017), or the possible interplay of depression and pain perception (Thompson, Correll, Gallop, Vancampfort, & Stubbs, 2016). Concerning educational psychology, this might involve a reflection on variations in data graph literacy in potential clients, interventions to raise these capabilities, and acquiring data graphing skills to communicate

scientific results. According to Pittenger (1995), a first step might be to raise attention toward data graph usage in the teaching materials. Graphing techniques are an essential component of data analysis, as they can help to discover unexpected results, plan appropriate further analyses, and summarize results of research.

Communication between specialists and management is one domain where data graph design based on psychological research can be applied in organizations and industry. This might, for instance, involve work on comprehensible labeling of graphs (Huestegge & Philipp, 2011), usage of Gestalt principles to avoid errors in reading information from three-variable graphs (Ali & Peebles, 2013), or the impact of motivation involving economic or political factors on information sampling from graphs (i.e., Luo & Zhao, 2019). Furthermore, the organizational and industrial perspective involves safety issues related to expectation and perception. For instance, Lawton and Ward (2005) have documented that high-speed train drivers need to keep expectations active about when and where to decode which specific signal. Under adverse light conditions or in bends, an eyeblink alone would be sufficient to miss the status of an important signal. In an analysis of over 100 Australian railway accidents, Edkins and Pollock (1997) identified that expectation of a green signal was a common cause for drivers going through a red signal. From the perspective of the literature on errors in human-machine interaction, Dekker (2002) underlined the demand for studies that investigated how and why people use shortcut strategies that spare effort at the expense of overlooking critical displays or signals (cf. Gaschler, Marewski, & Frensch, 2015). Using examples from operating trains and aircrafts, Dekker (2002) stated that a warning light does not solve a human error problem but rather creates a new one as it might be safely ignored in some but not in other situations as operators might state "It lit up yesterday and meant nothing" and ask "Why care today?" Given that warning lights have to be tested occasionally to secure that they work when needed, it seems hardly possible to design security systems such that warning signs never operate when no real threat is likely. Probe-based vaccination preventing shortcuts (Gaschler & Frensch, 2009) and boosting surveillance performance by expectations (Gaschler, Schwager, Umbach, Frensch, & Schubert, 2014) can be applied. The question how expert knowledge drives perception can be discussed based on work on how expert radiologists visually inspect scans for anomalies (Bilalić, Grottenthaler, Nägele, & Lindig, 2016).

The control of room temperature is one literally "hot topic" where psychology teaching can have a strong economic and ecological impact in organizations and industry. Cooling and heating houses has a large share in energy consumption, and climate change might lead to further demands. So far comfortable room temperature in business and public buildings is often controlled based on psychological studies and rating scales that fail to take into account local and seasonal specifics (cf. Schweiker et al., 2017) and the potential to reduce cooling or heating by granting workers the opportunity to apply fans or other temperature regulation on their own demand when needed (cf. Luo et al., 2016). Schweiker, Huebner, Kingma, Kramer, and Pallubinsky (2018) suggest that understanding individual differences in human thermal perception is important, due to climate change and an ageing society. Training future psychologists to design and administer better scales for measuring

and controlling thermal comfort can have a substantial economic and ecologic impact.

Lunt et al. (2014) state that psychological education should build up the competences that future psychologists need to address the needs of individuals, groups, and systems. Future psychologists should be trained with generic functions and tasks that can be mapped to contents from the domain of sensation and perception (Table 2).

Core Contents and Topics of Sensation and Perception

Serial Teaching of Nonserial Processing

It is difficult to provide basic knowledge about sensation and perception in an ordered manner while avoiding students to erroneously conclude that perception takes place in a step-like sequential way. Riener (2019) discusses these didactical difficulties and reports that most introductory psychology textbooks only poorly take them into account. Instead they simply describe the process of visual perception as a clear series of orderly and insulated steps carried out by a visual system composed of the eyes and the brain. For example, light reflects off surfaces and objects in the world. Structures in the eyes filter and focus the reflected light. The photoreceptors on the retina transform the light into neural firing rates. A series of brain areas process the pattern of neural activity emerging from the retina. After drawing this picture of sequential processing, Riener (2019) makes clear that it is wrong but potentially can serve as a useful first step in understanding how perception works. In line with work in computer vision (cf. Feng, Jiang, Yang, Duc, & Li, 2019), work in psychology and cognitive neuroscience shows that information processing does not wait for one potential stage being completed to start processing on the next potential stage. Riener (2019) furthermore lists examples of embodied perception studies suggesting that processing in the perceptual system is influenced by expectations, goals, and bodily states of the organism. For instance, objects appear closer when holding a tool that would enable the observer to reach it – but only when the observer intends to use that tool (Witt, Proffitt, & Epstein, 2005). In line with classic new look studies (Bruner & Goodman, 1947; Bruner & Postman, 1949), bodily states and resources have been found to influence conscious percepts. Hills appear steeper to people who are fatigued or carry a heavy backpack (cf. Proffitt, 2006; Proffitt, Bhalla, Gossweiler, & Midgett, 1995). Such experimentally induced biases are found in conscious perception, but not in the visual processing stream informing psychomotor adjustment. Perception informs decisions. We perceive the hill as too steep to take the risk trying to climb it, when we are not well prepared. Yet, when we would actually try, we would not stumble: our vision would grant our motor system with unbiased angle estimates. This illustrates the differentiation of vision for perception versus vision for action (Westwood & Goodale, 2011).

Riener (2019) highlights that the question "How can researchers measure what you see and not just what you *say* you see?" should be repeatedly posed in class to foster linking methodology in perception research to questions of high theoretical

Table 2 Generic tasks of psychologists (Lunt et al., 2014) and examples from sensation and perception

	Examples		
Generic task (Lunt et al.)	*Watch out for cyclists*	*Consumer warnings*	*Optimize accuracy scanning of hand luggage*
Goal specification, goal setting for the intervention or service to be provided	Help avoid traffic accidents involving cyclists	Consumers should be aware that product is dangerous when taking (non)buying decision	Train staff to guard against pitfalls in visual search
Psychological assessment at the individual, group, and organizational level	Observational study with individual drivers and groups (i.e., truckers). Check information and hardware provided by organization (i.e., logistics firm) to individuals	Rate of involuntary fixations on different variants of warning signs. Evaluate which signs have high mean and low interindividual variability. Evaluate mixing procedure to avoid habituation	Measure to what extent low target rate or prior encounter of a different relevant item leads to search misses in the individual. Compare groups potentially differing in quality culture. Check training and information provided by organization
Development of services to be provided	Identify locations in town with high risk of blind-angle accidents	Eyetracking study to measure effectiveness of different warning signs to catch attention	Develop training program involving information on factors compromising search accuracy and strategies to acquire and maintain high levels of performance
Psychological intervention or service/product implementation	Raise level of expectations that cyclists are encountered: Posts, (social) media campaign, collaborate with local initiatives. Raise level of knowledge in cyclists about blind angle	Optimize drawing from set of effective warning signs across product items to avoid habituation	Training with staff and training multipliers
Evaluation to draw conclusion on the effectiveness of the interventions	Knowledge about blind angle and number of cyclists in town pre-post. Higher rate of precaution in observational study pre-post.	Panel study to track amount of processing of warning signs over the years	Pre-post comparison of knowledge about facts about visual search as well as about training strategies
Literature	Koustanaï, Boloix, Van Elslande, & Bastien, 2008	Chéron, 2015; Gaschler, Mata, Störmer, Kühnel, & Bilalic, 2010	Krüger & Suchan, 2016; Mitroff & Biggs, 2014

and practical relevance. For instance, Firestone and Scholl (2016) argued that proposed top-down influences on perception are effects not on perception itself but on responses or judgments, or on the input to perception, rather than on the early perceptual process. Such debates can be relevant for future practicing psychologists. They might, for instance, deal with the question whether reports of disturbing infrasound from wind energy farms are due to expectations or would occur irrespective of expectations (Crichton, Dodd, Schmid, Gamble, & Petrie, 2014). As automatization can leave boring checking tasks for humans, human-machine interaction studies deal with the problem of disentangling whether people have (a) gradually come to ignore an aspect of a to-be-checked display without knowing that they no longer check as instructed or (b) knowingly started to ignore the display as it for a long time did not show relevant information (cf. Gaschler et al., 2015).

The influence of prior information on the perceptual processes working on elements (i.e., top-down influence) is further illustrated by studies on scene perception. Humans can within very short time (and before identifying objects) process the gist of a scene (Brady, Shafer-Skelton, & Alvarez, 2017) based on basic textural information. A scene with lots of small edges might be a furnished living room. A scene with a long, horizontal edge and few small ones might be a beach. Early scene identification in turn determines whether (non)fitting objects are identified (cf. Biederman, 1972; Palmer, 1975).

Gestalt Psychology Fog Free and Objective

Gestalt psychology has provided many examples illustrating top-down influences in perception, demonstrating that the whole is something different than the sum of the elements and that the identification of the elements is determined by processing of the global level. Different from many other mechanisms that are covered in teaching psychology, perceptual grouping can be made directly apparent to students by example stimuli. For example, grouping by proximity predicts that when for the first time looking at the night sky of the other hemisphere, we are the more likely to perceive stars as belonging together in a constellation the closer they are to each other in perceived distance (Kubovy & van den Berg, 2006). Classic Gestalt papers (cf. Koffka, 1922; Wertheimer, 1938) involve pictures in which the overall form (rather than the elements) determines what we perceive. Examples we have repeatedly used to trigger discussions on the strength of form perception relative to the strength of the influence of learning in perception are Figs. 35 and 36 in Wertheimer (1938): when showing a “W” directly mounted on an “M,” most observers in class report that they see an ornamental form. With a void between the “W” and the “M,” it is obvious that letters are being shown. The demonstration suggests that billions of prior encounters with “W” and “M” cannot compete with grouping. We rather see a novel ornamental form than the letters we are highly experienced with.

In classic Gestalt papers and textbook examples, readers see the picture, engage in metacognition on what they consciously perceive, map it to the argument in the paper, and then often agree with it. Effects are often very large such that data

collection, aggregation, and reporting do not seem to be necessary. Kubovy and van den Berg (2008) report that Gestalt phenomena are illustrated in psychology textbooks, because they are striking examples of psychological emergent properties – properties that a whole does not share with its parts. The Gestalt psychologists were the first to study these phenomena empirically. Kubovy and van den Berg (2008) suggest that their thinking has the reputation of being vague and wooly. Before they counter this evaluation, they cite Marr (1982) as a proponent of such a negative view of Gestalt psychology. Laying the ground for a computational analysis of the processes involved in vision, Marr (1982) distanced himself from the qualitative, post hoc, and highly subjective accounts of perceptual phenomena he attributed to Gestalt psychology. While his criticism might in part hold for the Gestalt psychologists of the early twentieth century, modern work has ruled it out by transferring older theorizing in a framework of mathematical modeling and clear-cut empirical operationalization (cf. Kubovy & van den Berg, 2008). The latter authors claim that it is possible to work "fog free and objective" (p. 131) when measuring Gestalt principles. They used lattices of dots as stimuli which grant high experimental control and allow for high numbers of measurements per observer. In particular, they operationalized grouping by proximity (the closer the dots are together, the more likely they are seen as connected) and grouping by similarity (the closer the luminance of the dots is on the scale, the more likely they are seen as connected) with this class of well-defined stimuli. Results showed that the probability of grouping scales very regularly with the amount of pixels dots is shifted together in space or in terms of luminance values. The highly regular relationship between similarity and probability of seeing dots as connected is apparent on the level of individual observers (and therefore also on the aggregate level). In our own teaching, we have used the dot lattice stimuli of Kubovy and van den Berg (2008) in a master course successfully. Students came to appreciate that the term "law" (Halvor Teigen, 2002) might be suitable with respect to Gestalt principles when discussing the minuscule deviation of their grouping data from the regression line. In fact, some students found it difficult to understand why a regression line should be computed, as in their view, the line was already there (in form of the arrangement of the highly ordered arrangement of the data points).

While the above paragraphs provide some possible lines of discussion and differentiation that can be helpful to order and link topics in teaching sensation and perception, Table 3 lists suggestions for a possible syllabus.

Teaching, Learning, and Assessment in Sensation and Perception: Approaches and Strategies

The Touch Metaphor for Vision

Material on vision dominates teaching of sensation and perception (cf. Prull & Banks, 2005). Yet, separating teaching on vision from the teaching concerning other senses might, as a side effect, help to sustain wrong lay-theories about

Table 3 Suggestions for a syllabus on sensation and perception

Unit	Content
Introduction	(1) Perception in science studies and ecologic and economic problems: other scientific disciplines and practical questions need input from psychology (2) Evolutionary development and functional value of sensation and perception (cf. Braitenberg, 1984) (3) Categorization problem: how and why do we categorize the chair in front of us as a chair? Resources for the introduction and other parts can be found in textbooks such as Goldstein (2013)
Physiological principles in receptors	(1) How are neural firing patterns generated in receptors in vision, hearing, touch, and smell? (2) Active sampling of information: Eye movements and eye tracking
Psychophysical methods	How does physical intensity map to psychological intensity? Implications for the intensity-range receptors can cover
Processing of sensory information in specialized brain areas	(1) Visual cortices: Organization in columns (including ontogenetic development), retinotopic coding, and binding problem (2) Perception of configurations (fusiform face area, prosopagnosia) (3) Streams of visual processing: Vision for object identification vs. vision for action, visuomotor coordination despite cortical blindness
Failures show strength of perceptual system	Visual and auditory illusions: Differences between lay-concepts of perception and characteristics demonstrated in illusions. Relevance for practical psychology (e.g., design of data graphs). Modularity of processing discussed based on illusions that are resistant to knowledge
Scene and element	(1) Gestalt principles of grouping by proximity and grouping by similarity (2) Features used in scene perception and influence of scene perception on identification of elements
Perception for action	(1) Observing and taking actions: Which information is used in sports (e.g., catching a ball), running, driving? (2) Influence of bodily and motivational states on perception
Art, grocery, and consumer electronics	(1) Which characteristics are relevant for esthetics (cf. Menninghaus et al., 2019)? (2) Which aspects of sensation and perception are relevant when designing and marketing consumer products?
Attention	(1) Visual search: pop-out search (one feature) vs. serial search (feature conjunction) (see, e.g., Thornton & Gilden, 2007). Discuss factors threatening success in real-life settings such as luggage scanning (cf. Mitroff & Biggs, 2014) (2) Spotlight metaphor vs. filter metaphor (cf. Fernandez-Duque & Johnson, 1999); "cause" theories, in which attention is presumed to modulate information processing

(continued)

Table 3 (continued)

Unit	Content
	(e.g., attention as a spotlight; attention as a limited resource); (b) "effect" theories, in which attention is considered to be a by-product of information processing (e.g., the competition metaphor) (see Fernandez-Duque and Johnson (2002)) (3) Predictive coding principle (e.g., Bubic, Cramon, & Schubotz, 2010; Clark, 2013): the brain as constantly operating prediction machinery. We process events in terms of how they deviate from our predictions
Expertise in perception	What are expert skills in perception, and how are they acquired? The unit should involve examples such as radiological expertise (cf. Bilalić et al., 2016) or the state of research on hand luggage scanning (cf. Krüger & Suchan, 2016)
Perception in human-machine interaction	Usability principles for user interfaces. Pitfalls of automatization. Testing and training attention and perceptual processing in the work place
Multimedia	How should multimedia material be designed to support knowledge acquisition by scaffolding perception and attention (cf. Mayer, 2014)? How do people integrate text and picture information? What do we know from psychological experiments about how data graphs should be designed and which graph format suits which communication purpose?
Diversity and perception	Cultural diversity (c.f., Kitayama, 2003; Luria, 1976), age effects (cf. Lautenbacher et al., 2017), and perception in clinical settings (Glashouwer et al., 2019; Thompson et al., 2016)
Speech perception	(1) Characteristics of human and computer-based speech perception (2) Training programs for developmental difficulties
Environmental psychology	Perception of built environments; recreational value of environments; psychophysics and evaluative components of noise (i.e., airport close to primary school, wind park noise); thermal comfort in working environments (for an overview of environmental psychology, see Steg & de Groot, 2019)

visual perception (cf. O'Regan, 2011). O'Regan in turn suggested to use a touch metaphor to correct misbeliefs about vision: w access details of visual scenes similar to exploring an invisible object (e.g., a harmonica) in a bag. Density of receptors on the retina differs and so does the density of receptors on the skin (e. g., fingertip vs. back of the hand). We actively sample from different locations from the visual scene (by fixating different parts) just as we explore an object by

moving our hand on it. An object can be identified by using the fingertips or the palm or a pencil as point of contact. While the firing of the pressure-sensitive receptors differs strongly, there is commonality in the dynamics of changes in firing when moving across the object. Similarly, the physical characteristics of the light reflected from a "red" apple change dramatically under different lighting conditions and when projected on different parts of the retina. We perceive an object as red, because it features the changes characteristic for red when seen under different conditions.

Change Blindness

The touch metaphor for vision is useful to explain why we are wrong when assuming that vision grants us with a highly detailed representation of the world around us. Rather, we can access details of different parts of the visual environment similarly to exploring a part of an object in detail with our hands. O'Regan suggests that change blindness demonstrations are effective in conveying that we only sample detailed information from one part of the visual environment at a time: we do not realize if parts are changed at other locations. Change blindness demonstrations come in different variants. These variants have in common that observers witness that a change which seems large and obvious to people who know about it remains undetected for a long time for a large part of the audience not informed about what is changing. Take as an example the lab counter change blindness situation (there are many variants on YouTube) which we have also tried with our students with visitors of a public science event: a student waiting behind the counter welcomes the visitor approaching the entry of the lab and asks for a second to get a form sheet from beneath the counter. The student ducks. A different student (who had been waiting behind the counter) rises instead and hands over the form sheet. The visitor is led into the lab and can work on the sheet asking if anything unusual had been noticed. Only a minority reports anything related to the trick. Yet, when visitors are than granted the opportunity to witness the procedure from an angle that allows them to see the approaching visitors *and* the gymnastics taking place behind the counter, many find it very surprising that the change in person attending the visitor go unnoticed.

The flicker paradigm is the technically most simple variant to set up a change blindness demo. Students need a photograph (e.g., a scene from the campus). In a copied variant of the file, a part is being removed or exchanged. For instance, two houses in the background might flip positions between the original and the edited copy. Now the two variants of the picture are being displayed in alternation with a 100 ms blank screen between the original and edited copy. The blank screen is needed to avoid that attention is directed to the changed parts automatically. Students can show their variant to the class and have peers raise their hand as soon as they have found out what is constantly changing back and forth in the picture. Own teaching

suggests that this activity is helpful in conveying the sampling character of vision. Students are astonished by that some peers are much faster than others to detect the change (because they by chance happened to fixate the part of the picture that was changing). Also, once detected, it is hard to believe that such a large change was so hard to detect for most of the audience. In one variant, the authors combined the flicker paradigm with eye tracking (see also Hollingworth, Schrock, & Henderson, 2001). One student was trying to find the changing part in the campus picture, while the audience could watch a projection containing the stimulus together with the location her eyes were fixating. This allowed the audience to track live that change detection was depending on (by chance) fixating the position of the change when it occurred.

Transfer Tasks

Didactic pairing of topics (such as touch and vision) and usage of student-run live demonstrations should be complemented by other tasks handed out to the students. Kreiner (2009) suggested to have students work on open tasks or problems to acquire knowledge about sensation and perception as well as skills to apply this knowledge. Psychophysics might be taught via a task to make recommendations on formulating and packaging a sports beverage. Knowledge about attention in the visual system as well as sensitivity to contrast, moving objects, and color information in different light conditions might be acquired in a task to make recommendations on lighting for nighttime road construction. Work on color perception might be triggered by a task to recommend colors for emergency vehicles to maximize detection. Development of recommendations on configuring emergency vehicle sirens might be used to motivate dealing with auditory perception. Students might practice to communicate knowledge in a supportive way by working on the task to develop a presentation for a senior center on the topic of presbyacusis. An introduction to neural pathways of visual processing might be given by asking for the development of a series of neuropsychological questions and tests to identify a person's visual perception problems. Awareness to the power of speech perception might be raised by a task to explain why artificial speech recognition systems might not be as good as human speech recognition. An overview of cutaneous senses can be reached by handing out the task to identify consequences for the loss of various cutaneous senses. Finally, knowledge about chemical senses can be acquired by having students compile a list of concepts that could be included in a lesson on taste perception for professional chefs.

Challenges and Lessons Learned

Teaching sensation and perception involves dealing with abundant resources and challenges (Prull & Banks, 2005). For example, sensation and perception chapters are among the most lengthy (Griggs, Jackson, Christopher, & Marek, 1999) and

contain the highest number of psychological terms and concepts (Landrum, 1993). Nonetheless, chapters on sensation and perception in full-length introductory textbooks decreased from the 1980s (10%) to the 1990s (9%) and 2000s (7%) as other topics were increasingly covered (cf. Griggs, 2014). Yet in brief introductory textbooks, the percentage of text devoted to topics related to sensation and perception has not changed (9%, 8%, 8%, in the same decades).

Most of the published teaching recipes relevant to sensation and perception (see Table 5) come with only a very coarse evaluation (if any). When explaining to our students how psychology with evidence-based practice can help to meet societal challenges and pursue individual goals, we should take this as a reminder that evidence-based practice should also be a guiding principle for our teaching and efforts to obtain more thorough evaluations need to be intensified.

One aspect of aligning content and practice of teaching might be the use of data graphs. Peden and Hausmann (2000) suggest that there is a lack of work on how to teach students to make and interpret data graphs. They report that the journals on psychology didactics lack such work and that the variety, number, and quality of data graphs in textbooks can be improved. According to Butler (1993), the number of pages with data graphs in introductory psychology textbooks has not increased from the 1940s to the 1990s, while it increased in psychology research journals. Data graph literacy of future psychologists should be fostered more rigorously.

Current textbooks (e.g., Goldstein, 2013) and the material presented in this chapter suggest that there is a multitude of issues to be covered with a large array of demonstrations and tools at hand. Sensation and perception relate to profound theoretical questions in psychology and to many relevant fields of application. Given that course time is limited, the largest problem might be to select among the topics and materials. Yet, this problem might be eased somewhat as sensation and perception overlap with other domains such as consciousness, memory, cognition, cognitive neuroscience, and engineering psychology, which are treated in other chapters of this book. Sensation and perception can be taught in units that are explicitly dedicated to this topic as well as in units that are closely linked.

Teaching, Learning, and Assessment Resources

Online resources for teaching sensation and perception are developing at high rate. This short list of recommendations (Table 4) contains those of the sites we find inspiring and useful that have been maintained technically and with respect to content over the last years.

There are many recipes for teaching specific aspects of sensation and perception in the literature. In Table 5, we provide an overview of some published recipes sorted by sense and author.

Table 4 Online resources for teaching sensation and perception

Resource	Source
Collection of over 100 optical phenomena and visual illusions (including short discussions and suggestions for further reading)	https://michaelbach.de/ot/
Demonstrations (and texts) on psychophysics, receptive fields, perception of color, form, depth, and motion	http://elvers.us/perception/
Collection of demonstrations of auditory phenomenal grouping	http://faculty.virginia.edu/kubovylab/demo.php
Some of the classic gestalt texts showing examples and providing arguments for why and how emergence should be tackled	https://psychclassics.yorku.ca/topic.htm#gestalt
Collection of sound and image stimuli for creating own experiments	https://www.cmu.edu/dietrich/psychology/tarrlab/stimuli/index.html
Biological motion (e.g., walking person based on moving white dots)	https://www.biomotionlab.ca/demos/
Online and lab experiments and demos based on JavaScript	https://lab.js.org/
Library for web-based dynamic data graphs	https://d3js.org/
Collection of examples of interactive visualizations (and information on how to build them)	https://shiny.rstudio.com/gallery/
Free and open-source digital audio editor and recording application software for different platforms	https://www.audacityteam.org/
Free and open-source raster graphics editor for different platforms	https://www.gimp.org/
Free computer software package for speech analysis and synthesis in phonetics for different platforms	https://www.praat.org

Table 5 Recipes for presenting specific aspects of sensation and perception

Source	Keyword	Do/show what?	Convey what?
Auditory			
Barsz (1990)	Coding by position in basilar membrane	Have students observe where the travelling wave peaks that is generated by shaking a rope tied to a doorknob at low vs. high frequency	Lower frequencies lead to longer distance covered by travelling wave before peak coding of pitch by position in basilar membrane at which wave peaks
Grosofsky (1996)	Making use of audio software (e.g., audacity) to show wave patterns	Record the sentence "what are you wearing to that party?," and display the wave pattern. Students should try to parse the sentence based on the visual display	Speech stream is continuous, and pronunciation is variable among speakers

(continued)

Table 5 (continued)

Source	Keyword	Do/show what?	Convey what?
		Generate pure tones of different wavelength and amplitude	Show that wavelength maps to pitch and amplitude maps to loudness
		Have students try to record more vs. less pure tones by using their voice (or tools such as tuning fork), and have them order the records based on the display	Show mixing of wavelengths
		Record different sounds, and have them classify as noise or music based on the visual display	Discuss about variant and level of structuredness being evaluated positively
Larsen and Fritsch (1998)	Missing fundamental	We "hear" the fundamental (e.g., a 110 Hz tone) if a series of overtones (e.g., 220 Hz, 330 Hz; 440 Hz, 550 Hz, 660 Hz) is being played, even when the fundamental is not actually being played. With a whistle that can produce one or two sounds, one sound is heard when one is played, but three are heard when two are played (the third being the Hz difference of the two sounds played)	Pitch perception fills in the fundamental. Small loudspeakers that cannot play low frequencies can give the impression of a low tone by playing the overtones
Haptic			
O'Dell and Hoyert (2002)	Cookie cutter shapes at the fingertip	Try to infer which cookie cutter shape was actively touched (e.g., explored by moving palm and fingers) vs. encountered in passive touch (gently pressed into palm)	Differentiate active and passive touch: While active touch offers astonishing amounts of information, passive touch leaves us guessing. Learn about research methodology (blinding, multiple trials, chance baseline, confounds in earlier research papers on this topic)
Haptic + visual			
Horner and Robinson (1997)	Size-weight illusion	Lifting two objects of equal weight, the larger is perceived as lighter than the smaller. When large vs. small cans (filled with stones) are lifted with strings, haptic information	Driven by vision or haptics, a larger object automatically leads to different expectations and initial force than a smaller one

(continued)

Table 5 (continued)

Source	Keyword	Do/show what?	Convey what?
		is identical. When lifted directly, haptic information differs. Blindfolding and lifting with strings should quit the illusion	
Ideomotor			
Lawson and Crane (2014)	Dowsing rods	Have students move rods over covered cup with/without water. Vary whether students have correct/incorrect beliefs with respect to the location of the cup filled with water	Discuss how the ideomotor principle leads people to believe that they unconsciously can sense water, etc.: The observer is involuntarily producing the movements
Olfactory			
Mason (1981)	Smell butyl and propyl acetate	Have students assign numerical values to strength of smell in sensitive, adapted, or cross-adapted state to later normalize these values	Introduce psychophysical method of magnitude estimation with an odorant as well as adaptation and cross-adaptation
Taste			
Fantino (1981)	Blind tasting	Have students taste different food such as apple, pear, potato, or onion when (1) blindfolded and deprived of smell or (2) artificially colored	Show cue integration in food tasting: Show low differentiation of food if smell is blocked. Show impact of visual cues (i.e., color)
Touch			
Nazzaro (1981)	Cutaneous two-point thresholds	Students touch different areas (i.e., palm, biceps) with caliper varying the distance of the two points of touch and report whether they feel one vs. two points of contact	Demonstrate that different parts of the skin have different densities of pressure receptors
Visual			
Beins (1983)	Color additivity	Arrange picture on monitor by mixing patches of red, green, and blue, shown to students at different viewing distances	Show white light as being combined of color light sources
Corey and Tatz (1990)	Müller-Lyer illusion	Have students estimate the length of a line ended by inward- vs. outward-pointing arrows. For an interactive slider arrangement, see https://	Shapes on arrows resemble depth cues found in many environments. The Müller-Lyer illusion leads to a surprisingly strong effect and does not change when one knows about the

(continued)

Table 5 (continued)

Source	Keyword	Do/show what?	Convey what?
		michaelbach.de/ot/sze-muelue/index.html	illusion. It can serve as a starting point to discuss modularity of information processing
Cushman (1981)	Distribution of blue-sensitive receptors	Small and dim flashing blue light will disappear when directly looking at it, but not when looking a few degrees to the side of the source	Color receptors are not uniformly distributed across the retina. Blue might not be a good choice to display small details. Blue-sensitive receptors have maximum density at the border of the fovea and decrease toward center
Duda (1981)	Blind spot	Print X (left) and Y (right) at 10 cm distance to make Y disappear and reappear when slowly approaching from arm-length distance while fixating the X with the right eye and keeping the left closed	There are no photoreceptors at the part of the retina, where nerve fibers from different parts of retina collect to form the optic nerve
Kunkel (1993)	Moon illusion: Introduce estimation procedure	Make students mentally select an object that would cover the moon when held at arm's length	Introduction to a simple but psychometrically sound estimation procedure. Size is overestimated and especially so when closed to the horizon. Different bases for illusion can be discussed. Factual knowledge can be acquired: Moon covers one degree of the night sky irrespective of altitude or time of year and can be occluded by a pea held at arm,s length
LaVoie (1987)	Emmert's law	Have students look at a unicolor shape of high luminance to then look at the plain wall. Depending on distance to the wall, the perceived size of the afterimage will vary	Computation of size combines size of object on the retina with context cues. Retinal images of the same size will appear of different size depending on distance to the wall
Neuhoff (2000)	Apparent motion and conjunction – Presentation software is sufficient	Apparent motion: (1) sequence of pictures showing object at successive positions is interpreted as if the object was moving (2) when a picture with	Phi phenomenon (Wertheimer, 1912): visual system automatically interprets movement. Binding problem: different features of visual objects are processed by different

(continued)

Table 5 (continued)

Source	Keyword	Do/show what?	Convey what?
		objects A and B is replaced by a picture with object A, viewers interpret that A occludes B (3) sequence of pictures with an object being shown left and right of a void is interpreted as movement illusory conjunctions: Briefly show three large letters in three different colors. Students will reliably be able to report the letters and the colors but fail to report which colors came with which letters	brain structures in the visual system; binding might work via coupling of neuronal firing frequencies (i.e., same frequency for those that belong together)
Prull and Banks (2005)	Classroom-sized pinhole camera	Show inverted projection of scene outside of the classroom clear and dim (small pupil) or blurry and bright (large pupil). Apply lens at optimal distance vs. simulating nearsightedness vs. farsightedness	Upside-down projection in mammalian eye. Tradeoff between image brightness and clarity of a large vs. small pupil shows role of the lens
Solomon (1980)	Magical illusions	(1) Basic vanishes: Movement of objects between hands suggests that object is being passed while it is not. Can be acquired by faculty or students within hours of training	We see what we expect to see. Starting point for discussing the role of experience in perception. Past experience with dynamics of objects determines perception. Predictive coding account (e.g., Clark, 2013)
		(2) After seeing a ball being thrown up in the air several times, the same movement will result in the illusion of a ball being thrown up to never return (if the ball is instead dropped)	See above
		(3) Auditory illusion of multiple coins vanish: The illusion that coins are (invisibly) still in the hand they apparently have been passed to is strengthened by shaking the coins in the hand. Observers don't notice that the sound comes from the other hand	Make transparent the acuity in localization of sound

(continued)

Table 5 (continued)

Source	Keyword	Do/show what?	Convey what?
		(4) Oversized playing cards with pips partially being occluded by hands, turning cards over creates impression of pips being added	Observers "see" the full pattern of pips; what is missing is being filled in automatically, when occluded by hands. Gestalt principle of good figure/figure completion
		(5) Use sleight of hand techniques to produce very unlikely events with cards (i.e., selecting four aces apparently at random from a deck of cards)	There is automatic processing of likeliness. Get students to discuss when they accept that something has occurred due to chance. Discuss type I and type II errors in null hypothesis testing

Cross-References

- ▶ Neuroscience in the Psychology Curriculum
- ▶ Teaching Engineering Psychology
- ▶ Teaching Introductory Psychology

References

Ali, N., & Peebles, D. (2013). The effect of gestalt laws of perceptual organization on the comprehension of three-variable bar and line graphs. *Human Factors: The Journal of the Human Factors and Ergonomics Society, 55*(1), 183–203. https://doi.org/10.1177/0018720812452592.

American Psychological Association. (2013). *APA guidelines for the undergraduate psychology major*: Version 2.0. Retrieved from http://www.apa.org/ed/precollege/undergrad/index.aspx

American Psychological Association, Task Force on Guidelines for Master's Programs in Psychology. (2018). *APA guidelines on core learning goals for master's degree graduates in psychology*. Retrieved from https://www.apa.org/ed/precollege/about/psymajor-guidelines.pdf

Barsz, K. (1990). Auditory sensory processes: The travelling wave on the basilar membrane. In V. Parker Makosky, C. C. Sileo, & L. G. Whittemore (Eds.), *Activities handbook for the teaching of psychology* (Vol. 3, pp. 70–71). Washington, DC: American Psychological Association.

Beins, B. C. (1983). The light box: A simple way of generating complex color demonstrations. *Teaching of Psychology, 10*, 113–114.

Biederman, I. (1972). Perceiving real-world scenes. *Science, 177*, 77–80. https://doi.org/10.1126/science.177.4043.77.

Bilalić, M., Grottenthaler, T., Nägele, T., & Lindig, T. (2016). The faces in radiological images: Fusiform face area supports radiological expertise. *Cerebral Cortex, 26*(3), 1004–1014. https://doi.org/10.1093/cercor/bhu272.

Brady, T. F., Shafer-Skelton, A., & Alvarez, G. A. (2017). Global ensemble texture representations are critical to rapid scene perception. *Journal of Experimental Psychology: Human Perception and Performance, 43*, 1160–1176. https://doi.org/10.1037/xhp0000399.

Braitenberg, V. (1984). *Vehicles: Experiments in synthetic psychology*. Cambridge, MA: MIT Press.

Brewer, F. W. (2012). The theory ladenness of the mental processes used in the scientific enterprise. In R. W. Proctor & J. E. Capaldi (Eds.), *Psychology of science: Implicit and explicit processes* (pp. 290–233). New York, NY: Oxford University Press.

Bruner, J. S. & Goodman, C. C. (1947). Value and need as organizing factors in perception. Journal of Abnormal and Social Psychology, 42, 33–44. https://doi.org/10.1037/h0058484. Online: https://psychclassics.yorku.ca/Bruner/Value/

Bruner, J. S. & Postman, L. (1949). On the perception of incongruity: A paradigm. Journal of Personality, 18, 206–223. https://doi.org/10.1111/j.1467-6494.1949.tb01241.x. Online: https://psychclassics.yorku.ca/Bruner/Cards/

Bubic, A., von Cramon, D. Y. & Schubotz, R. I. (2010) Prediction, cognition and the brain. Frontiers in Human Neuroscience, 4: e25. https://doi.org/10.3389/fnhum.2010.00025.

Butler, D. L. (1993). Graphics in psychology: Pictures, data, and especially concepts. *Behavior Research Methods, Instruments, & Computers, 25*, 81–92. https://doi.org/10.3758/BF03204481.

Chéron, E. (2015). Effect of graphic images in cigarette health warning: A call for stricter packaging regulation in Japan. *Journal of International Consumer Marketing, 27*(2), 137–151. https://doi.org/10.1080/08961530.2014.979306.

Clark, A. (2013). Whatever next? Predictive brains, situated agents, and the future of cognitive science. *Behavioral and Brain Sciences, 36*, 181–204. https://doi.org/10.1017/S0140525X12000477.

Corey, J. R., & Tatz, S. J. (1990). Classroom measurement of visual illusions. In V. Parker Makosky, C. C. Sileo, & L. G. Whittemore (Eds.), *Activities handbook for the teaching of psychology* (Vol. 3, pp. 63–65). Washington, DC: American Psychological Association.

Crichton, F., Dodd, G., Schmid, G., Gamble, G., & Petrie, K. J. (2014). Can expectations produce symptoms from infrasound associated with wind turbines? *Health Psychology, 33*(4), 360–364. https://doi.org/10.1037/a0031760.

Cushman, W. B. (1981). Blue-blindness in the central fovea. In L. T. Benjamin Jr. & K. D. Lowman (Eds.), *Activities handbook for the teaching of psychology, Volume 1* (pp. 36–37). Washington, DC: American Psychological Association.

Dekker, S. (2002). *The field guide to human error investigations*. Hampshire, UK: Ashgate.

Duda, J. J. (1981). Blind spot in vision. In L. T. Benjamin Jr. & K. D. Lowman (Eds.), *Activities handbook for the teaching of psychology, Volume 1* (pp. 43–44). Washington, DC: American Psychological Association.

Edkins, G. D., & Pollock, C. M. (1997). The influence of sustained attention on railway accidents. *Accident Analysis & Prevention, 29*, 533–539. https://doi.org/10.1016/s0001-4575(97)00033-x.

Evans, J. E., & Maunder, E. W. (1903). Experiments as to the actuality of the 'Canals' observed on Mars. *Monthly Notices of the Royal Astronomical Society, 63*, 488–499.

Fantino, B. (1981). Taste preferences: Influence of smell and sight. In L. T. Benjamin Jr. & K. D. Lowman (Eds.), *Activities handbook for the teaching of psychology, Volume 1* (pp. 29–30). Washington, DC: American Psychological Association.

Feng, X., Jiang, X., Yang, X., Duc, M., & Li, X. (2019). Computer vision algorithms and hardware implementations: A survey. *Integration, 69*, 309–320. https://doi.org/10.1016/j.vlsi.2019.07.005.

Fernandez-Duque, D., & Johnson, M. L. (1999). Attention metaphors: How metaphors guide the cognitive psychology of attention. *Cognitive Science, 23*(1), 83–116. https://doi.org/10.1016/S0364-0213(99)80053-6.

Fernandez-Duque, D., & Johnson, M. L. (2002). Cause and effect theories of attention: The role of conceptual metaphors. *Review of General Psychology, 6*(2), 153–165. https://doi.org/10.1037/1089-2680.6.2.153.

Firestone, C., & Scholl, B. J. (2016). Cognition does not affect perception: Evaluating the evidence for "top-down" effects. *Behavioral and Brain Sciences, 39*, 1–72. https://doi.org/10.1017/S0140525X15000965.

Galison, P. (1997). *Image and logic: A material culture of microphysics*. Chicago, IL: University of Chicago Press.

Gaschler, R., & Frensch, P. A. (2009). When vaccinating against information reduction works and when it does not work. *Psychological Studies, 54*, 43–53. https://doi.org/10.1007/s12646-009-0006-5.

Gaschler, R., Marewski, J. N., & Frensch, P. A. (2015). Once and for all – How people change strategy to ignore irrelevant information in visual tasks. *Quarterly Journal of Experimental Psychology, 68*, 543–567. https://doi.org/10.1080/17470218.2014.961933.

Gaschler, R., Mata, J., Störmer, V., Kühnel, A., & Bilalic, M. (2010). Change detection for new food labels. *Food Quality and Preference, 21*, 140–147. https://doi.org/10.1016/j.foodqual.2009.08.013.

Gaschler, R., Schwager, S., Umbach, V. J., Frensch, P. A., & Schubert, T. (2014). Expectation mismatch: Differences between self-generated and cue-induced expectations. *Neuroscience and Biobehavioral Reviews, 46*, 139–157. https://doi.org/10.1016/j.neubiorev.2014.06.009.

Glashouwer, K. A., van der Veer, R. M. L., Adipatria, F., & de Jong, P. J., & Vocks, S. (2019). The role of body image disturbance in the onset, maintenance, and relapse of anorexia nervosa: A systematic review. Clinical Psychology Review https://doi.org/10.1016/j.cpr.2019.101771.

Godau, C., Vogelgesang, T., & Gaschler, R. (2016). Perception of bar graphs – a biased impression? *Computers in Human Behavior, 59*, 67–73. https://doi.org/10.1016/j.chb.2016.01.036.

Goldstein, E. B. (2013). *Sensation and perception*. Wadsworth, OH, Cengage Learning.

Griggs, R. A. (2014). Topical coverage in introductory textbooks from the 1980s through the 2000s. *Teaching of Psychology, 41*(1), 5–10. https://doi.org/10.1177/0098628313514171.

Griggs, R. A., Jackson, S. L., Christopher, A. N., & Marek, P. (1999). Introductory psychology textbooks: An objective analysis and update. *Teaching of Psychology, 26*(3), 182–189. https://doi.org/10.1207/S15328023TOP260304.

Grosofsky, A. (1996). Audition laboratory activities for teaching sensation and perception. *Teaching of Psychology, 23*(1), 49–51. https://doi.org/10.1207/s15328023top2301_13.

Halvor Teigen, K. (2002). One hundred years of laws in psychology. *The American Journal of Psychology, 115*(1), 103–118. https://doi.org/10.2307/1423676.

Hollingworth, A., Schrock, G., & Henderson, J. M. (2001). Change detection in the flicker paradigm: The role of fixation position within the scene. *Memory & Cognition, 29*(2), 296–304. https://doi.org/10.3758/BF03194923.

Horner, D. T., & Robinson, K. D. (1997). Demonstrations of the size–weight illusion. *Teaching of Psychology, 24*(3), 195–197. https://doi.org/10.1207/s15328023top2403_12.

Huestegge, L., & Philipp, A. M. (2011). Effects of spatial compatibility on integration processes in graph comprehension. *Attention, Perception, & Psychophysics, 73*(6), 1903–1915. https://doi.org/10.3758/s13414-011-0155-1.

IPCC. (2014). Climate change 2014: Synthesis report. In Core Writing Team, R. K. Pachauri, & L. A. Meyer (Eds.), *Contribution of working groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Geneva, Switzerland: IPCC. 151 pp.

Kitayama, K., Duffy, S., Tadashi, K., & Larsen, J. (2003). Perceiving an object and its context in different cultures: A cultural look at new look. *Psychological Science, 14*(3), 201–206. https://doi.org/10.1111/1467-9280.02432.

Koffka, K. (1922). Perception: An introduction to the Gestalt-theorie. *Psychological Bulletin*, *19*, 531–585. https://doi.org/10.1037/h0072422. Online: https://psychclassics.yorku.ca/Koffka/Perception/perception.htm

Koustanaï, A., Boloix, E., Van Elslande, P., & Bastien, C. (2008). Statistical analysis of "looked-but-failed-to-see" accidents: Highlighting the involvement of two distinct mechanisms. *Accident Analysis and Prevention, 40*(2), 461–469. https://doi.org/10.1016/j.aap.2007.08.001.

Krüger, J. K., & Suchan, B. (2016). You should be the specialist! Weak mental rotation performance in aviation security screeners – Reduced performance level in aviation security with no gender effect. *Frontiers in Psychology, 7*, e333. https://doi.org/10.3389/fpsyg.2016.00333.

Kubovy, M., & van den Berg, M. (2006). Grouping in random-dot patterns. *Journal of Vision, 6*(6), 758–758. https://doi.org/10.1167/6.6.758.

Kubovy, M., & van den Berg, M. (2008). The whole is equal to the sum of its parts: A probabilistic model of grouping by proximity and similarity in regular patterns. *Psychological Review, 115* (1), 131–154. https://doi.org/10.1037/0033-295X.115.1.131.

Kunkel, M. A. (1993). A teaching demonstration involving perceived lunar size. *Teaching of Psychology, 20*(3), 178–180. https://doi.org/10.1207/s15328023top2003_14.

Larsen, J. D., & Fritsch, K. (1998). A valid demonstration of the missing fundamental illusion. *Teaching of Psychology, 25*(1), 29–31. https://doi.org/10.1207/s15328023top2501_8.

Lautenbacher, S., Peters, J. H., Heesen, M., Scheel, J., & Kunz, M. (2017). Age changes in pain perception: A systematic-review and meta-analysis of age effects on pain and tolerance thresholds. *Neuroscience and Biobehavioral Reviews, 75*, 104–113. https://doi.org/10.1016/j.neubiorev.2017.01.039.

LaVoie, A. L. (1987). Emmert's law. In V. Parker Makosky, L. G. Whittemore, & A. M. Rogers (Eds.), *Activities handbook for the teaching of psychology* (Vol. 2, pp. 46–48). Washington, DC: American Psychological Association.

Lawson, T. J., & Crane, L. L. (2014). Dowsing rods designed to sharpen critical thinking and understanding of ideomotor action. *Teaching of Psychology, 41*(1), 52–56. https://doi.org/10.1177/0098628313514178.

Lawton, R., & Ward, N. J. (2005). A systems analysis of the Ladbroke grove rail crash. *Accident Analysis & Prevention, 37*, 235–244. https://doi.org/10.1016/j.aap.2004.08.001.

Lewandowsky, S., Ballard, T., Oberauer, K., & Benestad, R. (2016). A blind expert test of contrarian claims about climate data. *Global Environmental Change, 39*, 91–97. https://doi.org/10.1016/j.gloenvcha.2016.04.013.

Lunt, I., Job, R., Lecuyer, R., Peiro, J. M., & Gorbena, S. (2014). *Tuning-EuroPsy: Reference points for the design and delivery of degree programmes in psychology*. Retrieved from http://www.efpa.eu/professional-development/tuning-europsy-_-tuning-educational-structures-in-europe

Luo, M., Cao, B., Ji, W., Ouyang, Q., Lin, B., & Zhu, Y. (2016). The underlying linkage between personal control and thermal comfort: Psychological or physical effects? *Energy and Buildings, 111*, 56–63. https://doi.org/10.1016/j.enbuild.2015.11.004.

Luo, Y., & Zhao, J. (2019). Motivated attention in climate change perception and action. *Frontiers in Psychology, 10*, e1541. https://doi.org/10.3389/fpsyg.2019.01541.

Luria, A. R. (1976). *The cognitive development: Its cultural and social foundations*. Harvard University Press.

Marr, D. (1982). *Vision: A computational investigation into the human representation and processing of visual information*. San Francisco, CA: Freeman.

Mason, J. R. (1981). A novel experiment for introductory psychology courses: Psychophysical assessment of olfactory adaptation. *Teaching of Psychology, 8*(2), 117–119. https://doi.org/10.1207/s15328023top0802_21.

Mayer, R. E. (2014). *The Cambridge handbook of multimedia learning*. Cambridge, UK: Cambridge University Press.

Menninghaus, W., Wagner, V., Wassiliwizky, E., Schindler, I., Hanich, J., Jacobsen, T., & Koelsch, S. (2019). What are aesthetic emotions? *Psychological Review, 126*(2), 171–195. https://doi.org/10.1037/rev0000135.

Mitroff, S. R., & Biggs, A. T. (2014). The ultra-rare-item effect: Visual search for exceedingly rare items is highly susceptible to error. *Psychological Science, 25*(1), 284–289. https://doi.org/10.1177/0956797613504221.

Nazzaro, J. R. (1981). Cutaneous two-point thresholds. In L. T. Benjamin Jr. & K. D. Lowman (Eds.), *Activities handbook for the teaching of psychology, volume 1* (pp. 31–32). Washington, DC: American Psychological Association.

Neuhoff, J. (2000). Classroom demonstrations in perception and cognition using presentation software. *Teaching of Psychology, 27*(2), 142–144. https://doi.org/10.1207/S15328023TOP2702_11.

O'Dell, C. D., & Hoyert, M. S. (2002). Active and passive touch: A research methodology project. *Teaching of Psychology, 29*(4), 292–294. https://doi.org/10.1207/S15328023TOP2904_07.

O'Regan, J. K. (2011). Why red doesn't sound like a bell: Understanding the feel of consciousness. Oxford University Press. Draft version as PDF: http://nivea.psycho.univ-paris5.fr/

Palmer, S. E. (1975). The effects of contextual scenes on the identification of objects. *Memory & Cognition, 3*, 519–526. https://doi.org/10.3758/BF03197524.

Peden, B. F., & Hausmann, S. E. (2000). Data graphs in introductory and upper level psychology textbooks: A content analysis. *Teaching of Psychology, 27*(2), 93–97. https://doi.org/10.1207/S15328023TOP2702_03.

Pittenger, D. J. (1995). Teaching students about graphs. *Teaching of Psychology, 22*(2), 125–128. https://doi.org/10.1207/s15328023top2202_9.

Proffitt, D. R. (2006). Embodied perception and the economy of action. *Perspectives on Psychological Science, 1*, 110–122. https://doi.org/10.1111/j.1745-6916.2006.00008.x.

Proffitt, D. R., Bhalla, M., Gossweiler, R., & Midgett, J. (1995). Perceiving geographical slant. *Psychonomic Bulletin & Review, 2*, 409–428. https://doi.org/10.3758/BF03210980.

Prull, M. W., & Banks, W. P. (2005). Seeing the light: A classroom-sized pinhole camera demonstration for teaching vision. *Teaching of Psychology, 32*(2), 103–106. https://doi.org/10.1207/s15328023top3202_5.

Riener, C. (2019). New approaches and debates on top-down perceptual processing. *Teaching of Psychology, 46*(3), 267–272. https://doi.org/10.1177/0098628319853943.

Schnotz, W., & Bannert, M. (2003). Construction and interference in learning from multiple representation. *Learning and Instruction, 13*(2), 141–156. https://doi.org/10.1016/S0959-4752(02)00017-8.

Schweiker, M., Fuchs, X., Becker, S., Shukuya, M., Dovjak, M., Hawighorst, M., & Kolarik, J. (2017). Challenging the assumptions for thermal sensation scales. *Building Research and Information, 45*(5), 572–589. https://doi.org/10.1080/09613218.2016.1183185.

Schweiker, M., Huebner, G. M., Kingma, B. R. M., Kramer, R., & Pallubinsky, H. (2018). Drivers of diversity in human thermal perception – A review for holistic comfort models. *Temperature, 5*(4), 308–342. https://doi.org/10.1080/23328940.2018.1534490.

Solomon, P. R. (1980). Perception, illusion, and magic. *Teaching of Psychology, 7*(1), 3–8. https://doi.org/10.1207/s15328023top0701_1.

Steg, L., & de Groot, J. I. M. (2019). *Environmental psychology: An introduction*. Wiley-Blackwell.

Thompson, T., Correll, C. U., Gallop, K., Vancampfort, D., & Stubbs, B. (2016). Is pain perception altered in people with depression? A systematic review and meta-analysis of experimental pain research. *The Journal of Pain, 17*(12), 1257–1272. https://doi.org/10.1016/j.jpain.2016.08.007.

Thornton, T. L., & Gilden, D. L. (2007). Parallel and serial processes in visual search. *Psychological Review, 114*(1), 71–103. https://doi.org/10.1037/0033-295X.114.1.71.

VanderStoep, S. W., Fagerlin, A., & Feenstra, J. S. (2000). What do students remember from introductory psychology? *Teaching of Psychology, 27*(2), 89–92. https://doi.org/10.1207/S15328023TOP2702_02.

Wertheimer, M. (1912). Experimentelle Studien über das Sehen von Bewegung. *Zeitschrift für Psychologie, 61*, 161–265.

Wertheimer, M. (1938). Laws of organization in perceptual forms. In W. Ellis, W (Ed. & Trans.), *A source book of gestalt psychology* (pp. 71–88). London, England: Routledge & Kegan Paul. Online: https://psychclassics.yorku.ca/Wertheimer/Forms/forms.htm

Westwood, D. A., & Goodale, M. A. (2011). Converging evidence for diverging pathways: Neuropsychology and psychophysics tell the same story. *Vision Research, 51*(8), 804–811. https://doi.org/10.1016/j.visres.2010.10.014.

Witt, J. K., Proffitt, D. R., & Epstein, W. (2005). Tool use affects perceived distance, but only when you intend to use it. *Journal of Experimental Psychology: Human Perception and Performance, 31*, 880–888. https://doi.org/10.1037/0096-1523.31.5.880.

Wittkopf, P. G., Lloyd, D. M., & Johnson, M. I. (2018). The effect of visual feedback of body parts on pain perception: A systematic review of clinical and experimental studies. *European Journal of Pain, 22*(4), 647–662. https://doi.org/10.1002/ejp.1162.

Teaching the Psychology of Learning

5

Stephanie A. Jesseau

Contents

S. A. Jesseau (✉)
University of Nebraska-Omaha, Omaha, NE, USA
e-mail: sjesseau@unomaha.edu

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Abstract

While teaching psychology is always demanding, teaching courses about the psychology of learning presents unique challenges for instructors. Learning courses have specialized language and procedures not found in other areas of psychology, students tend to enter courses with certain misconceptions, and published materials related to teaching learning can be lacking. This chapter discusses these and other challenges and potential ways to overcome them. Being aware of these pitfalls can help instructors to understand any confusion students might have or develop about the material and take actions to correct it. Also included is a brief history of learning as a field, and proposed core content and learning outcomes for learning courses. Evidence-based teaching and assessment strategies are discussed in general, along with specific examples pertaining to learning courses. A way of approaching the teaching of operant conditioning based on common student difficulties is also outlined. Lastly, some general teaching tips as well as teaching resources (some general, some specific to learning courses) are provided. Though this chapter is aimed at instructors of learning courses (or those looking for guidance in teaching the learning portion of an introductory psychology course), many of the strategies can be applied widely.

Keywords

Learning · Behaviorism · Operant conditioning · Pavlovian conditioning · Teaching strategies · Learning strategies

Introduction

The Study of Learning in Historical Context

Of all the subfields of psychology, the study of learning is certainly one of the oldest, with roots dating back to the ancient Greek philosophers. Aristotle observed that knowledge is acquired through experience, which was in opposition to his teacher Plato's view that knowledge is innate. In the seventeenth century, René Descartes incorporated both of these ideas by stating that humans are born with knowledge that becomes realized through experience. Despite the importance of these early philosophers, their ideas lacked empirical support.

More recently, other figures have significantly contributed to the field of learning including Charles Darwin, Ivan Pavlov, and B.F. Skinner. Darwin proved crucial to the study of learning and many other fields by proposing his theory of evolution by natural selection. As outlined in *The Descent of Man*, Darwin (unlike Descartes and many of his own contemporaries) felt that "there is no fundamental difference between man and the higher mammals in their mental faculties" (Darwin, 1871, p. 46). This paved the way for the use of animals in the study of memory and cognition, as well as the understanding that the ability to learn is itself an adaptation.

Pavlov observed that behavior can be elicited not only by certain stimuli directly (unconditioned stimuli), but also by other stimuli (conditioned stimuli) that have only been associated with an unconditioned stimulus. Modern psychologists continue to build on Pavlov's work, and the study of Pavlovian conditioning is certainly one of the enduring areas of psychology (Rescorla, 1988). Skinner's work focused on the prediction and control of behavior, specifically the role of reinforcers and punishers, and Skinner's behaviorism has been a dominant paradigm in psychology, particularly in the 1940s and 1950s. Skinner was not just a towering figure in the field of learning, but he was also one of the most important psychologists of the modern era. An analysis including qualitative (e.g., membership in the National Academy of Sciences and election as American Psychological Association President) and quantitative (e.g., overall citation numbers and citations in introductory textbooks) variables put Skinner at the very top of the list of the most influential psychologists of the twentieth century (Haggbloom et al., 2002), and Skinner's ideas continue to have a wide impact.

Learning Versus Cognition

The modern scientific study of learning was in some ways a reaction to the subjectivity of Sigmund Freud's psychoanalysis, Wilhelm Wundt's and Edward Titchener's introspection, and other nonempirical speculation that was taking place in psychology in the early twentieth century. To behaviorists such as Skinner and John B. Watson, what was important in the study of psychology was observable behavior (Skinner, 1974, 1977). The cognitive revolution that began in the 1950s was a reaction to the behaviorist view that the mind could not be studied empirically. As cognitive psychologists ushered in the application of scientific methods to the study of mental process such as thinking, memory, and attention, some claim that this spelled the end of behaviorism (Braat, Engelen, van Gemert, & Verhaegh, 2020; Robins, Gosling, & Craik, 1999; Watrin & Darwich, 2012), and that psychology as a whole needed to distance itself from behaviorism so that cognitive psychology could regain scientific respectability (Miller, 2003). Some even refer to the period of the dominance of behaviorism as a "behaviorist dark age," followed by a "cognitivist renaissance" (Roediger, 2004; Watrin & Darwich, 2012). Despite the rise of cognitive psychology, Skinner continued to argue that the focus of learning research should be on observable behavior, and he even called cognitive science "the creationism of psychology" in his last address to the APA in 1990 (Wasserman & Blumberg, 2006).

Textbook accounts often indicate that the cognitive perspective replaced behaviorism, and therefore students might be led to believe that the study of learning in the behaviorist tradition is outdated and unimportant in modern psychology (Abramson, 2013; Machado & Silva, 1998). Even among faculty, behaviorists are sometimes viewed as anachronistic and even "simple minded," while cognitive psychologists are seen as being on the cutting edge of science (Abramson, 2013). However, it is perhaps more accurate to consider cognitive psychology as building on the work of behaviorists rather than replacing it, and that the so-called cognitive revolution merely

represented a shift rather than a revolution per se (Leahey, 1992). Citations of Skinner continued to increase throughout the period of the cognitive revolution (Thyer, 1991), as did the number of professional associations and publications related to behaviorism (Wyatt, Hawkins, & Davis, 1986). Though behaviorism is unlikely to return to the dominance it held prior to the cognitive revolution (Overskeid, 2008), research in the behaviorist tradition is very much alive today (Roediger, 2004). The tenets of behaviorism lie at the center of much of modern psychology, and any perceived decline in its dominance is simply because it is so pervasive that all psychologists doing empirical research are doing so in the behaviorist tradition (Brown & Gillard, 2015), even much of cognitive psychology (Morgan & Buskist, 1990). As one cognitive psychologist put it, "Behaviorism is alive and most of us are behaviorists" (Roediger, 2004).

Current Trends

Since the study of learning appears across many different domains of psychology, it is difficult to pinpoint a single direction in which the field is heading. Comparative cognition, functional neurology, and animal models of human behavior have been and continue to be important avenues of learning research (Domjan, 1987, 2010). One notable area where the study of learning is currently gaining prominence is in the applied disciplines of psychology such as cognitive behavior therapy and applied behavior analysis (ABA). While these approaches are perhaps best known as treatments for childhood disorders such as autism or attention deficit hyperactivity disorder (ADHD), they can be applied to a variety of targets including animal welfare, addiction, conduct disorders, workplace behavior, marriage and family problems, classroom management, eating disorders, sleep disorders, phobias, and post-traumatic stress disorder (PTSD), among others. Behaviorist concepts continue to be successfully applied to promoting animal and human welfare, which demonstrates the field's importance not just in academia but for society as well.

Purpose and Rationale for the Curriculum in Learning

According to the American Psychological Association Guidelines for the Psychology Major, there are four main content domains in psychology in the USA, including biological bases, learning and cognition, lifespan development, and sociocultural approaches (APA, 2013; see also Dunn et al., 2010). Learning is therefore considered a foundational course that gives students majoring in psychology a broad base of knowledge in the psychological sciences. In 1997, learning ranked fifth in the percentage of US institutions offering such a class (after introductory psychology, abnormal psychology, social psychology, and personality psychology among all institution types, [Perlman & McCann, 1999]). Another more recent study showed that in 2005, 80% of US institutions offered a class on learning, 24% of psychology majors completed such a class, and learning ranked eleventh on the list of most frequently offered courses (Stoloff et al., 2010). While this might indicate a slight decline over time in the popularity of the learning course, it might also simply

indicate an increase in course specialization (Dunn et al., 2010). Regardless of specific enrollments, learning has been and continues to be a popular and foundational course in psychology in the USA.

Learning Objectives

Even though "learning is ideally suited to address a broad range of important issues in science in general and psychology in particular" (Machado & Silva, 1998, p. 216), students may view the study of learning as separate from other areas of psychology. As such, students should leave a learning course with an understanding of how important learning processes are to all aspects of human and animal life. In addition, there are certain learning outcomes or competencies that students should possess. By the end of the course, students should be able to:

- Understand what learning is (and is not) and articulate the differences and similarities between learning and instinct.
- Understand the evolutionary underpinnings of learning in animals, including humans.
- Understand the main types of learning (Pavlovian and operant conditioning), how they work, and their similarities and differences.
- Apply knowledge of learning processes including Pavlovian and operant conditioning to real-world scenarios.
- Understand and be able to apply research methods in the study of learning.
- Gather, compile, and interpret data related to learning processes.

Core Content and Topics of the Learning Course

As with many areas of psychology, it is impossible to cover everything that is known about learning in a single course. Learning as a concept has been studied in many disparate fields such as neuroscience, animal behavior, evolutionary biology, computer science, and educational psychology, among others. A cursory look at textbooks written for the learning course reveals titles that include many terms, such as learning, memory, cognition, evolution, adaptation, conditioning, the brain, behavior, and behavior analysis. Even the titles of learning courses themselves may cross over into other areas of psychology including learning and memory, learning and motivation, and learning and cognition (Barron et al., 2015; Stoloff et al., 2010). This diversity opens up a wide range of possibilities for the major themes presented in a psychology of learning course. Regardless of the precise content instructors might choose to include, I suggest below a way to organize content into four units, and discuss ways to present portions of the material.

- Unit 1: Introduction and Background
  - Introduction to and definitions of learning
  - Introduction to evolutionary theory, including its importance to learning

  - Research methods and experimental design, including operational definitions
  - Simple forms of learning (habituation and sensitization)
- Unit 2: Pavlovian Conditioning
  - Introduction to Pavlovian conditioning (conditioned stimulus and response, unconditioned stimulus and response)
  - Acquisition, extinction, and spontaneous recovery, including the Rescorla-Wagner model
  - Variables affecting Pavlovian conditioning, including contingency and contiguity
  - Pavlovian procedures and their effects, including latent inhibition, blocking, US pre-exposure, higher-order conditioning, sensory preconditioning, disinhibition, external inhibition, conditioned suppression, stimulus discrimination, and stimulus generalization.
  - Contributions of John B. Watson and "Little Albert"
  - Practical applications of Pavlovian conditioning, including counterconditioning, systematic desensitization, advertising, aversion therapy, and addiction treatment
- Unit 3: Operant Conditioning
  - Introduction to operant conditioning (positive and negative reinforcement, positive and negative punishment)
  - Comparisons of operant to Pavlovian conditioning
  - Comparisons of operant conditioning to evolution by natural selection.
  - Contributions of Thorndike and Skinner
  - Intrinsic versus extrinsic reinforcement
  - Contingency and contiguity in operant conditioning
  - Reinforcer and species characteristics and their effects on reinforcement.
  - Theories of reinforcement (drive reduction, relative value, response deprivation, and behavioral bliss point)
  - Simple schedules of reinforcement (fixed and variable ratio, fixed and variable interval)
  - Complex schedules of reinforcement and the matching law
  - Noncontingent, partial, and intermittent reinforcement and their effects on behavior
  - Shaping and chaining
  - The problems with and variables affecting punishment
- Unit 4: Other Learning-Related Topics
  - Operant conditioning in everyday life (e.g., in schools, hospitals, and zoos, or in interacting with other humans or animals)
  - Using what we know about operant conditioning to improve self-control
  - The role of learning in insight and creativity
  - Social learning (humans and other animals)
  - Animal cognition (deception, theory of mind)
  - Language acquisition (humans and other animals)

Since learning is such a broad field, the last unit of the course in particular can encompass a wide variety of additional topics depending on instructor expertise, or

instructor and/or student interests, including machine learning, the neurobiology of learning, behavioral economics, memory systems, applied behavior analysis, and information processing, among others (see Machado & Silva, 1998 for additional ideas on topics and approaches for learning courses). I suggest that, when possible, instructors allow students to choose among these potential topics so as to heighten student interest and to keep the course different and interesting for the instructor over time as well.

Suggestions for Introducing the Course

Definitions of Learning

The very first thing I do in my learning course is ask the students to submit online definitions of learning as they see it. I gather their answers from the campus learning management system prior to the first day of class so that we can spend part of that initial meeting discussing what learning means. Students are instructed to give their answers spontaneously and without any assistance from outside resources, and I generally get a variety of thoughtful and interesting answers with a few overlapping themes. Many students touch on the idea of change in one form or another. Some focus on the academic repercussions of learning (e.g., studying for exams or quizzes), while others mention acquiring skills (e.g., learning how to cook or ride a bike). A few, like Supreme Court Justice Potter Stewart in his definition of obscenity in 1964, claim "I know it when I see it" (as quoted in Gewirtzt, 1996). Students are often surprised at how difficult it is for them to define something as ubiquitous as learning, and many are equally surprised that even scientists who study learning utilize different definitions (Barron et al., 2015).

Indeed, many of the course textbooks used in the USA avoid defining learning entirely (Barron et al., 2015). Most of those that attempt to do so present definitions similar to the following: A relatively permanent change in behavior due to individual experience (Barron et al., 2015; Lachman, 1997). However, even a cursory examination of this definition by most people (my students included) seems lacking (see De Houwer, Barnes-Holmes, & Moors, 2013), and many students argue that learning can in fact happen in the absence of behavioral change. Having a discussion about what constitutes learning at the beginning of the course opens up a dialogue with students about the nature of science and knowing (e.g., can we know learning has happened in the absence of measurable change, and if so, how?), and demonstrates that even well-established fields still have many unanswered questions. Promoting this awareness is important because it helps students understand that the study of learning specifically and science more generally are not simply collections of facts to be memorized, but are dynamic and exciting enterprises.

Evolution by Natural Selection

After exploring definitions of learning, I next present the topic of evolution. This might not seem to be an intuitive choice, but there are several important reasons for it. First, having an understanding of evolution by natural selection helps students to see

learning in a broader context (i.e., why do organisms have the capability to learn in the first place?). Second, it provides a framework in which to understand how learning takes place within the lifetime of an organism. Operant conditioning has much in common with the process of natural selection (Brown & Gillard, 2015; Donahoe, 2012). After all, "learning is the study of a major product of phylogenetic adaptation, and a major process of ontogenetic adaptation" (Machado & Silva, 1998, p. 225). Skinner has been described as the "Darwin of ontogeny" (Donahoe, 1984), and he himself made such comparisons between natural section and operant conditioning (Ghiselin, 2018). Through natural selection, individuals whose heritable traits are better suited to their environment are more likely to survive and reproduce, leading to a greater proportion of those traits in subsequent generations. The opposite is also true, with traits that are ill-suited to the environment becoming less common over time. Similarly, in operant conditioning, behaviors that are well suited to an individual due to their consequences are "selected for," and become more common in the future (reinforcement), and behaviors that are poorly suited to an individual due to their consequences become less common in the future (punishment). Having a basic understanding of evolution by natural selection early in the class helps students to view learning as part of a bigger picture while providing ways to think about selection that will be useful for understanding operant conditioning.

Research Methods

Research methods are important to all areas of psychology, and learning is no exception. Even if most students have already taken a methods course, it is useful to revisit the topic since some of the research methods that students encounter in a learning course differ from those that are emphasized in other areas of psychology (Machado & Silva, 1998; Pilgrim, 2003). Covering research methods also provides an opportunity to discuss the costs and benefits of the different research designs. For example, under what circumstances is a between-subjects design a better choice compared with a within-subjects design? When would a laboratory experiment be preferable to a more naturalistic design? Grappling with these sorts of problems will help students to understand why learning experiments are conducted the way they are, and connect the study of learning to the overall discipline of psychology.

Teaching, Learning, and Assessment in Learning Courses: Approaches and Strategies

B.F. Skinner himself noted that graduate schools train scholars rather than teachers, and that teaching at a university is one of the only professions where there is no professional training (Skinner, 1956). Though many graduate students receive pedagogical experience in the form of teaching assistantships, these are often structured to benefit faculty and the institution rather than the students themselves (Austin, 2002). Graduate schools tend to place a greater emphasis on research over teaching, and may even actively devalue teaching (Chew et al., 2018). This means

that new faculty are often lacking in the basic pedagogical knowledge and experience to make them effective teachers. In addition, there is a dearth of published information regarding the instruction of learning courses in particular. Machado and Silva (1998) found that only 1.2% of articles in the journal *Teaching of Psychology* specifically addressed learning courses. Of the resources that exist, some of them are unnecessarily muddled and confusing (see Flora & Pavlik, 1990 for example, regarding operant conditioning). Despite these and other challenges inherent to teaching at the university level in general and teaching a learning course in particular, there are many data-supported pedagogical techniques for instructors to utilize.

Something that is important to keep in mind, especially early in a teaching career, is that there is not one single best way to teach (D. J. Bernstein et al., 2010; Holmes, 2016; Jakobsen & Daniel, 2019). Before constructing a class, however, instructors should think about what they want students to learn or be able to do, and adjust their techniques accordingly (i.e., backward design; Wiggins & McTighe, 2005). In addition, using teaching and learning techniques that include active engagement by students is the best way to encourage learning and deeper understanding of the material (Dolan & Collins, 2015; Halpern et al., 2010).

Indeed, as instructors we can use what we know about cognition to our advantage in the classroom. Many of the pedagogical techniques I use have their roots in cognitive psychology (see Parker, 1993). Some of my favorites for teaching a learning course in particular include using interactive lectures, having students predict outcomes, using retrieval practice, using classroom response systems and peer instruction, using spaced practice, and connecting material to existing knowledge. Regardless of the specific techniques chosen for a given course, a variety of teaching and learning techniques should be used in order to maximize impact (Halpern et al., 2010). Below I will outline strategies that I have found to be useful with learning courses, though the overall principles apply to pedagogy in general.

Interactive Lectures

Few teaching techniques have been as vilified as the lecture in recent years. Lecturing has been accused of being outdated and inefficient due to what some perceive to be short attention spans and passivity on the part of students (Matheson, 2008), and has even been called a waste of time (see Parker, 1993). These criticisms have always struck me as straw man arguments since the reasons for criticizing lectures do not tend to have a great deal of evidence, especially for all learners in all circumstances, and even the meaning of lecture is not adequately defined by many researchers (Bernstein, 2018; Holmes, 2016). Most people when criticizing lectures are not taking aim at lectures per se, but rather at bad lectures (Parker, 1993). It is easy to attack the image of a stereotypical professor who speaks in a monotone to a large lecture hall for an entire class period without so much as making eye contact with the students, let alone asking them if they have questions. Most college instructors still use lecture as a dominant teaching strategy (Barkley & Major, 2018), but most (myself included) also incorporate student-centered, active learning components in their lectures (Burkill, Dyer, & Stone, 2008).

I mention lectures here not because I think they are the best way of teaching in all circumstances, but because lecture is as good as other methods of delivering content (Bligh, 2000). Even in literature specifically devoted to denigrating them, lectures tend to be included in the overall pedagogical strategy in some form, such as short introductory lectures during class time, or recorded lectures for students to watch before coming to class. When students have little or no prior knowledge about a subject, lecture can be an efficient way to give students some of the basic, factual information they need. From there, instructors can employ a variety of active learning techniques (some of which I will outline below) to help students with the progression from the foundational, more fact-based levels of Bloom's taxonomy (e.g., remembering and understanding) to the higher levels where students are analyzing, evaluating, and applying information (Anderson et al., 2001). This type of interactive lecturing (Barkley & Major, 2018; Bernstein, Frantz, & Chew, 2020; White, 2011) is a great way to deliver content while maintaining student engagement and challenging students to go beyond simple memorization.

The field of learning contains a large number of terms and procedures that do not generally appear in other psychology courses (Machado & Silva, 1998), and the meanings of those terms are not always obvious and are sometimes even counterintuitive, which can lead to misunderstandings (see the "Challenges and Lessons Learned" section below for specific examples regarding operant conditioning). Despite the focus many instructors have on the higher levels of Bloom's taxonomy, the factual information in any course is still extremely important because it provides a foundation on which students can build further knowledge and understanding (see Christodoulou, 2014). Therefore, lectures can be useful to teachers of learning courses for introducing unfamiliar (and potentially confusing or counterintuitive) material, and pointing out common misconceptions before moving on to more complex ways of thinking about and processing the material.

Another advantage of interactive lectures is that components can be added over time. Even if an instructor currently exclusively utilizes lectures without any additional active learning components and does not have the time or desire to engage in a grand redesign of a course, incorporating elements of interactive lecture each time the course is taught can lead to incremental improvements in student learning with only a small investment of time each academic term (see Lang, 2016).

It should be noted, however, that simply adding active learning components to a class is not a guarantee of greater comprehension on the part of students (Clark & Mayer, 2008). There are many factors that influence whether a particular technique will be effective in the classroom such as student population, class size, instructor characteristics, and discipline, among others, so any given active learning technique will not be universally successful (Bernstein, 2018). Instructors should therefore utilize a "scientist-educator" model for teaching (D. J. Bernstein et al., 2010). With this model, instructors examine existing data on pedagogy to make educated decisions about how to teach. From there, instructors can use data from their own courses to improve successive offerings and contribute when possible to the body of knowledge encompassing teaching and learning. We generate an enormous amount of data each time we deliver a course in the form of formative and summative

assessments, as well as student evaluations. These data should be examined and reflected upon in order to determine if interventions are working and to guide future pedagogy. Since no two courses are identical, teaching should be reflective and iterative in order to achieve maximum learning gains for students in each particular context (Bernstein, 2018; Halpern et al., 2010).

Making Predictions

Studies indicate that when people make a prediction about something, they are better able to recall information about it in the future, even if their initial prediction was wrong (Kornell, Hays, & Bjork, 2009). Asking students to predict an outcome encourages them to engage with the material in a way that simply providing them with information would not, and gives them an emotional investment in the outcome of their prediction. In other words, they become curious as to whether their prediction was correct or not (Lang, 2016). The implications of this research are important for education in general, and I have found that asking students to make predictions is particularly useful with helping them to learn the nuances of conditioning. For example, after going over the basic tenets of Pavlovian conditioning, I ask students to predict what would happen if the parameters of the situation change. I have students imagine one of Pavlov's dogs that has been conditioned over a large number of trials in which the dog got a bit of food immediately after hearing a tone. Students are well aware of the salivation that will happen when the dog hears the tone by itself after conditioning. But what will happen if the dog is now presented with the same tone, but also a simultaneous light shortly before receiving food for a number of trials? Will the dog now salivate when just hearing the tone? Just seeing the light? Only when both are presented? Not salivate at all regardless of what is presented? Having time to consider the situation and make a prediction about the outcome helps students to think about the relationship between variables, and better understand and remember the outcome when it is revealed. (In this case, the dog will continue to salivate when it hears the tone, but not when it sees the light by itself.) The scenario described above is a classic example of blocking, but asking students to predict outcomes can be used with any of the procedures involving Pavlovian conditioning including overshadowing, latent inhibition, and conditioned suppression, among others.

Asking for predictions can also be useful when teaching operant conditioning. For example, in order to help students understand schedules of reinforcement, I ask them to predict how they think they (or another person or animal) would respond under different schedules. Most students are able to accurately predict how organisms will respond to different schedules based on when reinforcement is available. Even if they get it wrong, the process of predicting and receiving feedback will help them to understand and remember the effects of different schedules. I ask students to imagine certain hypothetical behavior modification situations and tell me which schedule of reinforcement would be best for producing the desired outcome. For example, if students were hiring workers to perform some task such as mowing

lawns or washing dishes, which schedule(s) would be best at getting high rates of responding (i.e., work), and which would be least effective? What are some other implications of schedules of reinforcement that a person doing the reinforcing would need to take into account, such as quality of work? What would be the most desirable schedule from the workers' perspective? Addressing such questions helps students to grasp how schedules affect work, and how they operate in the real world.

Having students make predictions can be especially useful when an outcome is somewhat surprising. For example, I ask students to predict how a pigeon will behave after conditioning when a light is presented on one side of a long (1 meter) Skinner box followed immediately by several seconds of food presentation on the opposite side. Most students guess that after conditioning, the pigeon will begin to wait by the food hopper shortly after the light comes on. At this point, I show a video of a pigeon in a long box after it has experienced the conditioning procedure described above. (See "Teaching, Learning, and Assessment Resources" section below for the link to this and several other excellent videos demonstrating basic conditioning concepts.) Students tend to be surprised (and amused) that instead of waiting where the food is distributed as they predicted, the pigeon not only orients toward the light on the far end of the Skinner box, but it also goes over to and pecks the light as well, even though pecking at the light is inconsequential to food delivery. As a result of this behavior, the pigeon misses out on several seconds of food access that would have occurred had the bird moved to the food hopper as soon as the light came on. Having students predict the outcome of this scenario is a great introduction to sign tracking (also known as autoshaping) because this nonintuitive and seemingly maladaptive behavior is surprising and therefore memorable. It also allows for further discussion about the nature of Pavlovian conditioning (e.g., under what circumstances, if any, are Pavlovian responses not reflexive? What is the role of awareness in Pavlovian conditioning? Is sign tracking adaptive?).

Retrieval Practice

Students should have ample opportunities to practice retrieving information from memory with low- or no-stakes formative assessments before requiring them to demonstrate their knowledge on a summative assessment such as a midterm or final exam, or before moving to more complicated or nuanced topics (Karpicke & Roediger, 2008). As one example, I distribute ungraded worksheets in class that students can work on together, and that we then go over as a group. This exercise gives students a chance to work with peers, and get immediate feedback from me as to the right or wrong answers. They can then take the worksheet home as a reference and study aid. This type of retrieval practice is particularly important for learning new terms and definitions. In classical conditioning, for example, there are many fundamental procedures that can easily be confused, such as conditioned inhibition, conditioned suppression, disinhibition, external inhibition, and latent inhibition. These in-class retrieval exercises help to ensure that students remember and understand these procedures, which prepares them to learn about more complex areas of the field later on.

Classroom Response Systems and Peer Instruction

In addition to retrieval practice, I also intersperse class time with more involved "understanding checks," particularly in the form of multiple-choice or short answer questions. Where student response system (i.e., "clickers") technology is available and does not create an undue financial burden for students, it can be useful for asking students many types of questions to which they can respond immediately and anonymously. (See Caldwell, 2007, for best practices regarding clickers, and Beatty, Gerace, Leonard, & Dufresne, 2006 for how to construct effective "clicker questions.") One important benefit of this form of questioning is that the responses can be immediately compiled, shared with the class, and used to provide instructors as well as students with a check on comprehension in real time. Without such checks, students often have the illusion that they grasp the material when in fact they do not. Another advantage is that students can respond to questions without fear of being embarrassed if they publicly answer the question incorrectly. Anonymity encourages all students to participate, including those who tend to be reticent to speak up in class.

When presenting clicker questions, if a large proportion of students answer a particular question correctly, the instructor can move on. When clicker checks show that a large percentage of students have difficulty with a particular question, it signals the perfect opportunity to utilize peer instruction (Mazur, 1997). In this procedure, after the students are shown how the group as a whole answered the question, they are organized into small groups to discuss the question and their individual answers, to explain their reasoning and to try to convince one another of the correct answer. They then vote again for what they believe to be the correct answer, the results are shown to the class and discussed, and the instructor can address any remaining difficulties or misunderstandings before moving on. Though there can be disadvantages to showing the class everyone else's answers (Perez et al., 2010), peer instruction, when implemented correctly, has the potential to greatly enhance student understanding (Vickrey, Rosploch, Rahmanian, Pilarz, & Stains, 2015).

Though electronic student response systems have many advantages, some of the same benefits of discussion of in-class questions are attainable through other means (Lasry 2008; Vickrey et al., 2015). Students can hold up colored cards to indicate their answers, write their answers on small chalk or dry-erase boards, or simply raise their hands to indicate their answer choice. The point is that answering in-class questions and having opportunities to practice and receive feedback on their answers is a simple and effective way to bolster students' learning.

Distributed Practice

Few things are as stereotypical to the college experience as students waiting until the night before an exam to study, and then staying up all night in an effort to cram all the information into their heads. Though many students choose to study in one long

session (massed practice), we know from more than a century of research that distributed practice leads to greater retention under many circumstances (Cepeda, Pashler, Vul, Wixted, & Rohrer, 2006; but see Donovan & Radosevich, 1999). Distributed practice, also known as spaced practice, occurs when a learner leaves a temporal gap between study sessions. In one study examining 10 popular learning techniques, distributed practice (along with practice testing, see below under Assessments) was shown to have the highest utility to learners (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013). Even if some students are not inclined to space out their study sessions on their own, we as instructors can make distributed practice part of the structure of our courses. Several days after being introduced to material and practicing it in class, I ask students to do homework on their own outside of class. This allows students to not only obtain additional practice, but it also spaces out their practice, which will lead to better and longer-lasting learning (also see the Assessments section below for information about using a cumulative final exam to further encourage distributed practice).

Students tend to be poor judges of the usefulness of particular pedagogical tools (Wesp & Miele, 2008). Indeed, students' feelings about how much they have learned using a particular method can be quite different from their actual learning (Deslauriers, McCarty, Miller, Callaghan, & Kestin, 2019). I tell students that I assign homework or other tasks not because I want them to do "busy work" or because I think it is fun to torture them, but because ultimately it will help them to learn the material better, and therefore perform better in the class. Telling students, and reminding them throughout the course, why I assign particular materials helps to increase buy-in about the assignments they are given. It also demonstrates to them that I am not their adversary, but rather their partner in learning who has their best interests in mind when constructing and assigning homework, projects, exams, and other work.

Connecting Information

Students tend to learn better when they can relate new information to existing knowledge (Lang, 2016). One way to connect information about learning processes to what students already know is to illustrate the prominence those processes have in their everyday lives. A poignant example of this involves conditioned taste aversion. Most people have had the experience of avoiding a particular food or beverage due to becoming ill after ingesting it, and many students are willing to share first- or second-hand accounts of conditioned taste aversion. I also explicitly ask students if they can willfully overcome their aversion, particularly in instances where they are aware that their illness was caused by something other than what they ingested, such as a flu virus or chemotherapy. Having students discuss conditioned taste aversion not only connects the concept to their own personal experience (which should help them better retain the information), but it also highlights the reflexive nature of Pavlovian conditioning (i.e., it happens automatically), which is something that students often find difficult to grasp.

Assessment of Student Learning

Instructors have many choices when it comes to formative and summative assessment of students' learning in the learning course. Regardless of the form this assessment takes, students should be provided frequent low-stakes quizzes or no-stakes practice exams prior to high-stakes summative exams (see the "Retrieval Practice" section above). This serves two purposes. First, simply engaging in some form of testing helps students learn (Roediger & Karpicke, 2006). Second, it allows students to monitor their learning. In general, students' judgment about how well they have learned particular material (i.e., their metacognition) is fairly poor (Dunlosky & Lipko, 2007). Practice exams or other low-stakes quizzes can help students better understand how well they know the material, and can allow them the opportunity to enhance their knowledge if needed before a summative assessment. In my learning class, I give students online practice exams that are similar in length and scope to the actual exams. Studies examining this "testing effect" show that taking practice exams is one of the most useful procedures for learning that students can utilize (Adesope, Trevisan, & Sundararajan, 2017; Dunlosky et al., 2013).

The types of questions I include on summative exams vary somewhat depending on practical considerations such as the number of students in the class, and whether I have grading assistance available. However, my exams always include multiple-choice questions. Many instructors assume that despite their popularity, multiple-choice questions can only measure superficial knowledge, and that higher-order thinking skills can only be measured with essay or other types of free-response questions (see Holmes, 2016). However, evidence suggests that multiple-choice and open-ended questions actually measure the same constructs (Bennett, Rock, & Wang, 1991; Lukhele, Thissen, & Wainer, 1994), and that scores from the two question types tend to be highly correlated (Bleske-Rechek, Zeug, & Webb, 2007; Rodriguez, 2003). It is absolutely possible to assess higher-order thinking using multiple-choice questions, though as with any exam, care must be taken in constructing the questions (Hancock, 1994). There are many excellent resources available for the construction of high-quality multiple-choice questions that measure higher-order thinking (see Haladyna, Downing, & Rodriguez, 2002; Scully, 2017; Xu, Kauer, & Tupy, 2016). It is important to include such questions because students who are given assessments that include higher-order thinking develop a better understanding of and memory for the material by the end of the course compared with students who are asked to answer only surface-level types of questions (Jensen, McDaniel, Woodard, & Kummer, 2014).

Some authors feel it is best to use the same types of questions in practice opportunities as students will encounter on summative assessments (Lang, 2016). However, even if the format of summative assessments is not multiple-choice, giving multiple-choice practice exams helps students perform better on those assessments (Roediger & Karpicke, 2006; Smith & Karpicke, 2014). One problem with multiple-choice practice exams, however, is that students can sometimes remember

misinformation simply by being exposed to the incorrect answer choices (Marsh, Roediger, Bjork, & Bjork, 2007; Roediger & Marsh, 2005). Providing relatively immediate feedback (e.g., right after the exam is over) can help to mitigate this effect (Butler & Roediger, 2008). Therefore, I recommend practice exams with multiple-choice questions and immediate feedback, which will give students the best chance at accurately retaining the material.

I also feel it is important to include a cumulative final exam in my learning course. Though it is unreasonable to expect students to remember every detail of the material for the rest of their lives, having students retain information beyond the end of the term is likely important for most instructors. The ideal amount of time between study intervals increases as the time between when information is learned and when it needs to be recalled increases (Cepeda et al., 2006). A cumulative final exam naturally increases the time between study intervals, therefore increasing the odds of a longer retention period. Students might also approach how to study for a course differently if they are aware of a cumulative final (Royal, 2017; Szpunar, McDermott, & Roediger, 2007), making them more likely to remember the information for a longer period of time than they would otherwise. One study (Khanna, Brack, & Finken, 2013) found that students did better on a content exam after a course with a cumulative final compared to a course without one. Therefore, including a cumulative final exam will facilitate the long-lasting learning that most instructors desire for their students. I remind students in my learning course throughout the term of the existence of the cumulative final, and explain to them why it is something I have chosen to administer.

My final exam also has a unique format that provides additional opportunities for students. The exam is divided into four sections that are equivalent in content to the four units of the course. If students perform better on a unit of the final exam than they did on the original unit exam, I count the higher score as their grade for that exam. For example, if a student scores 80% on their unit 2 exam, but a 90% on the second unit of the final (which covers the same material), that student's grade for exam 2 will be corrected to 90%. The final exam itself is still worth a certain percentage of the overall grade (usually the same as a regular unit exam) to ensure that students who have consistently done well throughout the course are still motivated to take it. Having the ability to raise previous exam grades through improved performance on the final exam reduces some of the pressure students may feel about regular unit exams. It essentially means that there are two testing opportunities for each exam, which can be a relief for students who are overly anxious about taking exams. It can also provide a second chance for students who are falsely overconfident about how much they know when going into an exam, or who are dealing with situational stressors such as an illness or death in the family. In short, I do not necessarily care *when* students learn course information, just as long as they *have* done so by the end of the term. Having unit and final exams structured this way ensures that even if students are not necessarily prepared for any given unit exam, they still have the opportunity to learn the material and demonstrate their knowledge on the final exam.

Operant Project

The American Psychological Association recommends an applied experience as part of a quality undergraduate education in psychology (Halpern et al., 2010). Accordingly, as a capstone experience of the learning course, I have students complete a research project in which they apply what they know about operant conditioning in a real-world context (see Sperling, Reeves, Follmer, Towle, & Chung, 2016 for a description of a similar project for educational psychology students). For this project, students must come up with a plan to use operant conditioning in an attempt to change the behavior of someone they know (e.g., a parent, child, or roommate), a pet, or even themselves. Students first collect baseline and intervention data, and then write up their results in a report that includes a presentation of the data (e.g., graphs or tables), and why they think their intervention did or did not work based on operant principles. Students are specifically not graded on whether their intervention succeeded (many do not), but on the quality of the analysis of their results, and on what they say about how they would change things in order to get better results if they were to institute their plan again. This is the type of "messy" real-world problem (Dolan & Collins, 2015) that requires students to go beyond factual information and apply what they know to situations that are not clearly defined. It also allows for an examination of ethics in relation to operant conditioning, particularly those surrounding punishment. For example, when would it be acceptable (if ever) to utilize positive punishment, and why? Also, does the intention or awareness of the individual doing the conditioning matter? Planning and conducting this type of project helps students to gain a deeper understanding of the variables that affect whether conditioning is successful or not, and to see for themselves the effects of conditioning in the real world.

Challenges and Lessons Learned

There are a number of specific challenges that instructors and students of learning courses face. Below I outline some of these challenges with regard to operant conditioning and give suggestions for addressing them. For topics that tend to be confusing, I recommend starting slowly and gradually increasing the difficulty level for students while ensuring their mastery at each step. Though I give examples using operant conditioning below, the same general, recursive technique could apply to any topic that students often have difficulty with, particularly in advanced courses on learning.

In the USA, students are usually required to take a general or introductory psychology course prior to taking a learning course, so instructors might justifiably think that students in their learning courses already understand the fundamentals of conditioning (i.e., reinforcement and punishment). This assumption could lead instructors to do no more than briefly touch on the basics of conditioning before continuing on to more complicated and detailed information. In my experience, this is a mistake. Despite being deceptively simple, understanding the processes of

operant conditioning can be especially challenging (Epting, 2011; Sperling et al., 2016), and students often arrive in learning classes holding certain misconceptions such as that punishment is a useful means of behavioral change (Sperling et al., 2016), or that negative reinforcement and punishment are the same thing (Shields & Gredler, 2003).

The difficulties students have in understanding operant conditioning likely begin even before they have any university instruction in psychology. On a pretest for an introductory psychology course, 73% of students said that negative reinforcement decreases behavior, and 76% said that individuals would not look forward to negative reinforcement (Tauber, 1988). Worse yet, taking an introductory course can result in even greater confusion. Sheldon (2002) found that 97% of introductory textbooks contained at least one confusing explanation, contradiction, or error regarding operant conditioning. For example, the importance of a change in future response rates, which is a central tenet of operant conditioning, is often not mentioned. So, a child talking back to a teacher and being made to stay after school might be described as a punishment and a child being made to stay in her room until she finishes her homework might be described as reinforcement. But since it is unclear if behavior changed in the future in either case, there is no way to know whether either of these consequences was reinforcement, punishment, or neither. Many textbooks also fail to point out that when an individual is attempting to use operant conditioning to reinforce or punish another, the intention of the individual doing the conditioning does not matter (Sheldon, 2002). For example, if a teacher tries to punish a student's disruptive behavior by giving a reprimand, but the student's disruptive behavior continues, this was not punishment – despite the intention of the teacher. Many textbooks also fail to highlight the fact that reinforcers and punishers might have different effects on different individuals and/or at different times (Sheldon, 2002). The opportunity to play outside might be considered a reward for some children but not for others, or it might be considered a reward for some children when the weather is nice, but not if it is raining.

The persistence of erroneous beliefs about learning was illustrated by the results of a true/false survey (DeBell & Harless, 1992) about B.F. Skinner taken by first-year and advanced undergraduates, first-year and advanced graduate students, and faculty. Some survey items contained factual statements (e.g., Skinner felt the focus of research should be observable behavior) whereas others conveyed myths (e.g., Skinner did not believe genetics play an important role in behavior). Participants in all groups more often responded correctly to factual than mythical items, but advanced undergraduates endorsed significantly more myths than the other groups. These studies indicate that instructors of learning courses need to be aware that students are likely to harbor misconceptions about the material upon entering their classrooms, and take steps to ensure those misconceptions do not persist.

Part of the difficulty in understanding operant conditioning lies in the use of the terms "positive" and "negative" to describe reinforcement and punishment. One reason many students find this confusing is because their previous experience with those words suggests that they mean "good" or "bad," rather than adding or subtracting something. This prior association renders the idea of positive punishment

especially difficult to grasp (Shields & Gredler, 2003). Moreover, simply presenting correct definitions of operant conditioning terms is not generally sufficient to debunk misconceptions and allow students to grasp the meaning of these terms, let alone to help them think about how operant conditioning could be used in the real world to change behavior. A better strategy is to work slowly upward through Bloom's taxonomy (Anderson et al., 2001; Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) by giving students many opportunities to practice and get feedback on their understanding of basic terminology before advancing to higher levels of complexity.

So, when introducing operant conditioning, I first give definitions of the different kinds of reinforcement and punishment (positive and negative), along with a two-by-two matrix as described by Flora and Pavlik (1990). This matrix has "stimulus" (present or remove) on one axis, and "behavior probability or rate" (increases or decreases) on the other axis. The types of reinforcement and punishment fill the quadrants such that reinforcement always leads to an increase in behavior, and punishment a decrease, while positive indicates that a stimulus was added, and negative indicates that a stimulus was removed. (I make sure at this point and throughout the discussion of operant conditioning to remind students that "positive" and "negative" do not mean "good" or "bad.") Tauber (1988) presents a similar matrix, though the subjective terms "dreaded" and "desired" are used. This should be avoided in a discussion of operant conditioning since behavior is something that can be measured directly, but subjective desires cannot (Shields & Gredler, 2003). Giving students this simple matrix helps them to more easily see the categorical nature of reinforcement or punishment, and to accurately identify instances of both (but see Shields & Gredler, 2003 for possible disadvantages of using a matrix format).

Next, I provide many examples of operant conditioning that are already mapped out for students. That is, I give examples and explain whether they are reinforcement or punishment, and whether they are positive or negative. In general, I recommend using a multitude of everyday examples in the teaching of operant conditioning (Baldwin & Baldwin, 1999; Epting, 2011; but see Machado & Silva, 1998 for arguments against using such examples). Seeing how operant conditioning changes behavior in common scenarios helps students understand the relevance of conditioning to their own lives rather than seeing it as abstract and pertaining only to rats in mazes or pigeons in Skinner boxes (see the "Connecting Information" section above). If students understand how important and ubiquitous operant conditioning is to their own and others' lives (including animals), the information is more likely to be retained.

I then give students many more operant examples and ask them to decide for themselves what kind of reinforcement or punishment is represented. Students work alone at first, then in groups to discuss their answers (think-pair-share). Students will often come up with answers that differ from those of their classmates (especially with regard to negative reinforcement and punishment), which allows for discussion and a careful consideration of the examples by the entire class to get the correct answer. This process requires the students to map out the scenario, in particular identifying (1) the behavior of interest, (2) what the consequence of the behavior is, and (3) how the behavior changed.

Though working on problems in a group setting is a good way to help students understand material, online assessments that students complete on their own have several advantages as well. Therefore, after the students have practiced with identifying types of reinforcement and punishment in class, I ask them to complete an online homework assignment that requires them to do the same identification of reinforcement or punishment, but with different examples. For this and all of my online homework assignments, I use behaviorist principles to assist with learning, similar to the teaching machines described by B.F. Skinner (Skinner, 1968; see also Root & Rehfeldt, 2020). This includes allowing unlimited time so that individuals can learn at their own pace. Students who grasp the material quickly can move on, while those who are struggling can take extra time to consider their answers. Also, assignments can be configured so that students receive immediate feedback about whether they got a particular answer right or wrong (Skinner, 1968). These online assessments are low-stakes, allow students to revise their responses, to proceed at their own pace, and to receive immediate feedback, making them a great way to help students succeed with tricky material.

Once students have had a multitude of opportunities to practice identifying examples of operant conditioning, I then ask them to generate their own examples of each type of reinforcement and punishment. Students often begin this exercise with a modicum of confidence. However, even if students are at the point where straightforward instances of reinforcement and punishment are easily identified, they often have difficulty generating their own unique examples of operant conditioning, especially of negative reinforcement and punishment. Students' self-generated examples of negative reinforcement commonly include something like the following: "A parent takes away a child's phone in order to encourage studying."

Students may argue (incorrectly) that this is negative reinforcement because studying increased (reinforcement), and a treasured item was removed (negative), but those students failed to pay attention to what behavior led to the phone being taken away, and *when* the item is taken away. In other words, what was the consequence of the behavior? As this particular example is written, the child in question has not yet exhibited any behavior. The parent has simply removed a potential distractor in the hope that doing so will lead the child to study more. This example is therefore neither reinforcement nor punishment since the removal of an item was not contingent on any particular behavior. If, however, the item was removed *after* the child gets a bad grade, then the behavior that elicited the consequence was not studying, but getting the bad grade. Thus, removal of the phone could be considered negative punishment for getting a bad grade (assuming that the child gets fewer bad grades in the future). When students are given timely feedback of this sort, most recognize the flaws in their reasoning and are able to resubmit the assignment with a correct response (though some need several iterations before getting it right). This is why I encourage students to map out examples in the form of behavior leading to consequences leading to future behavior in order to better understand how conditioning works. Once students have tried this exercise on their own, received feedback, and had a chance to revise, I provide another in-class exercise that is more difficult than the previous ones.

After spending a significant amount of time grading student-generated examples of operant conditioning (such as the one mentioned above), I realized that analyzing and giving feedback to students about their incorrect examples gave me a sharper understanding of the process itself. Therefore, I ask students to analyze examples of operant conditioning that I have gathered from various places including online sources, popular television shows and movies, and anonymized student responses from prior academic terms, many of which are incorrect and/or confusing. One particularly useful ambiguous example comes from Gillespie and Simmons (1995) in a paper presented at the annual meeting of the American Psychological Association. They described a vignette that they used with their learning classes as a demonstration of operant conditioning. In their scenario, one member of a couple wants to go out for the evening, while the other wants to stay home in order to study. After some escalation, the spouse wanting to stay home agrees to go out after the other spouse pounds a fist on the table. The authors claim this is negative reinforcement since one spouse giving in to the demands of the other "relieved the anger" of the cajoling spouse.

There are several reasons why this example is so useful. First, it is not clear which person in the scenario the students are supposed to focus on. In general, students have more trouble correctly analyzing two-person scenarios compared with single-person scenarios (Shields & Gredler, 2003), and both people in the aforementioned situation are behaving and the behavior of each can be reinforced or punished by the other. Also, we are not given any information about how either party's behavior changed in the future. Without that information, it cannot be determined whether a consequence resulted in reinforcement, punishment, or neither. As the authors say, the scenario could be considered negative reinforcement if the spouse who agreed to go out continues to agree to go out in the future, and if doing so avoids arguments. But this information is not specified. However, it was removal of the behaviors associated with anger (yelling, fist pounding), not dissipation of anger, that is the focus of the conditioning involved (indeed, anger itself is difficult to measure). This is an opportunity to revisit the importance of operational definitions and observable behavior in the study of operant conditioning, as well as to allow students to grapple with ambiguous scenarios in order to get a better understanding of the process.

Teaching, Learning, and Assessment Resources

Teaching Tips

Below are several teaching tips that I try to consistently keep in mind:

- **Keep an eye on best practices for undergraduate education.** Chickering and Gamson (1989) outlined seven principles for undergraduate education including communicating high expectations, encouraging contact between faculty and students, and giving prompt feedback. I return to and reexamine these principles

from time to time in order to zoom out and refocus on the big picture of teaching and learning.

- **Try to do the things that good teachers do, and avoid the things that bad teachers do.** The Teacher Behavior Checklist (Buskist, Sikorski, Buckley, & Saville, 2002; Keeley, Smith, & Buskist, 2006) provides a validated and reliable list of behaviors that constitute best practices for teaching, including being approachable, being respectful toward students, and being humble. A group of behaviors associated with poor teaching has also been identified (Busler, Kirk, Keeley, & Buskist, 2017), and includes being disrespectful, not giving feedback, and being overconfident.
- **Learn from previous iterations of the course.** Students are constantly giving us data we can work with to improve the next offering of a course (e.g., exam or in-class question scores, homework answers, etc.). Pay close attention to those data in order to see if any changes you make to the course have their intended effect, and make adjustments as needed.
- **Try to remember what it was like when you were a student.** Instructors in higher education no longer face the struggles of comprehending fundamental material in their field, even if they once found it difficult. Remembering what it was like to be a new student in an academic area can help instructors gain insight into the struggles that their beginning students are facing and inform decisions about how to present material in ways that are helpful to students.

Resources

Below is a collection of links and recommended further reading. Some are specific to courses on learning, while others are useful for teaching in general.

- https://www.youtube.com/user/daleswartzentruber/videos:A collection of YouTube videos created by Dale Swartzentruber of Ohio Wesleyan University, USA. It includes 10 useful demonstrations of learning phenomena in rats and pigeons, including habituation, dishabituation, spontaneous recovery, auto-shaping (in a regular and long box, and with different unconditioned stimuli), and conditioned suppression.
- https://bfskinner.org: The home page for the B.F. Skinner foundation. It includes many helpful resources about Skinner, including articles and quotes as well as videos that are useful for the learning classroom.
- Sniffy the Virtual Rat (sniffythevirtualrat.com) is a computer-simulated rat in a Skinner box. Students can manipulate the variables Sniffy experiences so as to see the effects of Pavlovian and operant conditioning. Sniffy is a good option for instructors who want to incorporate a laboratory component into a learning course but either cannot or do not want to work with live animals.
- Ware, M. E., & Johnson, D. E. (Eds.). (2000). *Handbook of demonstrations and activities in the teaching of psychology volume II: Physiological-comparative,*

perception, learning, cognitive, and developmental (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

There are several handbooks of this sort, but this volume is the most relevant for learning courses. It includes instructions for demonstrations of conditioning in planarians, zoo animals, and humans, among others.

- Lang, J. M. (2016). *Small teaching: Everyday lessons from the science of learning*. Jossey-Bass.

Cited several times in this chapter, this book contains suggestions for a number of relatively easy changes teachers can make to improve their teaching and their students' learning. It is divided into three sections encompassing how to increase student knowledge, how to increase student understanding, and how to inspire students.

- Brown, P. C., Roediger, H. L., & McDaniel, M. A. (2014). *Make it stick: The science of successful learning*. Cambridge, MA: The Belknap Press of Harvard University Press.

This book contains information on how to learn more effectively, though instructors can use the principles for teaching as well. The recommendations include advice for avoiding illusions of knowing, embracing difficulties, and going beyond learning styles.

- Bernstein, D. A., Frantz, S., & Chew, S. (2020). *Teaching psychology: A step-by-step guide* (3rd ed.). New York, NY: Routledge.

This is an excellent and comprehensive resource for how to teach psychology courses. The authors include evidence-based pedagogical strategies for all stages of teaching from preparing the course and the first few days of class, through how to assess and improve future offerings of classes.

- Yancy McGuire, S. (2015). *Teach students how to learn: Strategies you can incorporate into any course to improve student metacognition, study skills, and motivation*. Sterling, VA: Stylus.

Many students simply have not figured out efficient ways of learning material, and this book offers concrete steps that instructors can recommend to students in order to improve their metacognition, and ultimately learn and perform better in classes.

- Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques: A handbook for college teachers.* (3rd ed.). San Francisco, CA: Jossey-Bass.

This is the quintessential handbook for all things related to assessment. The authors provide information about how to think about assessment, examples of successful projects, and ways to assess student attitudes, among other assessment-related resources.

- Bain, K. (2004). *What the best college teachers do* (1st ed.). Cambridge, MA: Harvard University Press.

Bain examined one hundred excellent teachers from varying disciplines and institutions. Despite very different personal styles, he discovered commonalities these teachers shared, including creating a critical learning environment, and an ability to simplify complex topics in ways that are understandable to students.

Cross-References

- ▶ Assessment of Learning in Psychology
- ▶ Basic Principles and Procedures for Effective Teaching in Psychology
- ▶ Formative Assessment and Feedback Strategies
- ▶ Problem-Based Learning and Case-Based Learning
- ▶ Small Group Learning
- ▶ Technology-Enhanced Psychology Learning and Teaching
- ▶ Topics, Methods, and Research-Based Strategies for Teaching Cognition

References

Abramson, C. (2013). Problems of teaching the behaviorist perspective in the cognitive revolution. *Behavioral Science, 3*(1), 55–71. https://doi.org/10.3390/bs3010055.

Adesope, O. O., Trevisan, D. A., & Sundararajan, N. (2017). Rethinking the use of tests: A meta-analysis of practice testing. *Review of Educational Research, 87*(3), 659–701. https://doi.org/10.3102/0034654316689306.

American Psychological Association. (2013). APA guidelines for the undergraduate psychology major: Version 2.0. Retrieved from http://www.apa.org/ed/precollege/undergrad/index.aspx

Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., . . . Wittrock, M. C. (Eds.). (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York, NY: Longman.

Angelo, T. A., & Cross, K. P. (1993). *Classroom assessment techniques: A handbook for college teachers* (3rd ed.). San Francisco, CA: Jossey-Bass.

Austin, A. E. (2002). Preparing the next generation of faculty: Graduate school as socialization to the academic career. *The Journal of Higher Education, 73*(1), 94–122. https://doi.org/10.1080/00221546.2002.11777132.

Bain, K. (2004). *What the best college teachers do* (1st ed.). Cambridge, MA: Harvard University Press.

Baldwin, J. D., & Baldwin, J. I. (1999). The value of everyday examples in the teaching of learning: A comment prompted by Machado and Silva (1998). *Journal of the Experimental Analysis of Behavior, 72*(2), 269–272. https://doi.org/10.1901/jeab.1999.72-269.

Barkley, E. F., & Major, C. H. (2018). *Interactive lecturing: A handbook for college faculty*. San Francisco, CA: Jossey-Bass.

Barron, A. B., Hebets, E. A., Cleland, T. A., Fitzpatrick, C. L., Hauber, M. E., & Stevens, J. R. (2015). Embracing multiple definitions of learning. *Trends in Neurosciences, 38*(7), 405–407. https://doi.org/10.1016/j.tins.2015.04.008.

Beatty, I. D., Gerace, W. J., Leonard, W. J., & Dufresne, R. J. (2006). Designing effective questions for classroom response system teaching. *American Journal of Physics, 74*(1), 31–39. https://doi.org/10.1119/1.2121753.

Bennett, R. E., Rock, D. A., & Wang, M. (1991). Equivalence of free-response and multiple-choice items. *Journal of Educational Measurement, 28*(1), 77–92.

Bernstein, D. A. (2018). Does active learning work? A good question, but not the right one. *Scholarship of Teaching and Learning in Psychology, 4*(4), 290–307. https://doi.org/10.1037/stl0000124.

Bernstein, D. A., Frantz, S., & Chew, S. (2020). *Teaching psychology: A step-by-step guide* (3rd ed.). New York, NY: Routledge.

Bernstein, D. J., Addison, W., Altman, C., Hollister, D., Komarraju, M., Prieto, L., … Shore, C. (2010). Toward a scientist-educator model of teaching psychology. In *Undergraduate education in psychology: A blueprint for the future of the discipline* (pp. 29–45). Washington, DC: American Psychological Association. https://doi.org/10.1037/12063-002.

Bleske-Rechek, A., Zeug, N., & Webb, R. M. (2007). Discrepant performance on multiple-choice and short answer assessments and the relation of performance to general scholastic aptitude. *Assessment & Evaluation in Higher Education, 32*(2), 89–105. https://doi.org/10.1080/02602930600800763.

Bligh, D. A. (2000). *What's the use of lectures?* (1st ed.). San Francisco, CA: Jossey-Bass.

Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (Eds.). (1956). *Taxonomy of educational objectives: The classification of educational goals, handbook 1: Cognitive domain*. New York, NY: David McKay.

Braat, M., Engelen, J., van Gemert, T., & Verhaegh, S. (2020). The rise and fall of behaviorism: The narrative and the numbers. *History of Psychology, 23*(3), 252–280. https://doi.org/10.1037/hop0000146.

Brown, F. J., & Gillard, D. (2015). The "strange death" of radical behaviourism. *The Psychologist, 28*(1), 24–27.

Brown, P. C., Roediger, H. L., & McDaniel, M. A. (2014). *Make it stick: The science of successful learning*. Cambridge, MA: The Belknap Press of Harvard University Press.

Burkill, S., Dyer, S. R., & Stone, M. (2008). Lecturing in higher education in further education settings. *Journal of Further and Higher Education, 32*(4), 321–331. https://doi.org/10.1080/03098770802392915.

Buskist, W., Sikorski, J., Buckley, T., & Saville, B. K. (2002). Elements of master teaching. In S. F. Davis & W. Buskist (Eds.), *The teaching of psychology: Essays in honor of Wilbert J. McKeachie and Charles L. Brewer* (pp. 27–39). Mahwah, NJ: Lawrence Erlbaum Associates.

Busler, J., Kirk, C., Keeley, J., & Buskist, W. (2017). What constitutes poor teaching? A preliminary inquiry into the misbehaviors of not-so-good instructors. *Teaching of Psychology, 44*(4), 330–334. https://doi.org/10.1177/0098628317727907.

Butler, A. C., & Roediger, H. L. (2008). Feedback enhances the positive effects and reduces the negative effects of multiple-choice testing. *Memory & Cognition, 36*(3), 604–616. https://doi.org/10.3758/MC.36.3.604.

Caldwell, J. E. (2007). Clickers in the large classroom: Current research and best-practice tips. *CBE Life Sciences Education, 6*(1), 9–20. https://doi.org/10.1187/cbe.06-12-0205.

Cepeda, N. J., Pashler, H., Vul, E., Wixted, J. T., & Rohrer, D. (2006). Distributed practice in verbal recall tasks: A review and quantitative synthesis. *Psychological Bulletin, 132*(3), 354–380. https://doi.org/10.1037/0033-2909.132.3.354.

Chew, S. L., Halonen, J. S., McCarthy, M. A., Gurung, R. A. R., Beers, M. J., McEntarffer, R., & Landrum, R. E. (2018). Practice what we teach: Improving teaching and learning in psychology. *Teaching of Psychology, 45*(3), 239–245. https://doi.org/10.1177/0098628318779264.

Chickering, A. W., & Gamson, Z. F. (1989). Seven principles for good practice in undergraduate education. *Biochemical Education, 17*(3), 140–141. https://doi.org/10.1016/0307-4412(89)90094-0.

Christodoulou, D. (2014). *Seven myths about education*. London: Routledge.

Clark, R. C., & Mayer, R. E. (2008). Learning by viewing versus learning by doing: Evidence-based guidelines for principled learning environments. *Performance Improvement, 47*(9), 5–13. https://doi.org/10.1002/pfi.20028.

Darwin, C. (1871). *The descent of man, and selection in relation to sex* (Vol. 1). London: John Murray.

De Houwer, J., Barnes-Holmes, D., & Moors, A. (2013). What is learning? On the nature and merits of a functional definition of learning. *Psychonomic Bulletin & Review, 20*(4), 631–642. https://doi.org/10.3758/s13423-013-0386-3.

DeBell, C. S., & Harless, D. K. (1992). B.F. Skinner: Myth and misperception. *Teaching of Psychology, 19*(2), 68–73. https://doi.org/10.1207/s15328023top1902_1.

Deslauriers, L., McCarty, L. S., Miller, K., Callaghan, K., & Kestin, G. (2019). Measuring actual learning versus feeling of learning in response to being actively engaged in the classroom. *Proceedings of the National Academy of Sciences, 116*(39), 19251–19257. https://doi.org/10.1073/pnas.1821936116.

Dolan, E. L., & Collins, J. P. (2015). We must teach more effectively: Here are four ways to get started. *Molecular Biology of the Cell, 26*(12), 2151–2155. https://doi.org/10.1091/mbc.E13-11-0675.

Domjan, M. (1987). Animal learning comes of age. *American Psychologist, 42*, 556–564. https://doi.org/10.1037/0003-066X.42.6.556.

Domjan, M. (2010). *The principles of learning and behavior* (6th ed.). Belmont, CA: Wadsworth, Cengage Learning.

Donahoe, J. W. (1984). Skinner – The Darwin of ontogeny? *The Behavioral and Brain Sciences, 7*, 487–488.

Donahoe, J. W. (2012). Reflections on behavior analysis and evolutionary biology: A selective review of evolution since Darwin – The first 150 years. Edited by M. A. Bell, D. J. Futuyama, W. F. Eanes, & J. S. Levinton. *Journal of the Experimental Analysis of Behavior, 97*(2), 249–260. https://doi.org/10.1901/jeab.2012.97-249.

Donovan, J. J., & Radosevich, D. J. (1999). A meta-analytic review of the distribution of practice effect: Now you see it, now you don't. *Journal of Applied Psychology, 84*(5), 795–805.

Dunlosky, J., & Lipko, A. R. (2007). Metacomprehension: A brief history and how to improve its accuracy. *Current Directions in Psychological Science, 16*(4), 228–232. https://doi.org/10.1111/j.1467-8721.2007.00509.x.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest, 14*(1), 4–58. https://doi.org/10.1177/1529100612453266.

Dunn, D. S., Brewer, C. L., Cautin, R. L., Gurung, R. A. R., Keith, K. D., McGregor, L. N., … Voigt, M. J. (2010). The undergraduate psychology curriculum: Call for a core. In *Undergraduate education in psychology: A blueprint for the future of the discipline* (pp. 47–61). Washington, D.C.: American Psychological Association.

Epting, L. K. (2011). Connecting the fundamental science of behavior analysis to everyday experience: An assignment for students. *Journal of Behavioral and Neuroscience Research, 9*(2), 7.

Flora, S. R., & Pavlik, W. B. (1990). An objective and functional matrix for introducing concepts of reinforcement and punishment. *Teaching of Psychology, 17*(2), 121–122.

Gewirtzt, P. (1996). On "I know it when I see it". *The Yale Law Journal, 105*, 27.

Ghiselin, M. T. (2018). B.F. Skinner and the metaphysics of Darwinism. *Perspectives on Behavior Science, 41*(1), 269–281. https://doi.org/10.1007/s40614-018-0139-8.

Gillespie, D., & Simmons, S. (1995, August). *A classroom activity to demonstrate the principle of negative reinforcement.* Paper presented at the 103rd Annual Meeting of the American Psychological Association, New York, NY.

Haggbloom, S. J., Warnick, R., Warnick, J. E., Jones, V. K., Yarbrough, G. L., Russell, T. M., … Monte, E. (2002). The 100 most eminent psychologists of the 20th century. *Review of General Psychology, 6*(2), 139–152. https://doi.org/10.1037/1089-2680.6.2.139.

Haladyna, T. M., Downing, S. M., & Rodriguez, M. C. (2002). A review of multiple-choice item-writing guidelines for classroom assessment. *Applied Measurement in Education, 15*(3), 309–333. https://doi.org/10.1207/S15324818AME1503_5.

Halpern, D. F., Anton, B., Beins, B. C., Bernstein, D. J., Blair-Broeker, C. T., Brewer, C. L., … Rocheleau, C. A. (2010). APA principles for quality undergraduate education in psychology. In *Undergraduate education in psychology: A blueprint for the future of the discipline* (pp. 161–173). Washington, D.C: American Psychological Association.

Hancock, G. R. (1994). Cognitive complexity and the comparability of multiple-choice and constructed-response test formats. *The Journal of Experimental Education, 62*(2), 143–157.

Holmes, J. D. (2016). *Great myths of education and learning*. Hoboken: Wiley Blackwell.

Jakobsen, K. V., & Daniel, D. B. (2019). Evidence-inspired choices for teachers: Team-based learning and interactive lecture. *Teaching of Psychology, 46*(4), 284–289. https://doi.org/10.1177/0098628319872411.

Jensen, J. L., McDaniel, M. A., Woodard, S. M., & Kummer, T. A. (2014). Teaching to the test...Or testing to teach: Exams requiring higher order thinking skills encourage greater conceptual understanding. *Educational Psychology Review, 26*(2), 307–329.

Karpicke, J. D., & Roediger, H. L. (2008). The critical importance of retrieval for learning. *Science, 319*(5865), 966–968. https://doi.org/10.1126/science.1152408.

Keeley, J., Smith, D., & Buskist, W. (2006). The teacher behaviors checklist: Factor analysis of its utility for evaluating teaching. *Teaching of Psychology, 33*(2), 84–91. https://doi.org/10.1207/s15328023top3302_1.

Khanna, M. M., Brack, A. S. B., & Finken, L. L. (2013). Short- and long-term effects of cumulative finals on student learning. *Teaching of Psychology, 40*(3), 175–182. https://doi.org/10.1177/0098628313487458.

Kornell, N., Hays, M. J., & Bjork, R. A. (2009). Unsuccessful retrieval attempts enhance subsequent learning. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 35*(4), 989–998. https://doi.org/10.1037/a0015729.

Lachman, S. J. (1997). Learning is a process: Toward an improved definition of learning. *The Journal of Psychology, 131*(5), 477–480. https://doi.org/10.1080/00223989709603535.

Lang, J. M. (2016). *Small teaching: Everyday lessons from the science of learning*. San Francisco, CA: Jossey-Bass.

Lasry, N. (2008). Clickers or flashcards: Is there really a difference? *The Physics Teacher, 46*(4), 242–244. https://doi.org/10.1119/1.2895678.

Leahey, T. H. (1992). Questions of psychology's evolution: The mythical revolutions of American psychology. *American Psychologist, 47*(2), 308–318.

Lukhele, R., Thissen, D., & Wainer, H. (1994). On the relative value of multiple-choice, constructed response, and examinee-selected items on two achievement tests. *Journal of Educational Measurement, 31*(3), 234–250.

Machado, A., & Silva, F. J. (1998). Greatness and misery in the teaching of the psychology of learning. *Journal of the Experimental Analysis of Behavior, 70*(2), 215–234. https://doi.org/10.1901/jeab.1998.70-215.

Marsh, E. J., Roediger, H. L., Bjork, R. A., & Bjork, E. L. (2007). The memorial consequences of multiple-choice testing. *Psychonomic Bulletin & Review, 14*(2), 194–199. https://doi.org/10.3758/BF03194051.

Matheson, C. (2008). The educational value and effectiveness of lectures. *The Clinical Teacher, 5*(4), 218–221. https://doi.org/10.1111/j.1743-498X.2008.00238.x.

Mazur, E. (1997). *Peer instruction: A user's manual*. Upper Saddle River, NJ: Prentice-Hall.
Miller, G. A. (2003). The cognitive revolution: A historical perspective. *Trends in Cognitive Sciences, 7*(3), 141–144. https://doi.org/10.1016/S1364-6613(03)00029-9.
Morgan, D. L., & Buskist, W. (1990). Conversations with the keepers of the internal order: A review of B.J. Baars' the cognitive revolution in psychology. *The Behavior Analyst, 13*(2), 199–200.
Overskeid, G. (2008). They should have thought about the consequences: The crisis of cognitivism and a second chance for behavior analysis. *The Psychological Record, 58*(1), 131–151. https://doi.org/10.1007/BF03395606.
Parker, J. K. (1993). Lecturing and loving it: Applying the information-processing model. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas, 67*(1), 8–11. https://doi.org/10.1080/00098655.1993.9956006.
Perez, K. E., Strauss, E. A., Downey, N., Galbraith, A., Jeanne, R., & Cooper, S. (2010). Does displaying the class results affect student discussion during peer instruction? *CBE Life Sciences Education, 9*(2), 133–140. https://doi.org/10.1187/cbe.09-11-0080.
Perlman, B., & McCann, L. I. (1999). The most frequently listed courses in the undergraduate psychology curriculum. *Teaching of Psychology, 26*(3), 177–182. https://doi.org/10.1207/S15328023TOP260303.
Pilgrim, C. (2003). Science and human behavior at fifty. *Journal of the Experimental Analysis of Behavior, 80*(3), 329–340. https://doi.org/10.1901/jeab.2003.80-329.
Rescorla, R. A. (1988). Pavlovian conditioning: It's not what you think it is. *American Psychologist, 43*(3), 151–160.
Robins, R., Gosling, S., & Craik, K. (1999). An empirical analysis of trends in psychology. *The American Psychologist, 54*, 117–128. https://doi.org/10.1037/0003-066X.54.2.117.
Rodriguez, M. C. (2003). Construct equivalence of multiple-choice and constructed-response items: A random effects synthesis of correlations. *Journal of Educational Measurement, 40*(2), 163–184. https://doi.org/10.1111/j.1745-3984.2003.tb01102.x.
Roediger, H. L. (2004). What happened to behaviorism. *APS Observer, 17*, 40–42.
Roediger, H. L., & Karpicke, J. D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science, 17*(3), 249–255. https://doi.org/10.1111/j.1467-9280.2006.01693.x.
Roediger, H. L., & Marsh, E. J. (2005). The positive and negative consequences of multiple-choice testing. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 31*(5), 1155–1159. https://doi.org/10.1037/0278-7393.31.5.1155.
Root, W. B., & Rehfeldt, R. A. (2020). Towards a modern-day teaching machine: The synthesis of programmed instruction and online education. *The Psychological Record, 71*(1), 1–10. https://doi.org/10.1007/s40732-020-00415-0.
Royal, K. D. (2017). Why veterinary medical educators should embrace cumulative final exams. *Journal of Veterinary Medical Education, 44*(2), 346–350. https://doi.org/10.3138/jvme.0216-035R.
Scully, D. (2017). Constructing multiple-choice items to measure higher-order thinking. *Practical Assessment, Research and Evaluation, 22*(4). https://doi.org/10.7275/CA7Y-MM27.
Sheldon, J. P. (2002). Operant conditioning concepts in introductory psychology textbooks and their companion web sites. *Teaching of Psychology, 29*(4), 281–285. https://doi.org/10.1207/S15328023TOP2904_04.
Shields, C., & Gredler, M. (2003). A problem-solving approach to teaching operant conditioning. *Teaching of Psychology, 30*(2), 114–116. https://doi.org/10.1207/S15328023TOP3002_06.
Skinner, B. F. (1956). A case history in the scientific method. *The American Psychologist, 11*(5), 221–233.
Skinner, B. F. (1968). *The technology of teaching*. New York, NY: Appleton-Century-Crofts.
Skinner, B. F. (1974). *About behaviorism*. New York, NY: Knopf.
Skinner, B. F. (1977). Why I am not a cognitive psychologist. *Behavior, 5*(2), 1–10.
Smith, M. A., & Karpicke, J. D. (2014). Retrieval practice with short-answer, multiple-choice, and hybrid tests. *Memory, 22*(7), 784–802. https://doi.org/10.1080/09658211.2013.831454.

Sperling, R. A., Reeves, P. M., Follmer, D. J., Towle, A. L., & Chung, K. S. (2016). Teaching behaviorism to support self-regulation, integration, and transfer. In M. C. Smith & N. DeFrates-Densch (Eds.), *Challenges and innovations in educational psychology teaching and learning* (pp. 15–28). Charlotte, NC: Information Age Publishing.

Stoloff, M., McCarthy, M., Keller, L., Varfolomeeva, V., Lynch, J., Makara, K., … Smiley, W. (2010). The undergraduate psychology major: An examination of structure and sequence. *Teaching of Psychology, 37*(1), 4–15. https://doi.org/10.1080/00986280903426274.

Szpunar, K., McDermott, K., & Roediger, H. (2007). Expectation of a final cumulative test enhances long-term retention. *Memory & Cognition, 35*, 1007–1013. https://doi.org/10.3758/BF03193473.

Tauber, R. T. (1988). Overcoming misunderstanding about the concept of negative reinforcement. *Teaching of Psychology, 15*(3), 152. https://doi.org/10.1207/s15328023top1503_15.

Thyer, B. A. (1991). The enduring intellectual legacy of B. F. Skinner: A citation count from 1966-1989. *The Behavior Analyst, 14*(1), 73–75.

Vickrey, T., Rosploch, K., Rahmanian, R., Pilarz, M., & Stains, M. (2015). Research-based implementation of peer instruction: A literature review. *CBE Life Sciences Education, 14*(1), es3. https://doi.org/10.1187/cbe.14-11-0198.

Ware, M. E., & Johnson, D. E. (Eds.). (2000). *Handbook of demonstrations and activities in the teaching of psychology volume II: Physiological-comparative, perception, learning, cognitive, and developmental* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Wasserman, E. A., & Blumberg, M. S. (2006). Designing minds. *APS Observer, 19*(10), 25–26.

Watrin, J. P., & Darwich, R. (2012). On behaviorism in the cognitive revolution: Myth and reactions. *Review of General Psychology, 16*(3), 269–282. https://doi.org/10.1037/a0026766.

Wesp, R., & Miele, J. (2008). Student opinions of the quality of teaching activities poorly predict pedagogical effectiveness. *Teaching of Psychology, 35*(4), 360–362. https://doi.org/10.1080/00986280802374617.

White, G. (2011). Interactive lecturing. *The Clinical Teacher, 8*(4), 230–235. https://doi.org/10.1111/j.1743-498X.2011.00457.x.

Wiggins, G. P., & McTighe, J. (2005). *Understanding by design* (2nd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Wyatt, W. J., Hawkins, R. P., & Davis, P. (1986). Behaviorism: Are reports of its death exaggerated? *The Behavior Analyst, 9*(1), 101–105.

Xu, X., Kauer, S., & Tupy, S. (2016). Multiple-choice questions: Tips for optimizing assessment in-seat and online. *Scholarship of Teaching and Learning in Psychology, 2*(2), 147–158. https://doi.org/10.1037/stl0000062.

Yancy McGuire, S. (2015). *Teach students how to learn: Strategies you can incorporate into any course to improve student metacognition, study skills, and motivation*. Sterling, VA: Stylus.

Teaching of General Psychology: Problem Solving

6

David Gibson, Dirk Ifenthaler, and Samuel Greiff

Contents

Abstract

This chapter defines problem solving and its research history. In addition to this, it introduces data science approaches to research on problem solving for psychology students, educators, and researchers. The chapter describes four new core content and topical areas on the immediate horizon: data science, Internet of things, network analyses, and artificial intelligence. The chapter elucidates

D. Gibson
Curtin University, Perth, Australia

D. Ifenthaler
Curtin University, Perth, Australia

University of Mannheim, Mannheim, Germany

S. Greiff (✉)
University of Luxembourg, Esch-sur-Alzette, Luxembourg
e-mail: samuel.greiff@uni.lu

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implications for data science education in general psychology, focusing on research in problem solving and on how problem solving can be taught in higher education.

Keywords

Problem solving · Data science methods · Learning science · Individual and group psychology

Introduction

The nature of human problem solving has been studied by psychologists for the past hundred years. Early conceptual work of German Gestalt psychologists (e.g., Duncker, 1935; Wertheimer, 1959) and experimental research on problem solving in the 1960s and 1970s typically operated with relatively simple, laboratory tasks (e.g., Duncker's famous "X-ray" problem; Ewert and Lambert's 1932 "disk" problem, later known as "Tower of Hanoi") that appeared novel to participants. Reasons for the choice of simple but novel tasks include the clearly defined optimal solutions, being solvable within a relatively short time frame, and researchers could trace participants' problem solving steps. The underlying assumption that simple tasks such as the Tower of Hanoi captured the main properties of "real world" problems and that the cognitive processes underlying participants' attempts to solve simple problems were representative of the processes they engaged in when solving "real world" problems has been the center of these empirical investigations. Thus, researchers used simple problems for reasons of convenience. The aim remained to generalize research findings in order to explain how people solve more complex problems (Greiff & Wüstenberg, 2014; Seel et al., 2009).

Psychologists generally agree on the point that problem solving should be considered as information processing that is relevant across a number of areas. However, different lines of research focusing on problem solving emerged, for example, in North America and in Europe. While researchers in North America focused successfully on the implementation of problem solving in computer systems, European researchers focused on the simulation of complex environments to empower human problem solving and decision making within complex domains (Berry & Broadbent, 1984, 1988; Newell & Simon, 1972). Interestingly, research on complex problem solving is closely related to research on cognitive structures and mental model research insofar as researchers such as Funke (1992) agree on the point that complex problem solving necessarily presupposes the process of mental model building (Ifenthaler & Seel, 2005, 2011, 2013). Further, Krems (1995) identified differences between novices and experts in complex problem situations in terms of domain-specific knowledge, strategies applied, and available cognitive flexibility. As such, the link between researching the construction and development of cognitive structures and mental models as well as complex problem solving provides a major challenge for research in the field of psychology (Jacobson, 2000).

Problem solving has been taught as a subfield of psychology beginning in the 1930s and received a boost from theorists who were aware of and involved with the then emerging field of computer science in the 1940s. By the early 1970s, the field had fully begun to embrace computational approaches, metaphorically if not fully operationalized, and proceeded alongside traditional psychological studies. More recently, with the advent of fully globally connected cloud computing services, massive access to the Internet, and advances in data science such as artificial intelligence, the subfield of problem solving is undergoing rapid change toward integrating and better understanding the psychological factors evidenced with the digital signatures of individual- and group-based problem solving.

So, while the topic of problem solving has traditionally been included in lectures either in cognitive or general psychology, practitioners and researchers need more than historical awareness of developments such as the "General Problem Solver" or the work of key historical figures. In this chapter, we expand from the historical perspective on problem solving in three ways: (1) as an educationally relevant competence for both practitioners and researchers; (2) as a variable of individual difference and potential factor in psychological processes; and (3) as a measurement challenge of the digital age that is amenable to new and emerging data science methods.

Purposes and Rationale of the Curriculum in Problem Solving

A curriculum focusing on problem solving skills should be based on current research findings in the field of problem solving and requires learners to solve meaningful problems. Hence, relevant problems for the curriculum have to be chosen judiciously (Lester, 1983; Silver, Ghousseini, Gosen, Charalambous, & Strawhun, 2005).

Mayer and Wittrock (1996) identified and recommended three general principles for problem solving instruction (p. 299):

1. Domain-specific principle: It is better to teach problem solving skills within specific disciplines rather than attempting to teach general problem solving heuristics.
2. Near-transfer principle: It is better to expect that problem-solving skills will be largely restricted with respect to their range of applicability rather than expecting problem-solving skills to be applicable to a wide range of problems.
3. Knowledge integration principle: It is better to integrate teaching of facts, concepts, and strategy knowledge within guided problem solving tasks rather than focusing mainly on teaching.

Core Contents and Topics of Problem Solving

This section is organized into two parts: the historical core contents and topics of problem solving and emerging data science core contents and topics.

Historical Core Content and Topics

The following list documents the core historical content and its focus. In particular the earlier works are, by and large, outdated and are rather of historical value, but they can be important to students when trying to get an overview of what early problem solving research proposed.

- Duncker, K. (1935). *The Psychology of Productive Thinking*. Springer. This book discusses functional fixedness and mental restructuring as relevant parts of problem solving. It was one of the first works that systematically looked at the topic.
- Pólya, G. (1945). *How to Solve It*. Princeton University Press. This book discusses heuristics for solving any kind of problem and includes the infamous "We need heuristic reasoning when we construct a strict proof as we need scaffolding when we erect a building."
- Newell, A., & Simon, H. A. (1972) *Human Problem Solving*. Prentice-Hall. This book introduces the idea of problem spaces and associated with it the Problem Space Hypothesis that postulates that all goal-oriented behavior can be represented as a search through a space of possible states while attempting to achieve a goal. The first consequence of the principle of bounded rationality is that the intended rationality of an actor requires one to construct a simplified model of the real situation in order to deal with it. The actor behaves rationally with respect to this model, and such behavior is not even approximately optimal with respect to the real world. To predict the actor's behavior, we must understand the actor's psychological properties as a perceiving, thinking, and learning animal.
- Kahneman, D. Slovic, P., Tversky, A. (1982) *Judgment Under Uncertainty: Heuristics and Biases*. Cambridge University Press. This work argues that people rely on a limited number of heuristic principles, which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations: representativeness, availability, adjustment, and anchoring

Coming from this historical perspective, problem solvers need to learn *effective strategies for all the cognitive processes* (Ifenthaler & Seel, 2013; Margulieux, 2019), which provide us with targets for considering data science and artificial intelligence in problem solving.

Whereas scientific inquiry into problem solving previously focused primarily on cognitive processes of individuals, in the era of data science, it has recently turned attention to *cognitive systems* composed of people, machines, and networked information. In the era of big data, artificial intelligence, and cloud computing, the traditional definitions of problem solving, strategies, and processes take on new meaning because instances of people, machines, and cyberspace can increasingly work together as a *problem solving system*.

People engaged in the system are the source of questions, the motivation for inquiry, and the ultimate arbiters of the value of any solution and knowledge

produced. People also reason with far less data than machines, using complex human processes that have led to new strategies in machine learning – in particular, reinforcement learning and deep learning. Machines in the system handle enormous amounts of data at extremely high velocity and apply algorithms that automate reasoning and extend it creatively by learning on the fly and building and testing computational models. Cyberspace is the context of the new problem solving system, which integrates knowledge via open science to represent information and people. Thus, the purposes and rationale for the psychology curriculum has expanded to advance the use of data science knowledge, methods, tools, and approaches to further use and understand problem solving.

New Data Science Core Content and Topics

The emergence of data science (Stanton, 2012) has brought new possibilities and approaches to research on problem solving. New methods for dealing with dynamic systems, large data sets, streaming data flows from interactive applications, and smart applications support a new kind of science of educational research, such as research on unobtrusive observation, automated analysis, and personalized feedback to learners and instructors. Examples of data science in cognitive sciences indicate additional possibilities for re-imagining data analyses and visualization of network relationships in educational contexts. See, for example, Goldstone, Pestilli, and Börner (2015), Sporns (2011), and van den Heuvel and Sporns (2013) for application of data science to information processing from physical to mental states. This section is organized into four areas: Data science, Internet of things, network analyses, and artificial intelligence.

Data Science

The publication of A New Kind of Science (Wolfram, 2002) identified a groundswell in computation that had been building since 1890 when Poincare concluded that the challenging three-body problem (i.e., a dynamic system with earth, moon, and sun) could not be solved in terms of algebraic formulas and integrals. With the advent of computers in the mid-twentieth century and the rapid expansion of computational sciences (Blei & Smyth, 2017), Poincare's conclusion can now be modeled at very high scale and fine resolution, creating a new approach in scientific inquiry. The new kind of inquiry and representation (Wolfram, 2002) depends on massive scale computation and exhaustive modeling as proofs. For example, the four-color theorem was proven in 1976 with the aid of a computational method that required an exhaustive search of all possible combinations of abstraction from a mapping (Gonthier, 2008). A debate ensued within mathematics because the proof could not be "analytically checked" by humans as it would take an excessive amount of time to replicate the computer's process. Events such as these signaled the coming of age of computation-enhanced science, preparing the ground for the field now referred to as "data science." This field is closely connected to problem solving in the sense that the increased capabilities of computational science have promoted the

growth of dynamic systems and nonlinear methods in educational research, including problem solving. Computational science includes globalized data from an increasingly interconnected web of sensor networks, multimodal data sources, application sharing on a massive scale, network analysis methods, and artificial intelligence.

Internet of Things

While the traditional Internet is focused on serving requests and responses, the Internet of things (IoT), which allows the connectedness of sensors and actuators to global cloud-based services, focuses instead on sensing and responding (Etzion, Fournier, & Arcushin, 2014; Evans, 2011). Within the IoT, consumer products and enterprise services are connected to each other and the rest of the Internet, leading to the phrase "Internet of Everything." This conception allows for connecting smart objects into bigger cognitive systems. For example, a smart refrigerator could maintain the supply of groceries by monitoring their supply and ordering them for you, keeping a stocked shelf of all ingredients you usually need for cooking. This, in fact, could be understood as some type of automatic problem solving with a clearly defined algorithm. The refrigerator communicates with the grocery store and delivery services and perhaps negotiates with more than one service and forms contracts for services. The refrigerator places and accepts or verifies the order, maintains its portion of your food expense financial system, and calls upon other objects, agents, and services in the supply chain as needed. The systems woven together into the Internet of Everything include things (e.g., milk container), people (e.g., clerks and delivery people or robots), places (e.g., the fridge, store, and transport locations), and systems (e.g., drone-based delivery, apartment security, and food network). Working with problems where an integration among data types, people, and machines has multiple nuanced meanings at several levels of complexity is not so much a "big data" problem as one of finding a solution with just enough information in a short period of time – more like a human learns to recognize a face or associate a smell with a place and an emotion – in short, more like cognition. In this development, humans and machines are linked to work better together than when apart, opening several avenues for problem solving research. The term "cognitive computing" evolved from knowledge discovery, cognitive science, and big data (Chen, Herrera, & Hwang, 2018) and designates the use of computerized models to simulate human thought processes. The Internet of things, cloud computing, and reinforcement and deep learning analytics and algorithms form the foundation of human-centered cognitive computing. Such technologies underpin the goal of machine-based reasoning analogous to the human brain working in partnership with and guided by problem solving humans. Critical to human-centered cognitive computing is having humans continuously in the loop with machines and cyberspace. As such, they serve as a bridge to the question of how networks of machines, information, and other people are changing the nature of research on problem solving. In such networks of people, machines, and information, it is clear that several sciences need to be integrated: learning sciences, including the psychology of individual and group learning as the

epistemological focus and source of relevant questions; data science, including information and computer sciences as the lab bench and method of the new kind of science; and cyberspace as the ubiquitously distributed laboratory.

Since a key context of research and analysis of problem solving with the IoT concerns how these human, machine, and information systems can be integrated and interactively networked, we next turn attention to a variety of network analyses before briefly discussing artificial intelligence as a partner in problem solving research.

Network Analyses

Information networks are becoming increasingly popular to capture complex relationships across various disciplines, such as social networks, citation networks, and biological networks (Aktas, Akbas, & Fatmaoui, 2019). Thus, the tools and approaches of network mining are arising as an important frame for studying problem solving. In the following sections, we introduce three types of network analysis that can be applied to problem solving research – social, ecological, and epistemic network analyses – we briefly describe them and give illustrative examples of their use in problem solving research. A network by definition is an arrangement of intersecting horizontal and vertical lines representing, for example, a group or system of interconnected people or things (https://www.lexico.com/en/definition/network). As a system of people, things, and intersecting connections, networks are broadly applicable to many learning, teaching, and educational situations. For example, the "people" might be learners, teachers, parents, or administrators singly or in combinations and clusters; and the "things" might be communications, power relationships, educational data, curriculum materials, and artifacts created during learning processes. Networks can flexibly represent psychological processes, social relationships, and structural relationships as well as to understand flows of information, making network analysis an essential new data science toolkit for the learning sciences.

Network analysis relies on graph theory and methods. Graph-theoretic measures (Diestel, 2006) such as density and centrality are based on counts of the nodes (entities) and edges (relationships or links) of the graph; similarity measures, in particular, are based on differences between either node or edge measurements or correlations. Newer topological approaches such as persistent homology (Aktas et al., 2019) measure network features that persist across multiple scales, indicating the accurate patterns in the data. Such approaches examine distances between specific node structures (triangles, tetrahedrons, and higher-dimensional objects) through filtrations, which are mathematically rigorous subset formalisms of the topology. However, these existing methods have been mainly used on static networks and cannot be directly applied to large-scale evolving networks as needed in some educational contexts, particularly those that capture and represent data from multiple, diverse, and dynamic data sources.

We refer to dynamic complexes, similar to those arising out of the topological analysis of networks as motifs, using a concept from music that refers to a salient recurring figure, fragment, or succession of events. Graph theory defines a clique

as a subgraph of any directly connected node to another node. A motif, which adds time and evolving complex structure to the concept of a clique, is composed of relatively persistent cliques changing over time while maintaining a substantial portion of the subgraph composition relevant to some unit of analysis. A motif is a complex code and is a flexible concept that can be applied at multiple levels of analysis from micro to meso to macro features, with homological features preserved over time and network scope (Aktas et al., 2019). For example, a motif of interest might be the experience of "being a doctor" in a simulation, as defined and bounded by the simulation leverage points of having a patient to talk to, noticing things from the patient interview, and making a reasoned decision about a therapy (Sharkasi, 2010).

In epistemic network analysis, which we will discuss below, the nodes of the network are complex codes (i.e., narrative assignment or identification by experts or machines) that might represent a combination of action, communication, cognition, and other relevant features of group interaction (Gašević, Joksimović, Eagan, & Shaffer, 2019). This characterizes part of the meaning of a motif – that it has a semantic import as well as a physical syntactic reality – but we want to extend the idea further to give it capability for persisting over time and evolving within its semantic position in the network. We will thus refer to network nodes as "motifs" if they play a significant structural role in the network (e.g., centrality, density, and using higher level concepts from ecological, social, and epistemic frameworks) and can be described in terms of persistent homology. In a network analysis, a motif can thus be considered a summarized complex node, a composition of complex elements, in the sense that each node has depth and breadth in both frequency and magnitude at many scale lengths. For example, in an ego analysis of an individual learner who is acquiring new knowledge in a guided group discussion, a single node (e.g., an individual) can be understood (e.g., microscopically further represented) as a complex and layered evolving motif and can be further combined with other motifs to create a layered global network. In a learning setting, a single instant of a learner's private experience (e.g., a motif representation) might be manifested as an observable behavioral change influenced by both individual and group elements; as a unit of analysis, the individual motif can be seen to evolve or maintain across time, depending on the context.

From these foundational ideas, we hold that when a learning design or curriculum or classroom environment is implemented by an instructor and is encountered by a learner or a group of learners, an ecological network ensues. When learners interact with other people, social networks are generated. When a learner has a personal experience of a learning situation, an epistemic network may be formed. In the following sections, we introduce these kinds of networks and link them to the psychological study of problem solving.

Ecological Networks

Ecological networks are a standard method for representing and analyzing a multitude of interactions between different species (Ings & Hawes, 2018) via interactions that are trophic (consumer-resource) or symbiotic (coaction resulting

Table 1 Interaction types in ecological networks

Symbiosis type	Species 1	Species 2
Mutualism	Benefit (+)	Benefit (+)
Commensalism	No effect (0)	Benefit (+)
Parasitism	Harm (−)	Benefit (+)
Neutralism	No effect (0)	No effect (0)
Amensalism	Harm (−)	No effect (0)
Competition	Harm (−)	Harm (−)

in one of six types of benefit-harm). Trophic interactions in biological networks concern the food chain (e.g., a trophic level of an organism is the position or number of steps it occupies in a food web). There may be a valid generalization of the consumer-resource relationship that applies to learning and problem solving. We can think of learners as both consuming and creating instructional resources for themselves and others while learning. Similarly, problem solving can be seen as both using (consuming) and deploying (creating) internal and external resources to solve the problem. The application of ecological perspectives and networks to learning and education requires a re-thinking of education as a system and applying consumer-resource relations in learning networks. For example, can teachers and students (or students and students; or students and interactive learning materials) be treated as two different "species" and thus amenable to various ecological indicators, with new possibilities for interpretation? Is the "food chain" metaphor translatable to a generic energy web where students "consume" some resources (e.g., learning content materials) to "create" different resources (e.g., brain structures to store new knowledge)? We discuss these possibilities further below.

Symbiotic relations, in contrast, require even less of a leap than the metaphor of trophic transformation of energy. With the lens of symbiosis, six types of interactions identify when one or both species benefit from each other, have no effect, or are harmed (Table 1). The possibilities for interpreting some of these as peer-to-peer and novice-to-expert have begun to be explored by data scientists interested in learning analytics.

Applying ecological networks to learning and educational systems is relatively new. Davis and colleagues have developed an ecological perspective on educational change theory (Davis, 2012) and the structure of educational systems (Davis, Eickelmann, & Zaka, 2013).

Social Networks

Social network analysis (SNA) is a strategy for investigating social structures (Otte & Rousseau, 2002) via two primary forms: ego analysis (one person) and global network analysis (relationships between people). In the psychological study of problem solving, the addition of "things" such as curriculum materials, goals of learning, and performance indicators adds new dimensions to the foundations, which we will refer to as SNA+, which we discuss further in the sections on ecological and epistemic networks.

Cohesion	How a network is interlinked
Centralization	Extent to which the network depends on a small number of actors
Structural equivalence	Whether there are actors that have similar roles in the network
Prominence	Popularity of an actor in the network
Range	Extent to which an actor is connected to others in the network
Brokerage	How an actor connects different parts of the network that are otherwise disconnected

Epistemic Networks

The term "epistemic frame" (Shaffer, 2006) refers to the ways of knowing, of deciding what is worth knowing, and of adding to a collective body of knowledge and understanding of a community of practice. The concept was initially proposed as a possible mechanism through which sufficiently rich experiences in computer-supported games could be based on real-world practices. The concept expanded to include a specific type of network analysis – epistemic network analysis (Shaffer et al., 2009) for examining interactions within a digital learning system (DLS). A DLS environment is composed of a theory of learning and its accompanying method of assessment, linked into an evidence-based, digital intervention, particularly salient for assessing performance in context and learning in progress.

The SENS model (Gašević et al., 2019) combines SNA and ENA to address the different "species" of people and learning resources – the social and content perspectives – specifically in collaborative learning environments. As we will soon encounter in the section below on artificial intelligence, the collaborating entity may be a machine or dynamic educational resource as well as a person, which suggests that the six types of symbiosis may be relevant as a general framework in all cases. In the initial research in 2019, indicators from both frameworks were combined for complementary roles in an analysis (e.g., the authors suggested that an external analysis method should be used such as regression analysis, mixed models, or statistical tests for comparisons of groups p. 5).

Integrated properties from both SNA and ENA have been shown to better predict team outcomes than ENA alone, SNA alone, and when the two are combined but not fully integrated. Researchers have named the integrated method iSENS, focusing on analyzing cognitive and social aspects of learning (Swiecki & Shaffer, 2020). Interestingly, this mixing of internal factors with externally exhibited factors suggests the mixing of different species in the ecological framework and lends support to the idea of integrated ego-social-ecological network methods having a role in setting a larger context for scientific inquiry into problem solving.

Artificial Intelligence

Zawacki-Richter and Latchem (2018) identified four broad uses of artificial intelligence in higher education: profiling and prediction, intelligent tutoring systems, assessment and evaluation, and adaptive learning systems. In addition, Chen, Xie,

Zou, and Hwang (2020) conducted a systematic analysis of 45 highly cited articles to identify the development, trends, and technologies adopted, as well as major research issues concerned by the artificial intelligence in education community. They listed typical techniques of three approaches: deep learning (DL) as a subset of machine learning (ML) as a subset of the broad perspective of general AI in education (AI).

DL	Artificial neural networks, deep belief networks, deep neural networks, recurrent neural networks, convolutional neural networks, long- and short-term memory, generative adversarial networks, variational autoencoders, adversarial learning
ML	Reinforcement learning, decision trees, support vector machines, regression analysis, Bayesian networks, genetic algorithms
AI	Fuzzy logic, rule-based systems, agent system, heuristic algorithms

Common approaches to solving problems with artificial intelligence include via searching, including searching in complex environments, adversarial search, and games, and by satisfying constraints (Russell & Norvig, 2009).

Teaching, Learning, and Assessment in Problem Solving: Approaches and Strategies

Looking at the previous sections of this chapter, it becomes clear that problem solving is an ongoing and active field of research that is not confined to psychological science but extends into fields such as computer science and education, in particular when considering the digital aspects of problem solving. However, the origins of problem solving are in psychology and over the last century researchers who would identify themselves as psychologists have studied problem solving from various angles with an initial focus on the cognitive aspects in the twentieth century. This focus has recently been extended to include also the motivational and socio-emotional aspects of problem solving. For instance, in the Programme for International Student Assessment (PISA), an assessment of individual problem solving was included in the 2012 edition. This assessment was extended to problem solving in groups (labelled collaborative problem solving) in the 2015 edition to additionally consider the social dimension of problem solving.

Problem solving as a content topic is relevant for studies in many fields but maybe most for psychology. Consequently, content on problem solving is found in many Bachelor and Master programs of psychology to familiarize students with the topic and to provide relevant theoretical and empirical background. Traditionally, problem solving is covered in Bachelor-level lectures of general psychology or cognitive psychology. Contents typically cover the historical beginnings of problem solving research starting with Duncker and cover milestones of the development of our understanding of problem solving such as the seminal work on the General Problem Solver (GPS) by Newell and Simon (1972). As problem solving research advances and gets increasingly connected to the digitalized world of the twenty-first century, content nowadays often includes some of the more recent and still developing topics

outlined above such as problem solving in the context of data science, the IoT, network analyses, and artificial intelligence.

Problem solving is also a topic that is often considered as part of empirical seminars in Bachelor programs of psychology, in which students set up their own experiments to gather initial experience with the process of experimental work. The reason behind this is that the fundamental contents of problem solving research are easily accessible at the Bachelor level, and many experiments related to problem solving performance are straightforward. In addition, experimental setups might target differences among problem solvers or even more prominently, the manipulations of problem features that are expected to lead to subsequent differences in problem solving performance and the underlying processes. To this end, the field of problem solving has been a use-case of early experimental and practical work in the education of psychology students in addition to and beyond the theoretical contents mentioned above and is a cornerstone of contemporary higher education of psychologists.

While problem solving as a content-related field that psychology students should know about is fairly established in tertiary education in psychology, a second question concerns whether and in which way psychology programs should develop actual problem solving skills in students to prepare them for working as psychologists later on. This question is clearly different from teaching problem solving-related content. This also holds for the complexity of the underlying question: Whereas teaching factual knowledge on problem solving as research topic within lectures or within experimental courses is rather straightforward, it is a completely different context and challenge to facilitate actual problem solving skills in students throughout tertiary education (for some thoughts on the role of transversal skills such as problem solving in tertiary education, see Zlatkin-Troitschanskaia, Pant, & Greiff, 2019).

The question on how to make students good problem solvers is not new but has been mainly targeted in the context of secondary education. In fact, some have labelled the challenge of bringing students to the level of well-skilled and competent problem solvers as the biggest task that schools and educational systems face (Mayer & Wittrock, 2006). As indicated above, this is also evidenced by the fact that large international studies with student populations such as PISA (with 15-year-old students) that aim at comparing the performance of educational systems across the world have repeatedly included problem solving in their assessments to provide international comparisons. These studies have mostly been run with student populations but also studies that focus on adult populations such as the Programme for the International Assessment of Adult Competencies (PIAAC) have included problem solving as a core skill for success at work and life in more general.

To this end, teachers and instructors in tertiary education would easily agree that becoming good problem solvers while not explicit is yet an important goal of tertiary education, and this holds for the teaching and learning of psychology as well. At the same time, it is important to acknowledge that the type of problem solving that is required and the contextual embedding of problem solving varies greatly across different study programs (such as computer science, problem solving, medicine, and

so forth) and, later on in life, occupations. But even within psychology, the problems that one needs to successfully master are by no means similar or coherent. For instance, the collaborative aspects of solving problems in a group might be in the focus for an I/O psychologist who is asked to mediate conflicts and improve team spirit in a small business; the adaptive and meta-cognitive components of problem solving might be the focus when working as an educational psychologist in the classroom to consider several students' learning needs and challenges simultaneously in an attempt to help them master curricular content; and hands-on practical problem solving dimensions as well as the emotional dimensions of problem solving are likely to be key to successful treatment of patients when working as a clinical psychologist.

With these different foci that problem solving might take, it comes as no surprise that it is a great challenge to combine all this in a study program. In addition to this, it can be assumed that there are few explicit resources and guidelines on how to teach problem solving – on the one hand because research does not have answers yet to the question on how to best teach problem solving and on the other hand because curricula in psychology are more organized along content than along skills.

One promising method to increase students' problem solving skills aligned with their specific area of occupation is problem-based learning (PBL). PBL represents a major development in educational practice that continues to have a large impact across subjects and disciplines worldwide. The claims made for PBL promise an important improvement in outcomes for education, including increased retention of knowledge and enhanced integration and application of basic science concepts (e.g., Schmidt et al., 2007). However, empirical evidence to support these claims is less straightforward (Capon & Kuhn, 2004; Şendag & Odabaşi, 2009), and it remains an open question whether PBL can help to sustainably lift occupationally relevant problem solving skills in psychology students.

In this chapter, three suggestions for teaching problem solving are offered concerning the history, professional competence, impacts on individuals, and the use of data science in psychology.

Suggestion 1: Balance lectures with real-world experiences that engage students through individual- and team-based problem solving.

Suggestion 2: Ensure that the psychology curriculum spends adequate time and resources for students to experience iterative reflection and receive timely, effective feedback on problem solving in four aspects:

1. Knowing and applying the field's history in clinical practice and research
2. Developing personal professional competence in problem solving as an individual and as a team member
3. Acquiring and honing observational and clinical skills for assisting others in problem solving in individual- and team-based psychological practice
4. Making extensive use of data science methods and knowledge in research and practice

Suggestion 3: Because data science is a new addition to the curriculum of general psychology, the psychology faculty team should review and improve its

knowledge of data science research practices, methods, and findings in order to build and maintain a shared vision of its role in the field.

Challenges and Lessons Learned

Despite the relevance of problem solving skills for the psychologists of the future, it is not easy to implement problem solving as key feature of curricula in tertiary education of psychology. Please note that, in contrast, this is rather unproblematic for the research area of problem solving as this involves the mere teaching of relevant content knowledge. Thus, this section on challenges and lessons learned will be mainly about the question of what the core challenges are when trying to facilitate problem solving skills during tertiary education of psychology.

In fact, there are several reasons that might undermine a clear and evidence-based focus on psychology-relevant teaching of problem solving skills. The first is that problem solving and the dimensions (cognitive, motivational, and emotional) that are associated with it are a moving target. The research area continues to evolve and the nature of problem solving has likely changed to a substantial degree due to the level of digital tools that we use in our everyday life (Greiff et al., 2017) and that have not stopped at the doorstep of the profession of psychology. Secondly, many initiatives on assessment, learning, and instruction of problem solving have been focused on primary and secondary education, so knowledge and empirical evidence of facilitating problem solving skills in tertiary education is lacking. Thirdly, problem solving shares one concern with many other skills that are not primarily related to specific content knowledge: Students in tertiary programs, for instance, in psychology, are expected to acquire these skills but little explicit support is provided – neither to educators on how to teach the relevant set of skills nor to students on how to acquire the relevant set of skills. Mayer and Wittrock (2006) label this situation as "hidden curriculum" in the context of secondary education, but the same label adequately describes the situation in tertiary education.

These three challenges in combination lead to the conclusion that, at present, learning and instruction of problem solving as a skill happen largely on an implicit basis in psychology programs with huge individual differences, for instance, with regard to the focus a specific instructor might put on problem solving and appropriate instructional methods such as PBL. However, the picture that we paint here should not be too negative. Many courses, in particular in Master programs, that are meant as preparation for an occupation in a subfield of psychology such as I/O psychology or clinical psychology or (mandatory) internships are likely to include components that are relevant for problem solving. To this end, it is reasonable to assume that many students, once they leave tertiary education with a degree, have obtained a reasonable or for some even a high level of problem solving skills that will help them to successfully start their occupation

as psychologist irrespective of the specific subdiscipline. In addition to this, often the most intensive period of learning and development is on the job, and there are many case reports on psychologists that go through an intensive period at the beginning of their occupational career when being faced with working on a job with specific demands and duties. In broad terms, this period could be described as being almost permanently faced with new problems and being confronted with the demand to solve them. This "learning by doing" will have beneficial effects on the majority of graduates and on their problem solving skills. To the extent possible, some of these crucial experiences should be integrated in a more protected environment, that is, into the period of formal tertiary education, for instance, through developing explicit and curricular anchored requirements on teaching problem solving skills.

Recommended Further Reading

Historical Approaches to Problem Solving

Empirical research on problem solving and problem posing: a look at the state of the art. (Liljedahl & Cai, 2021)

While the context of this special issue is mathematics, and not all problem solving is as well-defined or well-studied, there are a number of lessons that can be transferred to other fields. This collection introduces sixteen empirical papers that add nuance to what is known about problem solving and problem posing. The issue covers problem solving through the ages, the role of collaboration in problem solving, the role of professional development in problem solving, task variables, technology, and problem solving as a cognitive activity.

Professional Competence

Scaffolding students' problem-solving processes in an ill-structured task using question prompts and peer interactions. (Ge & Land, 2003)

This quasi-experimental study supported by case examples examines the effects of question prompts and peer interactions in scaffolding undergraduate students' problem solving processes in an ill-structured task in problem representation, developing solutions, making justifications, and monitoring and evaluating. The study investigated both the outcomes and the processes of student problem solving performance. The quantitative outcomes revealed that question prompts had significantly positive effects on student problem solving performance and the qualitative findings indicated positive effects of peer interactions in facilitating cognitive thinking and metacognitive skills.

The construction of shared knowledge in collaborative problem solving. (Roschelle & Teasley, 1995)

This study examines the interaction between participants analyzed with respect to a "joint problem space" created in collaboration, which comprises an emergent, socially negotiated set of knowledge elements, such as goals, problem state descriptions, and problem solving actions. The analysis shows how this shared conceptual space is constructed through the external mediational framework of shared language, situation, and activity. This approach has particular implications for understanding how the benefits of collaboration are realized and serves to clarify the possible roles of the computers in supporting collaborative learning.

Individual Differences

Measuring Problem Solving with Technology : A Demonstration Study for NAEP (Bennett, Persky, Weiss, Jenkins, & Russell, 2010)

In this study, two computer-delivered assessment scenarios were designed, one on solving science-related problems through electronic information search and the other on solving science-related problems by conducting simulated experiments. The assessment scenarios were administered to nationally representative samples of 8th-grade students in over 200 schools. Results are reported on the psychometric functioning of the scenarios and the performance of population groups.

Data science in educational assessment (Gibson & Webb, 2015)

This article introduces four psychometric challenges of data science or "big data" in educational assessments that are enabled by technology: (1) dealing with change over time via time-based data; (2) how a digital performance space's relationships interact with learner actions, communications, and products; (3) how layers of interpretation are formed from translations of atomistic data into meaningful larger units suitable for making inferences about what someone knows and can do; and (4) how to represent the dynamics of interactions between and among learners who are being assessed by their interactions with each other as well as with digital resources and agents in digital performance spaces. The article calls for the restructuring of training of the next generation of researchers and psychometricians to specialize in data science in technology enabled assessments.

Data Science in Psychology

Making use of data for assessments: Harnessing analytics and data science. (Ifenthaler, Greiff, & Gibson, 2018)

This chapter focuses on how data with a large number of records, of widely differing data types, and arriving rapidly from multiple sources can be harnessed for

meaningful assessments and supporting learners in a wide variety of learning situations. Distinct features of analytics-driven assessments may include self-assessments, peer assessments, and semantic rich and personalized feedback as well as adaptive prompts for reflection. The chapter concludes with future directions in the broad area of analytics-driven assessments for teachers and educational researchers which is of interest to educational psychologists.

References

Aktas, M. E., Akbas, E., & Fatmaoui, A. E. (2019). Persistence homology of networks: methods and applications. *Applied Network Science, 4*(1). https://doi.org/10.1007/s41109-019-0179-3

Berry, D.C., & Broadbent, D.E. (1984). On the relationship between task performance and associated verbalizable knowledge. *Quarterly Journal of Experimental Psychology, 36A*, 209–231.

Berry, D.C., & Broadbent, D.E. (1988). Interactive tasks and the implicit–explicit distinction. *British Journal of Psychology, 79*, 251–272.

Blei, D., & Smyth, P. (2017). Science and data science. *Proceedings of the National Academy of Sciences, 114*(33), 8689–8692. https://doi.org/10.1073/pnas.1702076114

Chen, M., Herrera, F., & Hwang, K. (2018). Cognitive computing: Architecture, technologies and intelligent applications. *IEEE Access, 6*, 19774–19783. https://doi.org/10.1109/ACCESS.2018.2791469

Chen, X., Xie, H., Zou, D., & Hwang, G.-J. (2020). Application and theory gaps during the rise of Artificial Intelligence in Education. *Computers and Education: Artificial Intelligence, 1*-(August), 100002. https://doi.org/10.1016/j.caeai.2020.100002

Davis, N. (2012). *Leadership for online learning within and across secondary schools: An ecological perspective on change theories*. In International federation of information processing working group 3.3 (pp. 1–15).

Davis, N., Eickelmann, B., & Zaka, P. (2013). Restructuring of educational systems in the digital age from a co-evolutionary perspective. *Journal of Computer Assisted Learning, 29*, 438–450. https://doi.org/10.1111/jcal.12032

Diestel, R. (2006). *Graph theory*. https://doi.org/10.1103/PhysRevLett.107.085504

Duncker, K. (1935). *Zur Psychologie des produktiven Denkens*. Berlin: Springer.

Etzion, O., Fournier, F., & Arcushin, S. (2014). *Tutorial on the Internet of everything*. In Proceedings of the 8th ACM international conference on distributed event-based systems – DEBS '14 (pp. 236–237). https://doi.org/10.1145/2611286.2611308

Evans, D. (2011, April). *The Internet of Things – How the next evolution of the Internet is changing everything*. CISCO white paper, pp. 1–11. https://doi.org/10.1109/IEEESTD.2007.373646

Funke, J. (1992). *Wissen über dynamische Systeme: Erwerb, Repräsentation und Anwendung.* Berlin: Springer.

Ge, X., & Land, S. M. (2003). Scaffolding students' problem-solving processes in an illstructured task using question prompts and peer interactions. *Educational Technology Research and Development, 51*(1), 21–38.

Gibson, D. C., & Webb, M. (2015). Data science in educational assessment. *Education and Information Technologies, 20*(4), 697–713. https://doi.org/10.1007/s10639-015-9411-7

Ifenthaler, D., Greiff, S., & Gibson, D. C. (2018). Making use of data for assessments: harnessing analytics and data science. In J. Voogt, G. Knezek, R. Christensen, & K.-W. Lai (Eds.), *International handbook of IT in primary and secondary education* (2 ed., pp. 649–663). Springer. https://doi.org/10.1007/978-3-319-71054-9_41

Jacobson, M.J. (2000). Problem Solving About Complex Systems: Differences Between Experts and Novices. In B. Fishman & S. O'Connor-Divelbiss (Eds.), *Fourth international conference of the learning sciences*, pp. 14–21. Mahwah, NJ: Erlbaum.

Krems, J. (1995). Cognitive flexibility and complex problem solving. In P.A. Frensch & J. Funke (Eds.), *Complex problem solving. The European perspective*, pp. 201–218. Hillsdale, NJ: Lawrence Erlbaum.

Gašević, D., Joksimović, S., Eagan, B. R., & Shaffer, D. W. (2019). SENS: Network analytics to combine social and cognitive perspectives of collaborative learning. *Computers in Human Behavior, 92*(May), 562–577. https://doi.org/10.1016/j.chb.2018.07.003

Goldstone, R. L., Pestilli, F., & Börner, K. (2015). Self-portraits of the brain: Cognitive science, data visualization, and communicating brain structure and function. *Trends in Cognitive Sciences, 19*(8), 462–474. https://doi.org/10.1016/j.tics.2015.05.012

Gonthier, G. (2008). Formal proof–the four-color theorem. *Notices of the AMS, 55*(11), 1382–1393. Retrieved from https://www.ams.org/notices/200811/tx081101382p.pdf

Greiff, S., Scheiter, K., Scherer, R., Borgonovi, F., Britt, A., Graesser, A., Kitajima, M., & Rouet, J. F. (2017). *Adaptive problem solving. Moving towards a new assessment domain in the second cycle of PIAAC* (OECD education working papers, no. 156). Paris: OECD. https://doi.org/10.1787/90fde2f4-en

Greiff, S., & Wüstenberg, S. (2014). Assessment with microworlds: Factor structure, invariance, and latent mean comparison of the MicroDYN test. *European Journal of Psychological Assessment, 30*, 1–11. https://doi.org/10.1027/1015-5759/a000194

Ifenthaler, D., & Seel, N. M. (2005). The measurement of change: Learning-dependent progression of mental models. *Technology, Instruction, Cognition and Learning, 2*(4), 317–336.

Ifenthaler, D., & Seel, N. M. (2011). A longitudinal perspective on inductive reasoning tasks. Illuminating the probability of change. *Learning and Instruction, 21*(4), 538–549. https://doi.org/10.1016/j.learninstruc.2010.08.004

Ifenthaler, D., & Seel, N. M. (2013). Model-based reasoning. *Computers & Education, 64*, 131–142. https://doi.org/10.1016/j.compedu.2012.11.014

Ings, T. C., & Hawes, J. E. (2018). The history of ecological networks. In *Ecological networks in the tropics* (pp. 15–28). Springer. https://doi.org/10.1007/978-3-319-68228-0_2

Lester, F. K. (1983). Trends and issues in mathematical problem-solving research. In R. Lesh & M. Landau (Eds.), *Acquisition of mathematics concepts and processes* (pp. 229–261). Academic Press.

Margulieux, L. (2019). *Chapter summary: Mayer & Wittrock (2006) Problem solving | Lauren Margulieux*. Retrieved March 22, 2021, from https://laurenmarg.com/2019/04/21/chapter-summary-mayer-wittrock-2006-problem-solving/

Mayer, R., & Wittrock, M. (1996). Problem-solving transfer. In D. Berliner & R. Calfee (Eds.), *Handbook of educational psychology* (pp. 47–62). Simon & Schuster Macmillan.

Newell, A., & Simon, H. (1972). *Human problem solving*. Englewood Cliffs, NJ: Prentice-Hall.

Otte, E., & Rousseau, R. (2002). Social network analysis: A powerful strategy, also for the information sciences. *Journal of Information Science, 28*(6), 441–453. https://doi.org/10.1177/016555150202800601

Russell, S., & Norvig, P. (2009). *Artificial intelligence: A modern approach* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall Press.

Seel, N. M., Ifenthaler, D., & Pirnay-Dummer, P. (2009). Mental models and problem solving: Technological solutions for measurement and assessment of the development of expertise. In P. Blumschein, W. Hung, D. H. Jonassen, & J. Strobel (Eds.), *Model-based approaches to learning: Using systems models and simulations to improve understanding and problem solving in complex domains* (pp. 17–40). Sense Publishers.

Shaffer, D. W. (2006). Epistemic frames for epistemic games. *Computers & Education, 46*(3), 223–234. https://doi.org/10.1016/j.compedu.2005.11.003

Shaffer, D., Hatfield, D., Svarovsky, G., Nash, P., Nulty, A., Bagley, E., . . . Mislevy, R. (2009). Epistemic network analysis: A prototype for 21st-century assessment of learning. *International Journal of Learning and Media, 1*(2), 33–53.

Sharkasi, N. (2010). The doctor will be you now: A case study on medical ethics and role. In K. Schrier & D. Gibson (Eds.), *Ethics and game design* (pp. 275–290). Hershey, PA: IGI Global.

Silver, E. A., Ghousseini, H., Gosen, D., Charalambous, C., & Strawhun, B. T. F. (2005). Moving from rhetoric to praxis: Issues faced by teachers in having students consider multiple solutions for problems in the mathematics classroom. *Journal for Mathematical Behavior, 24*, 287–301.
Sporns, O. (2011). *Networks of the brain*. Cambridge, MA: MIT Press.
Stanton, J. (2012). *An introduction to data science*. Syracuse University.
Swiecki, Z., & Shaffer, D. W. (2020). *ISENS: An integrated approach to combining epistemic and social network analyses*. In ACM International conference proceeding series, pp. 305–313. https://doi.org/10.1145/3375462.3375505
van den Heuvel, M. P., & Sporns, O. (2013). Network hubs in the human brain. *Trends in Cognitive Sciences*. https://doi.org/10.1016/j.tics.2013.09.012
Wertheimer, M. (1959). *Productive thinking* (Enlarged Ed.). New York: Harper & Row.
Wolfram, S. (2002). *A new kind of science*. Champaign, IL: Wolfram Media.
Zawacki-Richter, O., & Latchem, C. (2018). Exploring four decades of research in Computers & Education. *Computers & Education, 122*, 136–152. https://doi.org/10.1016/j.compedu.2018.04.001
Zlatkin-Troitschanskaia, O., Pant, H. A., & Greiff, S. (Eds.). (2019). Assessing generic and domain-specific academic competencies in higher education. *Zeitschrift für Pädagogische Psychologie.* https://doi.org/10.1024/1010-0652/a000236

General Psychology Motivation

7

Maria Tulis and J. Lukas Thürmer

Contents

Abstract

The willful pursuit of goals is one of the key capabilities that allow humans to thrive. Motivation Science is the interdisciplinary research field that investigates this fundamental capability. In the current chapter, we discuss the roots of this young field of psychology, outline an evidence-based curriculum of how to teach Motivation Science, and discuss some emerging research topics. We present a potential curriculum of an introductory course on Motivation Science, structured along the lines of the Rubicon model of action phases. We base our didactic approach on the principle of integrative teaching and learning, and spiral progression to structure our curriculum according to Motivation Science.

M. Tulis (✉) · J. L. Thürmer
Department of Psychology, University of Salzburg, Salzburg, Austria
e-mail: maria.tulis-oswald@plus.ac.at; lukas.thuermer@plus.ac.at

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Motivation Science · Spiral progression approach in teaching · Conceptual-change based learning · Integrative learning

Introduction

Motivation is a ubiquitous aspect of human behavior and a key concept in contemporary psychology. This is a blessing and a curse. A blessing because almost every student, teacher, and lay person expresses interest in this topic. It is therefore easy to engage people in teaching. The interest in motivation is a curse, however, because most people also have profound and deeply-rooted assumptions and lay-theories about motivation, supported by a vast popular literature of self-help books. Teaching motivation therefore at times may feel like an uphill battle against ill-founded knowledge and untestable theories.

To master these challenges, we suggest integrating the content of the course with pedagogic principles, motivating students through the application of Motivation Science. Furthermore, we propose the *Rubicon model of action phases* (Heckhausen & Gollwitzer, 1987) as a framework (also from a didactical point of view) in order to combine current goal concepts with traditional motivational psychology and illustrate the interrelationships. This chapter will proceed as follows: First, we will give a brief overview of the roots of Motivation Science. Second, we will introduce our contemporary perspective, which reflects the core topics we believe an undergraduate course on Motivation Science should cover. Thus, we will develop a curriculum for teaching Motivation Science organized along our contemporary perspective. Finally, we will highlight some approaches and strategies for teaching and learning in this domain.

Historical Roots of Motivation Science

Motivation can come about in different ways, as everyday experience shows: For some activities, motivation arises without intervention; for other activities, one must overcome considerable hindrances to instill motivation. Asking laypersons what they think it means "to be motivated" mostly converges to the idea of having and expending high energy in the pursuit of goals (i.e., investing effort). This answer reflects a conception of motivation that was considered in the early days of Motivation Science, from different but complementary perspectives but to answer one and the same question: What is the source of this "energy" that drives goal-directed behavior (i.e., *action*)?

In the history of Motivation Science, *drives* and *needs* were extensively analyzed in this regard, as well as intrapersonal dispositions (*motives*) and environmental affordances (*incentives*). From a psychodynamic view, Freud (1915) focused on (unconscious) drive impulses and drive satisfaction as a kind of "instinctual energy."

Freud believed that these unconscious processes are not accessible to quantitative-empirical investigation. Instead, Freud relied on qualitative descriptions of single cases to back his theory. Some scholars even argue that Freud's theories were designed to be untestable (Kempf, 2003). Current Motivation Science still assumes that many important processes run off with limited conscious awareness. But we have an arsenal of methods for measuring these processes (e.g., neuro-psychological measures: Murayama et al., 2015; Wieber, Thürmer & Gollwitzer, 2015) and are firmly rooted in a quantitative-empirical tradition.

In stark contrast to this psychodynamic approach, (neo-)behaviorists such as Hull (1943, 1952) only considered observable processes as "fair game" for science. Nevertheless, their motivation account also focuses on the drive concept. Hull's drive theory developed the concept of drive reduction as an "energizer" (i.e., as a central motivating principle). He and his colleagues emphasized the link between (biological) drives as an *un*specific source of energy that can be directed by learning processes and incentives. This conceptualization introduced a clear distinction between need and drive: Whereas needs were viewed as (observable) specific deficiencies or disturbances within the organism that elicit a nonspecific drive (which in turn initiates a specific behavior), drives constituted theoretical (hypothetical) constructs. In keeping with a behaviorist tradition, Hull accordingly operationalized drives in terms of deprivation. The longer a certain need was unfulfilled (e.g., time without food), the larger the organism's drive was assumed to be. Importantly, this drive was assumed to be unspecific. The assumption, therefore was that the deprivation of a specific need (e.g., withholding food) should not only energize related behavior (i.e., obtaining food) but also unrelated behavior (e.g., obtaining water, mates, etc.). Since Hull assumed that habit and drive were both necessary to energize behavior, he expressed his theoretical assumptions in a multiplicative association; behavior thus requires all components, because if either factor is zero, the entire term is zero – an important assumption in later theories on human motivation, too: $E_R^{nergy} = Drive \times {}_Sh_R^{abit}$

Perhaps unsurprisingly, the strong assumption of unspecific drive received mixed empirical support. For instance, even rodents perform behaviors that match their specific needs (e.g., eat when they are hungry) instead of any learned behavior (e.g., drink when they are hungry; Perin, 1942). Such observations led to a gradual shift towards incorporating more elaborate inner states in motivation theory, which later led to the *cognitive revolution*. For instance, Hull later extended his theory with the assumption that environmental conditions (incentives) become motivators of behavior. Situational incentives (e.g., food) attract the individual, and thus, trigger a certain behavior. Current motivation theory does incorporate a host of inner states that were off-limits in a behaviorist tradition.

Nevertheless, Motivation Science focuses on empirical observation that reflects these processes. In this sense, we are "all behaviorists" (Smith, 2014).

Lewin's (1939, 1951) field theory focuses on human's subjective experience of the world and is based on a third theoretical tradition, *Gestalt-psychology*. As a key foundation for modern Motivation Science, Lewin proclaimed that behavior is the product of person and the environment. Lewin thus assumed that the fit of personal

needs, goals, and intentions with his or her *subjective perceptions* of environmental hindrances and opportunities produce motivated behavior, much like different gravitational forces move an inanimate object. Lewin's untimely death prevented him from completing his work on field theory, such as the mathematical formulations of the field at a given time. Lewin, nevertheless, laid the foundation for modern motivation research with his focus on *intentions* as proximal predictors of action as well as the interplay between person and environment.

Although not integrated at the time, the work by Ach (1935) provides an important complementary view with respect to goals. Ach distinguished between *goal setting* and *goal realization*. This distinction opens up the possibility that one may set a goal but fail to realize it, a common occurrence in everyday experience. Ach analyzed the processes that play a role in the realization of set intentions. While processes of goal setting are determined by incentives (value) and feasibility (expectancy of success), processes of goal realization are subject to the influence of *volition*, such as persistence. Ach (1935) already investigated volitional processes that determine which motivational tendencies are implemented, at which opportunity, and in what manner. Ach's work was largely neglected by his contemporaries but the goal-setting/goal-striving distinction has been key to Motivation Science since the 1980s.

Lewin's work was also of far-reaching importance for the development of *expectancy-value theories* (in the field of educational psychology: Wigfield & Eccles, 2000; in the field of social psychology: Fishbein & Ajzen, 1975; in the field of work and organizational psychology: Vroom, 1964), which highlight *rational thought as determinant of motivation* – an idea that was first taken up and further specified by Atkinson (1957, 1964). In his model, behavior is conceptualized as a function of *motives*, incentives (*value*), and subjective *expectancies*. Heckhausen (1963) further differentiated the conceptualization of motives in terms of different *types of expectations*: (1) Situation-outcome expectancies express the assessment of how likely the desired outcome is to occur even without one's own action. (2) Action-outcome expectancies relate to the impact of one's own actions, and (3) outcome-consequence expectancies refer to the extent to which the outcome will also result in the desired consequences. On the other hand, in the field of education, Wigfield and Eccles (1992, 2000) further differentiated *types of task value* into (1) attainment value (i.e., personal importance of the task which affirms a valued aspect of an individual's identity), (2) intrinsic value (i.e., personal enjoyment from engaging in the task for its own sake), (3) utility value (i.e., perceived usefulness of the task for future short-term or long-term goals), and (4) cost (i.e., competition with other goals).

A highly important motivation framework that can contribute to understanding how individuals derive their expectancies is *attribution theory* (Heider, 1958; Kelley, 1973; Weiner, 1985). According to this perspective, humans evaluate events as "lay scientists" who seek to determine the causes for certain events (e.g., the situation or the person) to predict and alter future events. A host of research indicates that such attributions can have far-reaching consequences on the responses that people show to seemingly similar situations (review by Weiner, 2018). Attribution theory

addresses multiple motivational domains, including achievement and affiliation, which is why it is considered to be a general theory of motivation (Graham, 2020). Concerned with the perceived causes of achievement success and failure, the distinction of three causal dimensions (Weiner, 1985) – locus, stability, and controllability – particularly found prominence in the field of educational psychology in particular as well as psychology and related fields more generally. Such evaluations of past events then likely impact individuals' expectations regarding future events.

Another strand of Motivation Science focuses on the *content of motivation*. Murray (1938) explained goal-directed behavior in terms of needs (as rather stable personal quantities) in correspondence with appropriate opportunities for action offered by incentives in the environment (so-called *press*). A person's individual needs modulate the specific situational prompting character, that is, how he/she perceives the environmental incentives. Murray differentiated a bundle of human physiological and psychological needs, including the motives of achievement, affiliation, and power (McClelland, Atkinson, Clark & Lowell, 1953; Murray, 1938; Atkinson, Heyns & Veroff, 1954), which are still the focus of current motivation research. The *affiliation motive* concerns establishing, maintaining, and restoring positive relationships with other people and describes a person's need to feel a sense of involvement and "belonging" within a social group. Thus, situational incentives are characterized by positive social interaction and cooperation. The personal *motive* "*need for achievement*" is characterized by an enduring and consistent concern with setting and meeting high standards of achievement. High need for achievement motivates an individual to succeed in competition, and to excel in activities important to them (cf. Murray, 1938; Atkinson, Heyns & Veroff, 1954). The overriding incentive is to experience competence or avoid incompetence.

Motives can be distinguished from needs in terms of their broader scope. For example, the affiliation motive is not solely directed to satisfying the need for affiliation, but related to the satisfaction of needs for protection, nurturance, and warmth (Scheffer & Heckhausen, 2018, p. 84). The *achievement motive* is related to the satisfaction of needs for competence and proves one's performance, for instance, whereas the underlying needs for the power motive might be to "feel strong" and having influence or control. Maslow (1954) took an alternative approach to classify motives in terms of needs. He proposed a hierarchical model of groups of needs, based on the principle of relative priorities in motive activation: Lower needs (e.g., physiological needs) must always be satisfied, before higher needs (e.g., self-respect, or self-actualization) will emerge and can determine behavior. On the other hand, a need activates and influences behavior only as long as it remains unsatisfied. Thus, motivated behavior is rather "*pulled*" by the external consequences of its satisfaction than "*pushed*" from within the organism. Unfortunately, Maslow's conceptualization of hierarchical groups of needs remained rather vague and has never been empirically verified. Nevertheless, it offers an alternative view on motives within the scope of *Positive psychology* and, above all, it points to their culture specificity. All these historical approaches, extensions, and differentiations have paved the way for modern Motivation Science.

Central Issues of Motivation Science

The willful regulation of behavior is key for human thriving, and Motivation Science accordingly spans a wide array of fields and uses a variety of concepts (Murphy & Alexander, 2000). For instance, educational psychology focuses on other (aspects of) motivation theories than those studied in social psychology, cognitive psychology, neuroscience, or organizational psychology. For instance, educational psychology often draws to the differentiation of *intrinsic motivation* (i.e., engagement in an activity for its own sake) versus *extrinsic motivation* (i.e., engagement in an activity from the desire for some external reward or to avoid punishment) and *self-determination theory* (Deci & Ryan, 1985, 2000) which proposes a developmental continuum of extrinsic to intrinsic motivation – both experienced as self-determined (more details in section "Core Contents and Topics of Motivation Science"). In neuroscience, there is emerging interest in the neuropsychological aspects of motivation (e.g., Ryan & Di Domenico, 2016), and motivation in the workplace for a long time has been understood in terms of extrinsic rewards, but nowadays seen as a multilevel phenomenon where individual, group, organizational, and cultural variables must be considered (Kanfer, Chen & Pritchard, 2008). In recent years, researchers have recognized the importance of integrating these cross-disciplinary approaches under the rubric of Motivation Science (Braver et al., 2014), which is now an emerging field (Kruglanski, Chernikova & Kopetz, 2015; Murayama, 2019).

Instead of a unified theory, the history of motivation research has yielded a wide range of theories and motivational concepts – each addresses motivation within a particular context and from a certain perspective. As outlined in the previous chapter, theories of human motivation stem from different conceptual frameworks: psychoanalytic, drive, field, achievement, social learning, attributional, and humanistic (for more comprehensive descriptions see Weiner, 2013). The abundance of significant contributions to understanding human motivation creates a desire to organize them and integrate them in a structuring framework (Anderman, 2020; Dweck, 2017; Forbes, 2011). A structured model of general human motivation, such as the 3 × 3 matrix provided by Forbes (2011) – based on three foci × three levels of aspiration – has value for contemporary Motivation Science in several ways: It can provide a common and more precise language for both academic and applied psychologists who work in the field of motivation, it structures and systematically organizes theories and insights of the past century as well as future work on motivation, and it may contribute to conceptual clarity. Indeed, over the past two decades, the question of conceptual overlap between theories and constructs remained unanswered (a continued conversation in terms of motivational theories prominent in the field of Educational Psychology provide Murphy & Alexander, 2000; Wigfield & Koenka, 2020). Contemporary Motivation Science thus engages in an interactive dialog on alternative perspectives and ongoing discussion of how constructs are similar to or distinct from constructs in other models.

Finally, current trends in motivation research emphasize the dynamic nature of motivational processes and the impact of the situation (Eccles & Wigfield, 2020; Nolen, 2020; Nolen & Ward, 2008). Therefore, new methods of both study and data

analyses have developed to capture the situated nature of motivation. In addition, the importance of the social environment and the broader context for motivation is increasingly coming into focus (Wigfield & Koenka, 2020). In this regard, someone may also think of the cultural context and cross-cultural nuances (e.g., for the role of culture in goal pursuit see Oettingen, Sevincer & Gollwitzer, 2008; in achievement goal theory see Zusho & Clayton, 2011).

Purposes and Rationale of the Curriculum in Motivation Science

Teaching psychology in higher education aims to provide students with psychological knowledge and skills, such as scientific and critical thinking, and to demonstrate opportunities to apply psychological principles to real-world problems. Motivation Science lends itself to attaining these goals in teaching due to its rich theoretical background, its interdisciplinary nature, and its immediate applicability.

Therefore, our proposed selection of traditional (see previous section) and more recent motivation concepts and research (see section below) are based on the following questions:

- How relevant and representative is each theory/concept for the field of Motivation Science and for understanding human behavior?
- How does it contribute to, or is related to, the fundamental conceptions of traditional motivation research?
- How important is a theory/concept for the students' everyday experiences?

Motivational processes are based on the complex interaction between personal and environmental factors. For this reason, a curriculum for teaching motivation must present different motivation theories in relation to each other. As a case in point, we used one Motivation Science model, the *Rubicon model of action phases* (Gollwitzer, 1990, 2012; Heckhausen & Gollwitzer, 1987; Heckhausen, 1989; Keller, Gollwitzer & Sheeran, 2020), to structure the curriculum, and as a framework in order to combine different motivation theories (Fig. 1b). The Rubicon model, which subdivides the stream of action from the emergence of a desire to the achievement of a goal into four phases (pre-decisional, pre-actional, actional, and post-actional) will be explained in the next section (and illustrated in Fig. 1a). It is important to note that Motivation Science is a vast and interdisciplinary field and that our curriculum therefore necessarily represents a selection. Other approaches integrate a host of additional variables that go beyond the central question of how individuals attain goals. In this regard, PSI theory (*theory of personality-systems-interactions*: Kuhl, 2001) is a highly ambitious and comprehensive theory that refers to the ensemble of cognitive and motivational-affective processes, and how they interact differentially in individuals to determine behavior and experience (Kuhl, Quirin & Koole, 2020). Another such topic for further elaboration would be *Terror Management Theory* (e.g., see "The Oxford Handbook of Human Motivation" by Ryan, 2019) which addresses existential aspects of human motivation. Our goal is to

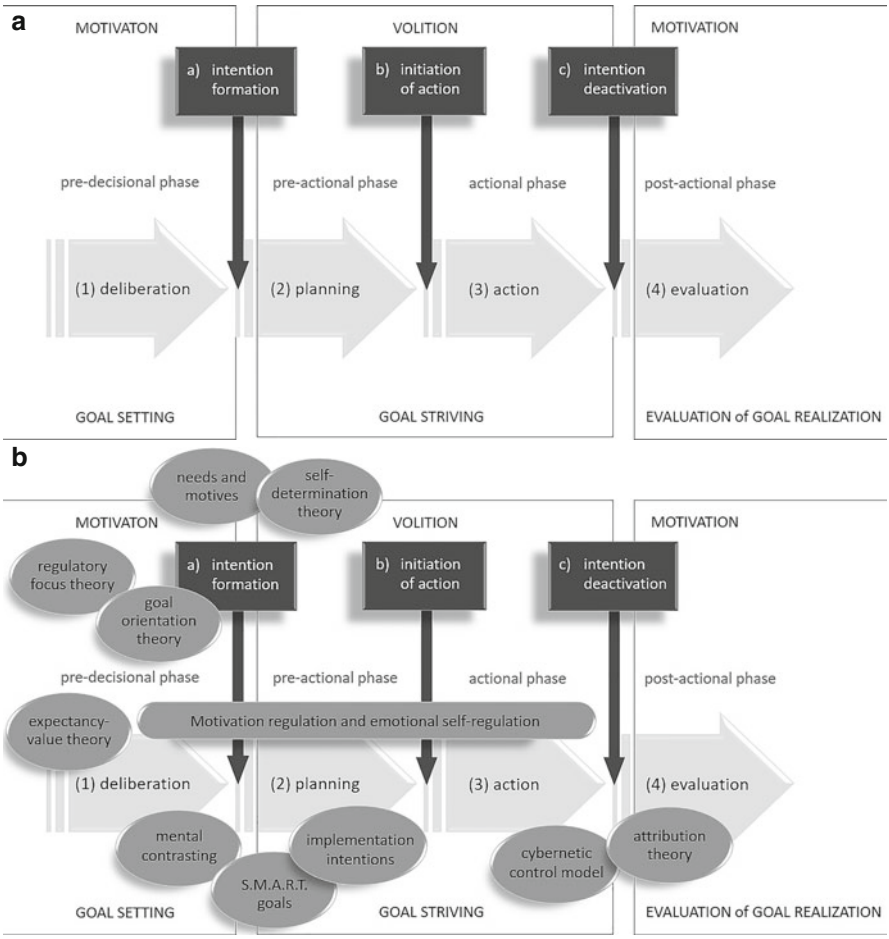

Fig. 1 (**a**) Rubicon model of action phases (own illustration). (**b**) Motivation theories and goal concepts along the four action phases (own illustration)

present a potential curriculum of an introductory course on Motivation Science on the general processes with regard to human motivation. Specific areas of psychology may therefore refer to Motivation Science literature in their sub-fields.

With reference to the competency areas identified in the APA guidelines for the undergraduate psychology program (2016), students ideally will acquire the following competencies in a course on Motivation Science:

1. *Content and Knowledge Base in Motivation Science: Core concepts and research*
   Students should demonstrate fundamental knowledge and comprehension of the major concepts of Motivation Science (historical and current), theoretical perspectives and trends, and empirical findings.

1.1 Define and explain psychological motivation theories and principles, their development, and interrelations.
1.2 Describe the complexity of the persistent questions in Motivation Science.
1.3 Distinguish between goal setting and goal striving.
1.4 Compare and relate Motivation Science to other psychology sub-disciplines.
1.5 Apply psychological principles and motivational concepts to everyday problems.

2. *Scientific Thinking and Critical Thinking Skills*

Within the field of Motivation Science, students should gain skills and conceptual knowledge in interpreting behavior, studying research, and applying research design principles to drawing conclusions about motivation-related phenomena.

2.1 Interpret motivation research findings from the backdrop of different theoretical perspectives.
2.2 Use motivation concepts to predict, explain, and change one's own behavior and the behavior of others (e.g., in counseling, therapy, or leadership).
2.3 In this regard, it is important to recognize the potential as well as the pitfalls of common intuitions about motivation. The intuitions provide an easy connecting point to Motivation Science; however, they may also lead to resistance when it comes to accepting counter-intuitive findings such as the intention-behavior gap or coasting.
2.4 Meet motivational challenges in an evidence-based manner.
2.5 Evaluate popular literature on motivation in the light of psychological knowledge, scientific reasoning, and empirical evidence. Describe the effectiveness and limitations of strategies proposed in self-help books.

3. *Ethical and Social Responsibility*

3.1 Consider the potential impact on global concerns of interventions on motivational issues (e.g., pro-environmental behavior, effective responses to the Coronavirus pandemic).
3.2 Devise motivational interventions in a way that empowers people to attain their goals; avoid conflicts of interests and the violation of ethical principles when using Motivation Science.
3.3 Ensure that Motivation Science speaks to people of diverse backgrounds.
3.4 Explain differences in individual needs and personal motives, and how social or cultural characteristics may influence motivation.
3.5 Devise interventions for motivational challenges of diverse groups of people with specific needs and conditions.

4. *Personal and Professional Development*

Students should apply motivation-specific content and skills for effective self-reflection, self-regulation, personal growth, and professional development.

4.1 Apply Motivation Science content knowledge and skills to personal growth and personal goal attainment.
4.2 Understand how and why we do (not) attain our goals.

4.3 Describe how Motivation Science applies to business, health care, education, and other workplace settings.
4.4 Apply Motivation Science to facilitate a more effective learning environment or workplace (e.g., project management, responses to setbacks and failure). Devise interventions for motivational challenges.
4.5 Demonstrate competence in writing and in oral and interpersonal communication skills in order to engage in discussion of motivational challenges and interventions with a specific audience (peer, lay, and professionals).

Across subdisciplines in Motivation Science, the *goal concept* has proven useful for analyzing motivated behavior (Gollwitzer, 2018). It is intuitively plausible that goals are a source of motivated behavior. However, the goal concept is also subject to misguided intuitions. For instance, one may assume that strong goal commitment will ensure successful goal attainment – in accordance with the maxim "where there is a will, there is a way." There is some truth to such intuitions as a complete lack of commitment most certainly will be detrimental to goal attainment. However, even strong commitment is no guarantee for goal attainment. Further complicating this situation, those who have a goal but fail to act on it are quick to provide excuses to the effect that their initial motivation must have been insufficient. In line with this reasoning, correlational research shows a medium-to-large correlation between self-reported goal strength and goal attainment. However, experimental studies show that a medium-to-large increase of commitment only translates into a small-to-medium change in respective behavior (Webb & Sheeran, 2006); an *intention-behavior gap* exists (Sheeran, 2002; Sheeran & Webb, 2016). This analysis suggests that humans waste tremendous potential between setting and attaining goals. In our experience, students identify with this observation and we therefore believe that teaching Motivation Science benefits from focusing on how to explain and improve intention-behavior relations.

Core Contents and Topics of Motivation Science

To fully comprehend intention-behavior relations, one needs to unpack a host of processes leading up to successful goal pursuit. A useful way to structure these processes is to look at the different action phases as specified in the *Rubicon model* (Gollwitzer, 1990, 2012; Heckhausen & Gollwitzer, 1987; Heckhausen, 1989; Keller, Gollwitzer & Sheeran, 2020). The Rubicon model differentiates four phases (pre-decisional, pre-actional, actional, and post-actional) which are concerned with completing four different tasks (deliberation, planning, action, and evaluation) and which are separated by three distinctive transitions (formation of a goal intention, action initiation, and goal attainment). The Rubicon model incorporates the distinction between goal setting and goal striving. The pre-decisional phase and the post-actional phase are concerned with deliberating different potential goals (motivation). In contrast, the pre-actional and actional phases are concerned with the implementation of a set goal (volition). Figure 1a depicts the main action phases (1–4) and

transitions (a, b, and c) from intentions to action and its evaluation. *Intention formation* (in the pre-decisional phase) marks a shift from the motivational phase of deliberation on motivational tendencies to the volitional phases of planning and action. The *initiation of action* marks a shift from the volitional phase of planning (pre-actional phase) to that of acting (goal engagement in the post-decisional phase and action phase). Once an action has been completed or abandoned (post-actional phase), the *intention deactivation* marks another shift from a volitional to a motivational phase that involves evaluation processes of the achieved action outcomes, for example, attributions of success or failure (for a detailed overview see Achtziger & Gollwitzer, 2018, p. 485 ff.). We believe that this comprehensive and clear temporal structure not only helps motivation scientists to guide their research but also empowers students to develop a firm grasp on the topic.

Building on the basic findings of motivational psychology, psychology undergraduates need to learn about and be able to classify current research approaches and models of Motivation Science – based on the examination of how goals can be set, how goal realization occurs, and what self-regulatory processes are activated by goals. The focus of teaching Motivation Science is on combining the goal concept with the developments of traditional Motivation Science on the one hand, and on applying a meaningful selection of modern theoretical approaches to one's own actions in everyday life on the other. Personally relevant questions in this context can guide the discussion and inspire interest in the topic. Which kinds of goals do people set and what determines their goal commitment? How do people succeed in setting and committing to attractive and at the same time realistic goals? How can specific plans help the implementation and attainment of goals? What does the ideal goal pursuit and the necessary self-regulation look like in order to actually achieve one's goal? Figure 1b provides a conceptual overview of the covered curriculum. Traditional as well as more recent motivation research can be located in this framework, which is used in terms of both theory and didactics, illustrating ongoing progress and sequential development in Motivation Science.

The Pre-decisional Phase: Theories About Goal Setting

All goals are not created equal. Whereas some goals leave "wiggle room" for excuses, others already imply a path for action. A course on Motivation Science therefore necessarily contains sections on goal content and structure.

a) Goal content

Goals can be geared towards attaining positive outcomes or avoiding negative outcomes. The concepts of *approach* versus *avoidance goals* reflect this distinction: Approach goals refer to a specified positive state to be attained. Avoidance goals refer to a negative state to be avoided. With regard to the impact of more stable personal traits – in terms of the three motives (McClelland, 1985) explained in the previous section – "hope for success" (approach) versus "fear of failure" (avoidance) relate to the achievement motive; striving for control

versus fear of loss of control constitute these two dimensions within the power motive; and desire for affiliation versus fear of rejection regarding the affiliation motive – all of them rather acquired through learning experiences in early childhood.

Similarly, the *regulatory focus theory* (Higgins, 1997) distinguishes goals in terms of their framing. Based on early learning processes and parental education, individuals with a dispositional *promotion focus* strive for how they would like to be and for personal gains (in all respects). Their goal pursuit is characterized by active, joyful engagement and is directed toward positive outcomes. In contrast, individuals with dispositional *prevention focus* strive for how they should be and for loss avoidance and security. The overarching goal of prevention-focused individuals is to avoid the occurrence of a negative undesirable outcome (loss). More recent research examines the *regulatory fit* of promotion vs. prevention-focused goals and the promotion vs. prevention-oriented means available to attain these goals (Higgins, 2000).

In contrast, the *self-determination theory* (Deci & Ryan, 1985, 2000) distinguishes three fundamental innate psychological needs: (experiences of) competence, autonomy, and social relatedness. This theory proposes a successive adoption (i.e., integration) of externally imposed behavioral standards, and a developmental continuum of extrinsic to intrinsic motivation – both experienced as self-determined. The goals people set for themselves are guided by these basic psychological needs and they determine their intrinsic motivation. Self-determination theory has gained some popularity, particularly among researchers in educational psychology (Niemiec & Ryan, 2009).

b) Goal structure

Beyond identifying which goals people set, Motivation Science has clarified how to set goals.

An enormous body of research on *goal-setting theory* by Locke and Latham (1990, 2013) shows that individuals perform better when they set specific and challenging goals (e.g., I will exercise five times a week) instead of easy goals ("I will exercise once a week!") or vague goals (e.g., "I will exercise as often as possible"). Although people are less likely to attain specific and challenging goals, these goals lead to higher performance because they motivate continued effort and make it easy to determine whether one has already attained the goal. Important prerequisites for goal setting effects to occur are a person's sufficient skills, his or her confidence in mastering the task (i.e., in goal realization), goal commitment, and feedback on goal progress (Latham & Locke, 2007). In an extension, more recent research proscribes to S.M.A.R.T goals – goals that are **S**pecific, **M**easurable, **A**ttractive, **R**ealistic, and **T**ime-Bound.

A personal determinant of the desirability (cf. value) and subjective feasibility of goals (cf. expectancy of success) has been addressed in the *goal orientation theory* (Dweck, 1986; Elliot & McGregor, 2001; Nicholls, 1984). Empirical findings by Dweck and Leggett (1988) laid the foundation for the distinction between mastery versus performance goals and the development of goal

orientation theory, which also returns to the basic notion of approach and avoidance in the course of its theoretical differentiation. Mastery approach goal orientation refers to a focus on personal skill development and individual improvement. In contrast, performance-approach goal orientation refers to a focus on social comparison and performing better than others, whereas performance-avoidance goal orientation refers to a focus on avoiding the demonstration of lack of competence compared to others. The findings of Dweck and colleagues were highly relevant for practical (motivational) questions in various contexts and finally transformed into the so-called *mindset theory*. Mindset theory attributes people's motivation to learn and develop to their beliefs about the fixed or alternatively mutable nature of their basic qualities, like their intelligence. In these terms, a *growth mindset* primarily centers on the belief that everyone can increase their abilities given the appropriate effort and guidance. On the other hand, in a *fixed mindset*, people believe that their intellectual abilities are static givens that cannot be changed in any meaningful way. This has important implications for goal setting in achievement situations: People who are convinced that their intellectual abilities are fixed, their overriding goal can only be to demonstrate them (performance approach goal) or to hide respective deficits (performance avoidance goal). On the other hand, if they believe in the possibility of change, they will be eager to mastery goals and individual development despite obstacles and failure experiences (Tulis & Ainley, 2011), and they show more adaptive action-related responses to setbacks (Tulis, Steuer & Dresel, 2017).

Finally, setting "good" goals requires the assessment of how feasible or realistic a goal is. The process of systematically comparing and contrasting positive and negative aspects of an impending future (i.e., thinking about the positive consequences of achieving a specific goal alternating with thoughts about the obstacles that need to be overcome on the way to that goal) is known as *mental contrasting* (Oettingen, 2012; Oettingen & Reininger, 2016). The technique of mental contrasting promotes commitment to attractive and attainable goals. It allows people to drop goals that appear unrealistic and instead commit to realistic goals, which is the precondition for successful goal striving.

More recent research has started investigating motivation at the team level. This field of research is highly relevant because many important goals require acting together. However, the team level also adds considerable complexity. For instance, individual and team goals can be at odds. A mature literature on goal setting in teams (review by Nahrgang et al., 2013) speaks to these processes.

The Pre-actional and Actional Phases: Theories About Goal Striving

The Rubicon model assumes that people do not blindly embark on attaining their newly set goals; instead, they first prepare for action. In this regard, Gollwitzer (1993) proposed supplementing a set goal intention (goal) with an if-then plan or

implementation intention. While goal intentions specify a desired end state, implementation intentions specify when, where, and how to act, ideally in an "If Situation S occurs, then I will perform goal-directed Response R!" format (reviews by Bieleke, Keller & Gollwitzer, 2020; Gollwitzer, 1999; Gollwitzer & Sheeran, 2006). A host of research in a range of areas demonstrates that implementation intentions promote goal attainment (meta-analysis by Gollwitzer & Sheeran, 2006; for a meta-analysis of meta-analyses see: Keller, Gollwitzer & Sheeran, 2020). A younger and growing literature analyses how teams can support their goals with "We-if-then" plans (see below) or *collective implementation intentions* (reviews by Thürmer, Wieber & Gollwitzer, 2020b, 2021).

Once people have set a plan and start to act, they need to control the direction of their actions as well as the velocity of their progress towards their goal. One goal-striving approach that can explain both processes is the *cybernetic control model* (Carver & Scheier, 1990, 2009, 2017; Powers, 1973). The model explains goal-directed action through the function of a set of feedback loops. One loop monitors the discrepancy between a current state (where I am) and a reference value (goal; where I want to be). Discrepancies between the reference and the current state elicit actions designed to minimize the discrepancy and move closer towards the goal (i.e., direction). Carver and Scheier (1990, 1998) further argued that another loop monitors the rate of discrepancy reduction towards the goal (i.e., velocity).

Rather than action, the output function of the second loop is assumed to be affective in nature: Negative affect occurs when progress is slower than the expected or needed reference value; positive affect occurs when progress is faster than expected, needed, or desired (for greater detail see Carver & Scheier, 1998). The authors assume that negative affect leads to increased effort (*pushing*); positive affect leads to reduced effort (*coasting*). The pushing hypothesis is quite intuitive and has received ample empirical support (e.g., Schmidt & DeShon, 2007). In contrast, coasting and shifting have only been demonstrated in a small number of studies and represent an emerging field of research (Fulford, Johnson, Llabre & Carver, 2010; Thürmer, Scheier & Carver, 2020a). Other applied research has observed that both negative-activating and positive-activating emotion states (for this distinction see Barrett, 2006) during challenging tasks were positively associated with persistent engagement in learning and achievement settings (Tulis & Fulmer, 2013). Emotions have finally been studied along with the belief of self-efficacy (as described in social cognitive theory, Bandura, 1986) which has consistently been shown to be positively related to motivation (e.g., Schunk & DiBenedetto, 2020).

The Post-actional Phase: Evaluation of Goal Realization

Finally, the achieved outcomes of the goal-directed behavior are evaluated by looking backward (i.e., people question the success of their goal-directed behavior) and forward (i.e., seeking what still needs to be done to achieve the desired outcomes

implied by one's goal). Furthermore, post-actional evaluations affect future pre-decisional deliberations – for instance, the estimation of expected values should become more accurate – goal intention and planning. Intra- and interpersonal attributions after an event regulate cognitions and emotions, which determine motivation and predict future behavior (Weiner, 2018). Attribution theory research has expanded in scope over the past two decades (Graham, 2020). Research not only increased its emphasis on emotions (Pekrun & Linnenbrink-Garcia, 2012), functional as well as dysfunctional strategies to alter attributions (e.g., self-handicapping, review by Török, Szabó & Tóth, 2018), or on attributional retraining (review by Perry & Hamm, 2017) but there has also been an increase in research on attributional (feedback) processes in stigmatized groups and ethnic minorities (e.g., Graham, 2016; Harber, 1998).

Table 1 summarizes the concepts and theories that should be addressed in the teaching of Motivation Science.

Table 1 Overview of the proposed curriculum for teaching Motivation Science based on the Rubicon model of action phases

Theories about	Basics and fundamentals	Relevant current concepts	Deepening and addenda
. . . **goal setting**	• Drives and needs • Approach versus avoidance • Intrinsic versus extrinsic motivation • Expectancies and values • Intentions	• Achievement, affiliation, and power motives • Regulatory focus • Self-determination theory • Goal orientations, mindset theory • S.M.A.R.T. goals • Mental contrasting	• PSI-theory • Goal setting in teams
. . . **goal striving**	• Volition • Self-regulation • Intention-behavior gap • Self-efficacy	• Implementation intentions • Action regulation • Cybernetic control model	• PSI-theory • Activating and deactivating emotional states (e.g., Tulis & Fulmer, 2013) • Motivation regulation strategies (e.g., Wolters, 2003) • Co-regulation and socially shared monitoring (e.g., Hadwin, Järvelä & Miller, 2018) • Collective implementation intentions (e.g., Thürmer et al., 2020b, 2021)
. . . **evaluation of goal realization**	Attribution theory	Determinants and consequences of attributions on goal-directed behavior	• Emotions (e.g., Reeve, 2018) • Attributional feedback and retraining (e.g., "positive feedback bias" Harber, 1998)

Approaches and Strategies for Teaching, Learning, and Assessment in Motivation Science

Motivation Science covers the complex interaction between personal traits and states, and environmental factors. Human motivation can best be described, explained, predicted, or modified if it is viewed or treated from different perspectives. The Rubicon model may serve as a framework for the integration of various theoretical directions and approaches from a behaviorist, cognitivist, and systemic point of view. Based on such different paradigms of psychological research (for an introductory textbook following this approach see: Glassman & Hadad, 2009), developments in Motivation Science are thus vividly conveyed and compared in a didactically reduced way.

Generally, fostering student motivation is an important issue for teaching Motivation Science as for any other subject. Undergraduate psychology *students' motivation* to study the *subject of motivation* will affect the way they learn it. Derived from the key theories and relevant determinants for motivation that were described in this chapter, teaching Motivation Science itself should also utilize the various evidence-based strategies and practices to trigger, maintain, and enhance students' motivation. For example, according to *self-determination theory*, students feel competent within a course when they are able to track their progress in developing skills or an understanding of course material (Deci & Ryan, 2000). Therefore, higher education teachers should set and communicate high but achievable (and specific!) learning *goals* (Locke & Latham, 2013), signal confidence in students' abilities to meet these high expectations, include multiple low-stakes assessments with (peer) feedback, and provide a safe environment for students to fail and then learn from their mistakes (Steuer & Dresel, 2015). When students know what is expected of them, and have clearly defined goals, they are more likely to experience high *expectancy* (Pajares, 1996), likewise when difficulty of course material matches students' skill levels (for an overview see Eccles & Wigfield, 2002). Providing students with options to choose – within a structure – supports students' *autonomy*, and *social relatedness* is fostered when students feel a sense of belonging in the course. To facilitate a sense of community, students could be paired into stable or altering working groups to work on specific tasks together and experience co-regulation of learning motivation. Referring to the personal relevance and usefulness of the content mentioned at the beginning of this chapter, simple interventions – like as a short writing task, for example – help students to connect what they are learning to their personal lives and/or the real world, increasing the likelihood that they experience high *value* (Hulleman, Godes, Hendricks & Harackiewicz, 2010).

Academic motivation as a goal-directed process is closely related to self-regulation competencies (cf. Schunk, Meece & Pintrich, 2014). Further important for *goal striving* are both a high level of *goal commitment* (resulting effort, and the time and energy spent on goal attainment even in the face of difficulties) and feasible realization conditions. Course design should provide opportunities for students to set individual learning goals for each chapter/topic, and self-evaluation

whether these goals are realistic, specific, and challenging. Students could be prompted to reflect and compare their study *habits* and personal *motives*, and they could be encouraged to try out specific interventions, such as *implementation intentions* (Gollwitzer, 1999) and *mental contrasting* (Oettingen, 2012) for studying and exam preparation, which is conveniently available in the free-to-use WOOP app.

In line with the idea of goal orientation theory (Dweck, 1986), teachers can establish mastery goal structures in terms of prevailing practices that make mastery (instead of performance) goals salient. An emphasis on individual improvement instead of being better than others and task-mastery by valuing effort and providing individualized learning environments with appropriate challenging tasks for each student makes a mastery goal structure salient (for an overview see Ames, 1992). In contrast, course characteristics and practices that emphasize competition, extrinsic motivation, and overtly social comparison of students' performance outcomes are likely to foster a performance goal structure (e.g., Kaplan, Middleton, Urdan & Midgley, 2002). According to the importance of person-environment fit, the congruence between personal goals and goal structures may particularly enhance motivation (Murayama & Elliot, 2009). Hence, again, providing different options for students to work and perform is important.

Challenges and Lessons Learned

Studying Motivation Science not only provides an opportunity to gain theoretical understanding but useful practical know-how. In fact, students can immediately experience the application and usefulness of the learned content during class. Students' initial interest in the topic is usually high, too. However, the high relevance to everyday life and students' various personal experiences and naive theories about human motivation may impede the acquisition, or rather the *re*construction, of (psychological) knowledge in Motivation Science classes. Students do not simply exchange their lay conceptions for scientific concepts but rather supplement, differentiate or refine their intuitions with (personally valued!) evidence-based knowledge. Therefore, it is relevant to systematically identify students' pre-conceptions in order to subsequently question them critically together and supplement them by a more differentiated, theory-based view that can be applied in everyday life (for a more comprehensive description of this conceptual change-based approach see: Tulis, 2021).

With this in mind, we suggest starting each topic with actual cases and real-word scenarios around motivational issues, where students can contribute their experience-based explanations and solution attempts, then providing the relevant theory, and finally placing it in the Rubicon model that is referred to throughout the course. In this way, integration of knowledge takes place in a spiral structure and successive expansion of the fundamentals, illustrated in the framework of action phases. Allowing students to contribute their intuitive ideas to explain motivational issues, finally followed by the application of theory on common situations also

fosters increased mastery in evidence-based problem solving and feelings of competence.

Teaching, Learning, and Assessment Resources

We so far have discussed our view of a curriculum for teaching Motivation Science. But how can we translate this content into practice? We believe that one can derive the following concrete advice from our discussion for teaching Motivation Science:

1. People often use the term *motivation* and related termini (e.g., a person's *motive* to act) in various everyday situations when referring to ambition, enthusiasm, perseverance, or willingness to perform. Teachers and learners sometimes do not understand each other because they think in different contexts, "speak a different language." For teaching the subject of Motivation Science it is important to listen and investigate the ideas behind what learners say and think about motivation. Learners do not simply exchange their everyday experiences and naive concepts for scientific knowledge. Therefore, learning can (and from our point of view it should) only be done *with* them.
2. The significance of research findings and theories may be even more apparent to students when naive assumptions are obviously insufficient to predict or explain motivational issues. Therefore, ask students to make predictions on specific situations and behavior. Students will differ in their explanations and considerations. Being confronted with different perspectives as well as evidence that may contradict one's beliefs and expectations encourages seeking knowledge that accounts for the respective behavior.
3. When selecting and preparing learning material, focus on the practical use and applicability of knowledge, thinking, and action in everyday life and in solving individual, social, and societal problems. Consider where the chosen example and its underlying motivational mechanisms would be located in our proposed framework, the Rubicon model, to ensure the necessary theoretical reference.
4. Theory on human motivation is concerned with goal-directed behavior in terms of people's needs, motives, and orientations, and ranging from intention formation and goal setting to persistence, intensity of goal striving, and goal attainment. Motivation Science considers a complex interaction of affective, cognitive, and physiological processes as well as characteristics of the environment. Ensure your students' understanding of the fundamental principles of approach and avoidance and person-environment interaction before you gradually introduce specific motivation theories. Use the proposed framework to illustrate their relation to each other.
5. Our thinking first and foremost is for our doing. Even more than other courses, a course on Motivation Science should heed this advice. The field offers a host of good studies to discuss as well as applied fields that students can devise evidence-based interventions for.

Recommended further reading references and online resources about teaching, learning, and assessment of Motivation Science (for complete citation of books see list of references):

- Gendolla and Wright (2016) provide an excellent review of the development of the field in the Editorial of the Journal *Motivation Science.*
- Brandstätter, Schüler, Puca, and Lozo (2018) have published a nicely structured introductory book on motivation and emotion with an excellent discussion of the historical background (that focuses on the essentials) as well as goal setting and goal striving, in German.
- *Motivation and action* edited by Heinz Heckhausen and his daughter Jutta Heckhausen (2018) is another introductory book on motivation with a more detailed presentation of the historical roots and traditional motivation concepts (e.g., motives) as well as motivation theory development. This book also includes a chapter on PSI theory and another on the Rubicon model of action phases.
- The book *Understanding Motivation and Emotion* (Reeve, 2018) highlights the connection between motivation and emotions. In the introduction, it provides a comprehensible overview of the unifying themes of motivation and emotion, followed by four parts that address (a) needs and motives, (b) cognitions (goal setting and goal striving, mindsets, beliefs, and values), (c) emotions (very recommendable synopsis!), and (d) the application of motivation theory with a focus on growth mindsets/positive psychology, unconscious motivation (i.e., psychodynamic perspective) and interventions.
- Within the field of developmental and educational psychology, Eccles and Wigfield (2002) provide a paper in *Annual Review of Psychology* that allows for a deeper examination of expectancy-value theory (inclusive Heckhausen's differentiation), and related motivational constructs such as flow, interest, self-efficacy, attribution theory, and self-determination theory.
- We strongly recommend the recently published Special Issue in *Contemporary Educational Psychology* on "Prominent Motivation Theories: The Past, Present, and Future" edited by Allan Wigfield and Alison Koenka (2020). Particularly interesting is a comparison with the Special Issue on "A motivated exploration of motivation terminology" published two decades ago (Murphy & Alexander, 2000).
- For motivating students during the course in general: Hulleman and colleagues (2016) summarize various research-based sources that positively impact students' expectancy beliefs, perceptions of task value, and perceptions of cost.
- Another perspective takes the book "Emotion, Motivation, and Self-regulation: A Handbook for Teachers" edited by Hall and Goetz (2013). It links research findings from Motivation Science as well as emotion and self-regulated learning research for students *and teachers* alike.
- For a further examination of PSI theory we recommend a book (in German) written by Julius Kuhl himself (2001), or a well understandable recent summary in English by Kuhl, Quirin, and Koole (2020). PSI-theory is also addressed in the most recent volume of the series "Advances in Motivation Science" (Vol. 8, 2021,

edited by Andrew Elliot). Advances in Motivation Science provide an overview of key research programs conducted by highly respected scholars working in this area.

Online resources:

- The Society for the Science of Motivation (interdisciplinary academic society with most up-to-date information on the field), https://www.scienceofmotivation.org/
- WOOP (Practical online tool and mobile app for generating one's own plan, based on MCII), https://woopmylife.org/

References

Ach, N. (1935). Analyse des Willens. In E. Abderhalden, Handbuch der biologischen Arbeitsmethoden (6, Part E 460). Berlin: Urban & Schwarzenberg.

Achtziger, A., & Gollwitzer, P. M. (2018). Motivation and volition in the course of action. In J. Heckhausen & H. Heckhausen (Eds.), *Motivation and emotion* (pp. 485–527). Berlin: Springer.

American Psychological Association. (2016). Guidelines for the undergraduate psychology major: Version 2.0. *American Psychologist, 71*(2), 102–111. https://doi.org/10.1037/a0037562

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology, 84*(3), 261–271.

Anderman, E. (2020). Achievement motivation theory: Balancing precision and utility. *Contemporary Educational Psychology, 61*, 101864. https://doi.org/10.1016/j.cedpsych.2020.101864

Atkinson, J. W. (1957). Motivational determinants of risktaking behavior. *Psychological Review, 64*, 359–372.

Atkinson, J. (1964). *An introduction to motivation*. Princeton: Van Nostrand.

Atkinson, J. W., Heyns, R. W., & Veroff, J. (1954). The effect of experimental arousal of the affiliation motive on thematic apperception. *Journal of Abnormal and Social Psychology, 49*, 405–410.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs: Prentice Hall.

Barrett, L. F. (2006). Solving the emotion paradox: Categorization and the experience of emotion. *Personality and Social Psychology Review, 10*, 20–46.

Bieleke, M., Keller, L., & Gollwitzer, P. M. (2020). If-then planning. *European Review of Social Psychology, 32*, 1–35. https://doi.org/10.1080/10463283.2020.1808936

Brandstätter, V., Schüler, J., Puca, R. M., & Lozo, L. (2018). *Motivation und emotion. Allgemeine Psychologie für Bachelor [Motivation and emotion. General psychology for bachelor's degree progam]*. Berlin: Springer.

Braver, T. S., Krug, M. K., Chiew, K. S., Kool, W., Westbrook, J. A., Clement, N. J., . . . Somerville, L. H. (2014). Mechanisms of motivation-cognition interaction: Challenges and opportunities. *Cognitive, Affective, & Behavioral Neuroscience*, *14*(2), 443–472. https://doi.org/10.3758/s13415-014-0300-0.

Carver, C. S., & Scheier, M. F. (1990). Origins and functions of positive and negative affect: A control-process view. *Psychological Review, 97*(1), 19–35. https://doi.org/10.1037/0033-295X.97.1.19

Carver, C. S., & Scheier, M. F. (1998). *On the self-regulation of behavior*. Cambridge, UK: Cambridge University Press.

Carver, C. S., & Scheier, M. F. (2009). Action, affect, and two-mode models of functioning. In E. Morsella, J. A. Bargh, & P. M. Gollwitzer (Eds.), *Oxford handbook of human action* (pp. 298–327). New York: Oxford University Press. http://www.redi-bw.de/db/ebsco.php/

search.ebscohost.com/login.aspx?direct=true&db=psyh&AN=2008-14699-015&site=ehost-live

Carver, C. S., & Scheier, M. F. (2017). Self-regulatory functions supporting motivated action. In A. J. Elliot (Ed.), *Advances in motivation science* (Vol. 4, pp. 1–37). New York: Academic Press. https://doi.org/10.1016/bs.adms.2017.02.002

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum Press.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227–268.

Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040–1048.

Dweck, C. S. (2017). From needs to goals and representations: Foundations for a unified theory of motivation, personality, and development. *Psychological Review, 124*, 689–719. https://doi.org/10.1037/rev0000082

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*(2), 256–273. https://doi.org/10.1037/0033-295X.95.2.256

Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology, 53*(1), 109–132.

Eccles, J. S., & Wigfield, A. (2020). From expectancy-value theory to situated expectancy-value theory: A developmental, social cognitive, and sociocultural perspective on motivation. *Contemporary Educational Psychology, 61*, 101859.

Elliot, A. J., & McGregor, H. A. (2001). A 2 x 2 achievement goal framework. *Journal of Personality and Social Psychology, 80*(3), 501–519.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Addison-Wesley.

Forbes, D. L. (2011). Toward a unified model of human motivation. *Review of General Psychology, 15*(2), 85–98.

Freud, S. (1915/1952). *Triebe und Triebschicksale* (GW, Bd. X). Frankfurt: Fischer.

Fulford, D., Johnson, S. L., Llabre, M. M., & Carver, C. S. (2010). Pushing and coasting in dynamic goal pursuit: Coasting is attenuated in bipolar disorder. *Psychological Science, 21*(7), 1021–1027. https://doi.org/10.1177/0956797610373372

Gendolla, G. H. E., & Wright, R. A. (2016). Gathering the diaspora: Aims and visions for Motivation Science. *Motivation Science, 2*(3), 135–137. https://doi.org/10.1037/mot0000035

Glassman, W. E., & Hadad, M. (2009). *Approaches to psychology* (5th ed.). Maidenhead: McGraw-Hill.

Gollwitzer, P. M. (1990). Action phases and mind-sets. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. 2, pp. 53–92). New York: Guilford Press.

Gollwitzer, P. M. (1993). Goal achievement: The role of intentions. *European Review of Social Psychology, 4*, 141–185.

Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *American Psychologist, 54*(7), 493–503. https://doi.org/10.1037/0003-066X.54.7.493

Gollwitzer, P. M. (2012). Mindset theory of action phases. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.), *Handbook of theories of social psychology* (Vol. 1, pp. 526–545). Thousand Oaks: Sage Publications Ltd. https://doi.org/10.4135/9781446249215.n26

Gollwitzer, P. M. (2018). The goal concept: A helpful tool for theory development and testing in motivation science. *Motivation Science, 4*(3), 185–205. https://doi.org/10.1037/mot0000115

Gollwitzer, P. M., & Sheeran, P. (2006). Implementation intentions and goal achievement: A meta-analysis of effects and processes. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 38, pp. 69–119). San Diego: Elsevier Academic Press. https://doi.org/10.1016/S0065-2601(06)38002-1

Graham, S. (2016). An attributional perspective on motivation in ethnic minority youth. In J. DeCuir-Gunby & P. Schutz (Eds.), *Researching race and ethnicity in the study of teaching, learning, and motivation in educational contexts*. New York: Routledge.

Graham, S. (2020). An attributional theory of motivation. *Contemporary Educational Psychology, 61*, 101861.
Hadwin, A. F., Järvelä, S., & Miller, M. (2018). Self-regulation, co-regulation and shared regulation in collaborative learning environments. In D. Schunk & J. Greene (Eds.), *Handbook of self-regulation of learning and performance* (2nd ed.). New York: Routledge.
Hall, N. C., & Goetz, T. (2013). *Emotion, motivation, and self-regulation: A handbook for teachers*. Bingley: Emerald Group Publishing.
Harber, K. D. (1998). Feedback to minorities: Evidence of a positive bias. *Journal of Personality and Social Psychology, 74*(3), 622–628.
Heckhausen, H. (1963). *Hoffnung und Furcht in der Leistungsmotivation*. Meisenheim/Glan: Hain.
Heckhausen, H. (1989). Volition: Realisieren von Intentionen. In *Motivation und Handeln* (pp. 189–218). Berlin/Heidelberg: Springer.
Heckhausen, H., & Gollwitzer, P. M. (1987). Thought contents and cognitive functioning in motivational versus volitional states of mind. *Motivation and Emotion, 11*, 101–120. https://doi.org/10.1007/BF00992338
Heckhausen, J., & Heckhausen, H. (Eds.). (2018). *Motivation and emotion*. Berlin: Springer.
Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley. https://doi.org/10.1037/10628-000
Higgins, E. T. (1997). Beyond pleasure and pain. *American Psychologist, 52*, 1280–1300.
Higgins, E. T. (2000). Making a good decision: Value from fit. *American Psychologist, 55*, 1217–1230.
Hull, C. L. (1943). *Principles of behavior: An introduction to behavior theory*. New York: Appleton Century Crofts.
Hull, C. L. (1952). *A behavior system: An introduction to behavior theory concerning the individual organism*. Westport: Greenwood Press.
Hulleman, C. S., Godes, O., Hendricks, B. L., & Harackiewicz, J. M. (2010). Enhancing interest and performance with a utility value intervention. *Journal of Educational Psychology, 102*(4), 880–895.
Hulleman, C. S., Barron, K. E., Kosovich, J. J., & Lazowski, R. A. (2016). Student motivation: Current theories, constructs, and interventions within an expectancy-value framework. In A. A. Lipnevich et al. (Eds.), *Psychosocial skills and school systems in the 21st century*. Berlin: Springer.
Kanfer, R., Chen, G., & Pritchard, R. D. (Eds.). (2008). *Work motivation: Past, present, and future* (The organizational frontiers series) (Vol. 27). New York: Routledge/Taylor & Francis Group.
Kaplan, A., Middleton, M. J., Urdan, T., & Midgley, C. (2002). Achievement goals and goal structures. In C. Midgley (Ed.), *Goals, goal structures, and patterns of adaptive learning* (pp. 21–53). Mahwah: Erlbaum.
Keller, L., Gollwitzer, P. M., & Sheeran, P. (2020). Changing behavior using the model of action phases. In M. S. Hagger, L. Cameron, K. Hamilton, N. Hankonen, & T. Lintunen (Eds.), *The handbook of behavior change* (pp. 77–88). New York: Cambridge University Press.
Kelley, H. H. (1973). The processes of causal attribution. *American Psychologist, 28*(2), 107–128. https://doi.org/10.1037/h0034225
Kempf, W. (2003). Forschungsmethoden der Psychologie. Zwischen naturwissenschaftlichem Experiment und sozialwissenschaftlicher Hermeneutik (Band 1: Theorie und Empirie) [Methods of Psychology. Between Scientific Experiment and Social Science Hermeneutics]. Regener.
Kruglanski, A. W., Chernikova, M., & Kopetz, C. (2015). Motivation science. In R. A. Scott & S. M. Kosslyn (Eds.), *Emerging trends in the social and behavioral sciences* (pp. 1–16). New York: Wiley. https://doi.org/10.1002/9781118900772.etrds0104
Kuhl, J. (2001). *Motivation und Persönlichkeit: Interaktionen psychischer Systeme*. Göttingen: Hogrefe.
Kuhl, J., Quirin, M., & Koole, S. (2020). The functional architecture of human motivation: Personality systems interactions theory. In A. J. Elliot (Ed.), *Advances in motivation science* (Vol. 7). Cambridge, UK: Elsevier.

Latham, G. P., & Locke, E. A. (2007). New developments in and directions for goal-setting research. *European Psychologist, 12*(4), 290–300. https://doi.org/10.1027/1016-9040.12.4.290

Lewin, K. (1939). Field theory and experiment in social psychology: Concepts and methods. *American Journal of Sociology, 44*(6), 868–896. https://doi.org/10.1086/218177

Lewin, K. (1951). Behavior and development as a function of the total situation. In D. Cartwright (Ed.), *Field theory in social science. Selected theoretical papers by Kurt Lewin* (pp. 238–303). New York: Harper.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance*. Englewood Cliffs: Prentice Hall.

Locke, E. A., & Latham, G. P. (Eds.). (2013). *New developments in goal setting and task performance*. New York: Routledge.

Maslow, A. H. (1954). The instinctoid nature of basic needs. *Journal of Personality, 22*(3), 326–347. https://doi.org/10.1111/j.1467-6494.1954.tb01136.x

McClelland, D. C. (1985). *Human motivation*. Glenview: Scott, Foresman.

McClelland, D. C., Atkinson, J. W., Clark, R. W., & Lowell, E. L. (1953). *The achievement motive*. New York: Appleton Century Crofts.

Murayama, K. (2019). Neuroscientific and psychological approaches to incentives: Commonality and multi-faceted views. In A. Renninger & S. Hidi (Eds.), *Cambridge handbook on motivation and learning* (pp. 141–162). Cambridge, UK: Cambridge University Press.

Murayama, K., & Elliot, A. J. (2009). The joint influence of personal achievement goals and classroom goal structures on achievement-relevant outcomes. *Journal of Educational Psychology, 101*(2), 432–447. https://doi.org/10.1037/a0014221

Murayama, K., Matsumoto, M., Izuma, K., Sugiura, A., Ryan, R. M., Deci, E. L., & Matsumoto, K. (2015). How self-determined choice facilitates performance: A key role of the ventromedial prefrontal cortex. *Cerebral Cortex, 25*(5), 1241–1251.

Murphy, P. K., & Alexander, P. A. (2000). A motivated exploration of motivation terminology. *Contemporary Educational Psychology, 25*(1), 3–53.

Murray, H. A. (1938). *Explorations in personality*. New York: Oxford University Press.

Nahrgang, J. D., DeRue, D. S., Hollenbeck, J. R., Spitzmuller, M., Jundt, D. K., & Ilgen, D. R. (2013). Goal setting in teams: The impact of learning and performance goals on process and performance. *Organizational Behavior and Human Decision Processes, 122*(1), 12–21. https://doi.org/10.1016/j.obhdp.2013.03.008

Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91*(3), 328–346. https://doi.org/10.1037/0033-295X.91.3.328

Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education, 7*(2), 133–144. https://doi.org/10.1177/1477878509104318

Nolen, S. (2020). A situative turn in the conversation on motivation theories. *Contemporary Educational Psychology, 61*, 101866. https://doi.org/10.1016/j.cedpsych.2020.101866

Nolen, S., & Ward, C. J. (2008). Sociocultural and situative research on motivation. In M. Maehr, S. Karabenick, & T. Urdan (Eds.), *Social psychological perspective on motivation and achievement* (pp. 428–460). London: Emerald Group Publishing.

Oettingen, G. (2012). Future thought and behavior change. *European Review of Social Psychology, 23*, 1–63.

Oettingen, G., & Reininger, K. M. (2016). The power of prospection: Mental contrasting and behavior change. *Social and Personality Psychology Compass, 10*, 591–604.

Oettingen, G., Sevincer, A. T., & Gollwitzer, P. M. (2008). Goal pursuit in the context of culture. In R. Sorrentino & S. Yamaguchi (Eds.), *The handbook of motivation and cognition across cultures* (pp. 191–211). San Diego: Elsevier/Academic Press.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*(4), 543–578. https://doi.org/10.3102/00346543066004543

Pekrun, R., & Linnenbrink-Garcia, L. (2012). Academic emotions and student engagement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *The handbook of research on student engagement* (pp. 259–292). New York: Springer.

Perin, C. I. (1942). Behavioral potentiality as a joint function of the amount of training and the degree of hunger at the time of extinction. *Journal of Experimental Psychology, 30*, 93–113.

Perry, R., & Hamm, J. (2017). An attribution perspective on competence and motivation. In A. Elliot, C. Dweck, & D. Yeager (Eds.), *Handbook of competence and motivation* (2nd ed., pp. 61–84). New York: Guilford Press.

Powers, W. T. (1973). *Behavior: The control of perception*. Chicago: Aldine.

Reeve, J. (2018). *Understanding motivation and emotion* (7th ed.). Hoboken: Wiley.

Ryan, R. M. (Ed.). (2019). *The Oxford handbook of human motivation*. New York: Oxford University Press.

Ryan, R. M., & Di Domenico, S. I. (2016). Distinct motivations and their differentiated mechanisms: Reflections on the emerging neuroscience of human motivation. In S. Kim, J. Reeve, & M. Bong (Eds.), *Advances in motivation and achievement: Recent developments in neuroscience research on human motivation* (pp. 349–369). Bingley: Emerald Group Publishing.

Scheffer, D., & Heckhausen, H. (2018). Trait theories of motivation. In J. Heckhausen & H. Heckhausen (Eds.), *Motivation and action* (pp. 67–112). Berlin: Springer. https://doi.org/10.1007/978-3-319-65094-4_3

Schmidt, A. M., & DeShon, R. P. (2007). What to do? The effects of discrepancies, incentives, and time on dynamic goal prioritization. *Journal of Applied Psychology, 92*(4), 928–941. https://doi.org/10.1037/0021-9010.92.4.928

Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social cognitive theory. *Contemporary Educational Psychology, 61*, 101832. https://doi.org/10.1016/j.cedpsych.2019.101832

Schunk, D., Meece, J., & Pintrich, P. (2014). *Motivation in education. Theory, research and application* (4th ed.). London: Pearson.

Sheeran, P. (2002). Intention-behavior relations: A conceptual and empirical review. *European Review of Social Psychology, 12*(1), 1–36. https://doi.org/10.1080/14792772143000003

Sheeran, P., & Webb, T. L. (2016). The intention–behavior gap. *Social and Personality Psychology Compass, 10*(9), 503–518. https://doi.org/10.1111/spc3.12265

Smith, L. D. (2014). Behavior, overview. In T. Teo (Ed.), *Encyclopedia of critical psychology*. New York: Springer. https://doi.org/10.1007/978-1-4614-5583-7_448

Steuer, G., & Dresel, M. (2015). A constructive error climate as an element of effective learning environments. *Psychological Test and Assessment Modeling, 57*(2), 262–275.

Thürmer, J. L., Scheier, M. F., & Carver, C. S. (2020a). On the mechanics of goal striving: Experimental evidence of coasting and shifting. *Motivation Science, 6*(3), 266–274. https://doi.org/10.1037/mot0000157

Thürmer, J. L., Wieber, F., & Gollwitzer, P. M. (2020b). Management in times of crisis: Can collective plans prepare teams to make and implement good decisions? *Management Decision, 58*(10), 2155–2176. https://doi.org/10.1108/MD-08-2020-1088

Thürmer, J. L., Wieber, F., & Gollwitzer, P. M. (2021). How can we master the 2020 Coronavirus pandemic? The role of planning across social levels. *European Review of Social Psychology, 32*(1), 1–46. https://doi.org/10.1080/10463283.2020.1852699

Török, L., Szabó, Z. P., & Tóth, L. (2018). A critical review of the literature on academic self-handicapping: Theory, manifestations, prevention and measurement. *Social Psychology of Education, 21*, 1175–1202.

Tulis, M. (2020). Konzeptverändernde Psychologiedidaktik. Eine Fortführung der Überlegungen von Seiffge-Krenke [Concept changing psychology didactics. A continuation of the considerations of Seiffge-Krenke]. In P. G. Geiß & M. Tulis (Eds.), *Psychologie unterrichten. Fachdidaktische Grundlagen für Deutschland, Österreich und die Schweiz [Teaching psychology. Didactic basics for Germany, Austria and Switzerland]* (pp. 158–186). Opladen: UTB-Barbara Budrich.

Tulis, M. (2021). *Achieving conceptual growth in the teaching of psychology* [Manuscript submitted for publication]. Department of Psychology, University of Salzburg.

Tulis, M., & Ainley, M. (2011). Interest, enjoyment and pride after failure experiences? Predictors of students' state–emotions after success and failure during learning mathematics. *Educational Psychology, 31*(7), 779–807. https://doi.org/10.1080/01443410.2011.608524

Tulis, M., & Fulmer, S. (2013). Students' motivational and emotional experiences and their relationship to persistence during academic challenge in mathematics and reading. *Learning and Individual Differences, 27*, 35–46.

Tulis, M., Steuer, G., & Dresel, M. (2017). Positive beliefs about errors as an important element of adaptive individual dealing with errors during academic learning. *Educational Psychology, 38*, 139–158. https://doi.org/10.1080/01443410.2017.1384536

Vroom, V. H. (1964). *Work and motivation*. Wiley.

Webb, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin, 132*(2), 249–268. https://doi.org/10.1037/0033-2909.132.2.249

Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92*(4), 548–573. https://doi.org/10.1037/0033-295X.92.4.548

Weiner, B. (2013). *Human motivation*. New York: Psychology Press.

Weiner, B. (2018). The legacy of an attribution approach to motivation and emotion: A no-crisis zone. *Motivation Science, 4*(1), 4–14. https://doi.org/10.1037/mot0000082

Wieber, F., Thürmer, J. L., & Gollwitzer, P. M. (2015). Promoting the translation of intentions into action by implementation intentions: Behavioral effects and physiological correlates. *Frontiers in Human Neuroscience, 9*. https://doi.org/10.3389/fnhum.2015.00395

Wigfield, A., & Eccles, J. S. (1992). The development of achievement task values: A theoretical analysis. *Developmental Review, 12*(3), 265–310. https://doi.org/10.1016/0273-2297(92)90011-P

Wigfield, A., & Eccles, J. S. (2000). Expectancy–value theory of achievement motivation. *Contemporary Educational Psychology, 25*(1), 68–81. https://doi.org/10.1006/ceps.1999.1015

Wigfield, A., & Koenka, A. C. (2020). Where do we go from here in academic motivation theory and research? Some reflections and recommendations for future work. *Contemporary Educational Psychology, 61*, 101872. https://doi.org/10.1016/j.cedpsych.2020.101872

Wolters, C. A. (2003). Regulation of motivation: Evaluating an underemphasized aspect of self-regulated learning. *Educational Psychologist, 38*(4), 189–205. https://doi.org/10.1207/S15326985EP3804_1

Zusho, A., & Clayton, R. (2011). Culturalizing achievement goal theory and research. *Educational Psychologist, 46*, 239–260.

Topics, Methods, and Research-Based Strategies for Teaching Cognition

8

Maya M. Khanna and Michael J. Cortese

Contents

Abstract

In this chapter, we review the basic contents and structure of our courses in cognition and cognitive psychology as well as pedagogical approaches to teaching. Topics range from an historical overview of the areas of science that lead up to the formation of cognitive science to detailed discussions of published articles within each of the major subfields of cognition (e.g., perception, attention, short-term working memory, long-term memory, language, and decision-making).

M. M. Khanna (✉)
Department of Psychological Science, Creighton University, Omaha, NE, USA
e-mail: mayakhanna@creighton.edu

M. J. Cortese
Department of Psychology, University of Nebraska at Omaha, Omaha, NE, USA

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Throughout our courses, we also focus extensively on the practical applications to cognitive theory. Furthermore, we emphasize the importance of research design and data analyses and discuss how we guide our students in the practice of using theory to arrive at specific numerical predictions. In addition, we discuss our major learning objectives that we hope our students achieve in completing our courses and highlight ways that we assess student work toward these objectives. We also share some of the best practices for teaching cognition that we have developed ourselves and ones that we acquired from others. In particular, we discuss our style of teaching the course as well as examples of in-class activities and demonstrations. Finally, we share a list of resources that interested readers can review to help in the design of their courses on cognition, or in any courses, in general. This overview can serve as both a good starting point for beginning instructors and a useful resource for more experienced instructors.

Keywords

Research methods · Mental processes · Learning objectives · Cognitive domains · Mental processing theories · Cognitive theory applications

Introduction

Major Themes

Cognitive psychology is the scientific study of cognitive processes associated with perception, memory, attention, language, problem-solving, decision-making, and more. Cognitive psychology is part of a broader framework known as cognitive science. Cognitive science is an interdisciplinary field that encompasses cognitive psychology, cognitive neuroscience, psycholinguistics, artificial intelligence, and the applications of each in real-world settings. We advocate a cognitive science approach to teaching cognitive psychology because we believe that one's overall understanding of the field benefits from a diversity of perspectives. More specifically, we believe that one's understanding of cognition is enlightened by knowledge of how the brain works (i.e., cognitive neuropsychology and cognitive neuroscience), through simulation models (i.e., connectionism, artificial intelligence), and by the knowledge of the structure of language and understanding how real-world context can influence mental processes.

Historical Influences

Being a subdiscipline of psychology, cognitive psychology has a common history with psychology in general but gained independent status during the "cognitive revolution" that occurred around 1960. One can trace the antecedents of cognitive psychology to the Greek philosophers Plato and Aristotle who wrote about the

structure of knowledge and thought processes. In addition, cognitive psychology was influenced by work on human physiology and neurology. For example, Broca, Wernicke, and others' associated left hemisphere structures with language, and these discoveries have influenced how we study language in terms of both semantics (meaning) and syntax (grammar, etc.; Goodglass & Kaplan, 1972). In addition, von Helmholtz's first reaction time (RT) experiments introduced a method, whereby RT could be used to delineate a process (see, e.g., Donders, 1868-69/1969; Sternberg, 1969). Later, Sternberg's additive factor logic provided a framework to interpret patterns of RT data. In short, Sternberg proposed that if two factors influence the same processing stage, then the two factors will produce an interaction on RT. Otherwise, they will produce additive (i.e., independent) effects. Within this tradition, cognitive psychologists have developed a reputation for executing well-conceived experimental designs to examine cognition via behavior. Of course, other accuracy measures (e.g., number or proportion correct) have been used to infer the nature of cognitive processes as well.

In addition, cognitive theory has been strongly influenced by cognitive neuropsychology (i.e., examining cognition via brain damage). Cognitive neuropsychology can be thought of as a branch of cognitive neuroscience that examines the relationship between cognition and the brain. The advancement of neuroscientific methods (e.g., functional magnetic resonance imaging, fMRI) has helped fuel the increasing interest in cognitive neuroscience. While cognitive neuropsychology's influence on cognitive psychology is clear, the value of neuroimaging to elucidate cognitive processes has been more controversial (see Coltheart, 2013). In contrast, some neuroscientists believe that we will replace descriptions of cognitive processes with biological and neurological descriptions.

We espouse the middle ground; cognitive psychology and cognitive neuroscience are complementary approaches to studying cognition. Cognitive psychologists will need to continue evaluating the degree to which our understanding of cognition can be enhanced via the understanding of the brain. But, at the very least, knowledge of the relationship between the brain and cognition provides a more comprehensive understanding of the cognitive system. In addition, a cognitive science approach to cognitive psychology practically requires a detailed examination of cognitive neuroscience.

Current Trends

In addition to the influence of cognitive neuroscience on cognitive psychology, there are three additional current trends that are worthy of mention. First, connectionism, or the application of computer programs to simulate cognitive processes, has been very influential. In fact, the seminal book on parallel distributed processing (PDP, Rumelhart & McClelland, 1986) has been cited no less than 23,000 times according to Google Scholar. Simulating cognitive processes allows for a better understanding of a process because the theory, as simulated, forces the theoretician to be precise and unambiguous. In addition, one of the most important debates within cognitive

psychology concerns whether symbolic or non/sub-symbolic models better capture and help explain the nature of cognition (see, e.g., McClelland et al., 2010). Specifically, traditional symbolic models (e.g., Pinker, 1999) operate using explicit rules and representations, whereas non-/subsymbolic approaches (e.g., Joanisse & Seidenberg, 1999) propose that these "rules" and "representations" emerge from fundamental processing systems that consist of simple processing units that learn associations between inputs and outputs based on an individual's experiences. Second, there has been increasing support for an embodied approach to cognition (e.g., Barsalou, 2008). Embodiment refers to the relationship between cognition (e.g., conceptual processing) and sensory/perceptual systems (e.g., motor processing, visual processing, etc.). For example, it is proposed that our understanding of a concept (e.g., *to write*) requires the recruitment of perceptual processes (e.g., sensory and motor networks utilized in writing) associated with that concept. The evidence to support this theory is abundant and inherently interesting. For example, one activates motor regions of the brain tied to the tongue when reading *lick* and foot areas when reading *kick* (Hauk, Johnsrude, & Pulvermu¨ller, 2004). Third, there has been a wide interest in applying cognitive principles to practical situations (e.g., Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013). Cognitive scientists believe that the better we understand the nature of a cognitive process, the better we should be at developing strategies to solve problems that involve those processes. For example, if we truly understand how people recognize printed words, then we should be better equipped to teach reading. If we understand the processes of human memory (e.g., encoding, storage, and retrieval), then we should be able to present information in a way that facilitates memory and understanding in those who are trying to acquire information (i.e., all of our students). We would argue that students who complete a course in cognitive psychology are better prepared for future classes that require memory, language, attention, problem-solving, decision-making, and more because they have acquired some explicit knowledge into the nature of these processes. Ultimately, this better understanding can then lead to effective strategies that capitalize on personal strengths.

Purpose and Rationale of Our Curriculum in Cognition

Taking a course in cognitive psychology should involve much more than acquiring knowledge about mental concepts. In studying the mind, students will explore cognitive processes, and they will be able describe these processes. However, students should also (a) understand basic experimental design, (b) understand theories and the predictions that can be derived from them, (c) interpret data from figures and tables, (d) interpret data presented in text-based and statistical notation, (e) evaluate studies, and (f) draw conclusions. Many textbooks in cognitive psychology do not include a chapter on research methodology, but we think it is important to include this topic early in the course and emphasize it throughout. This, in part, is due to the fact that many students take cognitive psychology before completing the research methods and statistics courses within our department.

However, knowledge of research methods and analysis is vital to understanding the classic and contemporary experiments that we discuss in cognition. As an example of this, many theories in cognition apply additive factors and subtractive logic (both are explained in detail below). These research designs and the related analyses require a deep understanding of the principles of statistical main effects and interactions as well as factorial designs. Thus, when we discuss research methods and statistical procedures in cognitive psychology, we emphasize the theoretical implications of potential interactions and main effects of experimental factors.

Core Contents and Topics of Cognition

In our classes, we discuss a wide range of topics with our students. We typically organize the course to cover the following topics across four sections that correspond to four section exams.

Section 1
- A) Introduction and history
- B) Methodology
- C) General themes

Section 2
- D) Neuroscience methods
- E) Attention
- F) Sensation, perception, and pattern recognition

Section 3
- G) Short-term working memory
- H) Long-term memory
- I) Semantic memory

Section 4
- J) Language
- K) Decision-making
- L) Problem-solving

A number of other topics could also be included in a cognitive psychology course. Some of these topics are cognitive development, social cognition, application of cognitive psychology principles to real-world situations, and the like.

We strongly advocate requiring a cumulative final exam at the end of the course. The implementation of this aspect of our courses is based on complementary learning systems (CLS) theory (McClelland, McNaughton, & O'Reilly, 1995). This theory proposes that two complementary long-term memory systems are involved in the acquisition and storage of information. Initial acquisition of information is fairly rapid and relies on a hippocampal-based system that is subject to decay; repeated processing of the information leads to gradual and more permanent

changes in the lateral cortex (e.g., the anterior temporal lobe). Because information decays relatively quickly from the hippocampal-based system, information about the course material likely will be lost without repeated practice. Incorporating a cumulative final exam means that students will process information repeatedly which encourages longer-term storage that is less subject to decay. One study, for example (Khanna, Badura Brack, & Finken, 2013), found that students who completed a course with a cumulative exam performed better on a test of the course material than those who did not even 18 months after the course had been completed.

Theories in Cognition

We emphasize the themes described above in our cognition course because we consider them to be general principles or patterns in the approach that cognitive scientists use to study mental processes. We typically also discuss specific mental processes that are uniquely examined by cognitive psychologists and often highlight particular studies and researchers who have been pioneers in the field. One example is the landmark publication alluded to earlier (McClelland et al., 1995) which thoroughly describes the dual representation of memory in hippocampal regions and in the neocortex CLS (see, e.g., O'Reilly, Bhattacharyya, Howard, & Ketz, 2014). These authors also describe the process through which memories are initially represented within the hippocampal regions but then transfer to the neocortex. Discussing this paper with students highlights many principles of cognition. For example, it highlights how synaptic connections serve as the bases of learning and representations of memories. It also substantiates the existence of separate but related long-term memory systems: the hippocampal system that is responsible for rapid short-term learning often of an arbitrary nature (e.g., associating names with faces) and the neocortical system in which learning reflects the gradual accumulation of knowledge. McClelland et al. (1995) propose that the gradual learning system is similar to that described by parallel distributed processing (PDP) models, whereas the learning associated with the hippocampus is not because it establishes associations much quicker. In addition, the decay of information occurs more quickly from the hippocampal-based system than the neocortical system. In other words, hippocampal-based memories are somewhat more fragile than those associated with the neocortical system. This example highlights how computational models can serve as a representation of human mental processing and how these models can be tested by examining human behavior. Another reason to discuss this type of article is that it makes more explicit the link between cognitive theory and neuroscience. That is, it helps students realize that cognitive psychologists are interested in explaining behavior by examining brain-based processes. Our view is that theories must hold up to the physiological reality of how thinking works within the brain.

Another major theory that we explore in cognitive psychology is the idea of relying upon what we know about brain-based incremental learning to explain some mental phenomena that seem hard to explain. One example is the seemingly innate ability of children to learn language. For decades, it was commonly assumed that

much of language – especially grammatical understanding – was innate and initial representations were not dependent upon experience (Chomsky, 1965). According to this view, children were born with a deep representation of language, including the syntactically acceptable structure of sentences. More recent research has used techniques such as habituation/dishabituation, computational modeling, and the recording of electrophysiological responses to demonstrate that even before children are talking, they are learning – really they are extracting – the acceptable structure of speech and language from conversations they hear. One study (Saffran, Aslin, & Newport, 1996) demonstrated that 8-month-old infants can hear a novel string of sounds (e.g., from an unfamiliar language) for 2 min and, based on that brief exposure, become familiar with that language's typical speech patterns (also see Marcus, Vijayan, Bandi Rao, & Vishton, 1996). They can even identify word boundaries from a subsequent stream of speech, again, based on the initial 2 min of exposure. This suggests that pre-verbal infants are learning linguistic constraints from mere exposure and that this learning is so quick and impressive that it can appear innate.

The previous example highlights another recurring point covered in our courses in cognition. Many times, mental processes that underlie behavior are more complicated than initially expected. In the case of language learning just described, carefully designed experiments can reveal and explain subtle processes that allow fast – seemingly innate –language acquisition. Similarly, it seems sensible that children learn to read by learning typical phonics rules. However, experiments have shown that experienced readers use at least two routes to reading aloud. Exactly how one defines these routes depends on theoretical perspectives. More symbolic approaches (e.g., Coltheart, Rastle, Perry, Langdon, & Ziegler, 2001) posit a lexical (i.e., a known word-based) and a sublexical orthographic-to-phonological conversion route. In contrast, PDP models (Seidenberg & McClelland, 1989) propose a triangle framework consisting of distributed representations for orthography, phonology, and semantics. In this model, the reader may generate a phonological output directly from orthography, or a phonological code is generated indirectly via orthography-to-semantics-to-phonology. Evidence for these distinct processing pathways can be found in individuals with acquired dyslexia that specifically impacts one route but leaves the other intact. For example, surface dyslexia impacts the lexical/semantic route – thus, readers will have trouble with words that do not follow typical phonics rules (e.g., words such as *pint*, or *were* in which the ending sounds, *int*, and *ere* are not pronounced according to the phonics rules that accurately predict the pronunciations of *mint* and *here*). On the other hand, phonological dyslexia impacts the sublexical or orthographic-to-phonological route that decodes unfamiliar words. Thus, a person with phonological dyslexia will be able to read words via the lexicon or via the orthographic-to-phonological-to-semantic route but will struggle with unfamiliar words. Evidence for the use of multiple routes for reading has also been supported by carefully designed experiments with typical readers (e.g., Zevin & Balota, 2000). The use of multiple methods or routes to complete a task is found in many areas of cognition beyond reading aloud, including decision-making, attention allocation, and memory representation.

Of course, one of the most widely explored and discussed topics in cognition is the processing and representation of material in memory. We spend one-third to one-half of our cognition course discussing theories and studies of memory. We discuss the multiple divisions of memory – sensory memory, short-term working memory, and long-term memory and the many subdivisions of each. We also discuss ways to test memory experimentally. In addition, we explore many theories of memory and highlight the ways that knowledge of these theories can help students enhance their learning and their performance on tests and other assessments. For example, we discuss levels of processing theory (LOP; Craik & Lockhart, 1972). In LOP theory, memory will be better when attention is focused on meaningful information (e.g., semantic information) during study than when attention is focused on superficial information (e.g., orthographic information). We help our students link this theory to the familiar phenomenon in which they study for an exam by repeatedly reading or recopying their notes. We ask them to compare their exam performance after using those relatively low levels of processing with how they perform when they think about course material in a more meaningful way. For example, we ask them to create visual representations of what we have discussed in class (e.g., create a tree representing the divisions and processes involved in memory). Or, we ask them to create their own quizzes based on the material that we have discussed. We also encourage students to quiz each other using their self-generated quizzes to enjoy the benefits of test-enhanced learning along with the deeper, semantic processing.

We encourage students to modify their study strategies based on transfer-appropriate processing theory (Morris, Bransford, & Franks, 1977). According to this theory, performance on a test will benefit to the extent that processes utilized during acquisition are the ones required during testing. For example, we invite students to consider the potential testing formats that they may encounter (e.g., multiple choice, essay, oral exam, etc.) and to modify their study approaches to mimic those testing formats. If they can mimic the testing situation during study, those experiential properties may transfer to their testing experience.

Related to this overlap of study and testing processes is the increasingly influential theory of embodied or grounded cognition (Barsalou, 2008). According to this theory, our cognition (e.g., semantic memory) is grounded in sensory and perceptual processes. For example, when processing concepts related to hand-action words (e.g., writing, throwing, etc.), motor areas related to these processes are hypothesized to become active. In addition, there is increasing evidence that our knowledge of semantic relations between concepts (e.g., *attic-basement*) includes spatial relationships that are associated with the right hemisphere (see, Zwaan & Yaxley, 2003), perceptions related to color (Connell & Lynott, 2009), and more. The hub-and-spoke model (e.g., Patterson & Lambon Ralph, 2015) provides a precise account of how modal and amodal systems may interact in semantic memory. We discuss these theories in our classes not only to review key and influential theories but also to highlight for our students how these theories can influence their study and practice. One take-home message about embodied cognition is that the semantic knowledge that we acquire is represented in multiple modes, and we can take advantage of all of those modes when studying to enhance our representation of that semantic

knowledge. For example, in studying French, a student can focus on the meaning of new words, on their pronunciations, and on the way they would interact with the referents of the word. When thinking about *petit dejeuner*, one might think not only about its orthographic and phonological representation but also about the smell of a fresh baguette and butter or jam. Similarly, students can anticipate their testing context and format (e.g., an oral exam in French) and try to emphasize those aspects of the material during study (e.g., focus on the phonology and articulation rather than the orthography) to enhance the connection of that context to embodied representations of the knowledge they are acquiring.

Research Paradigms Used in Cognitive Research

Human Mental Chronometry

As already mentioned, we integrate the discussion of research methods within the coverage of the core contents and themes in our cognition courses because we believe that doing so encourages our students' analytical thinking. So when we discuss attention, memory, language processing, and other topics, we also discuss the ways in which researchers conduct experiments on them. We describe how experimental findings drive the development of theories in cognition. In particular, we emphasize how studies that rely on reaction time and accuracy measures can be used to reveal relationships among mental processes. In particular, we discuss the overarching principle of human mental chronometry and the subtraction and additive factor methods of Donders and Sternberg, respectively (described, above; see Donders, 1868-69/1969; Sternberg, 1969). We discuss how examining patterns of reaction times across various experimental conditions can reveal how mental processes relate to one another.

We also highlight some of the common experimental tasks that cognitive scientists use. For example, much cognitive research focuses on word processing. Thus, we discuss the reading aloud task, the lexical decision task (i.e., indicating if a given letter string is a word or a nonword), recognition memory, free recall, and more. Within our discussion of semantic memory and the lexicon, we discuss semantic priming in which one observes facilitated reading aloud reaction times for words (e.g., *nurse*) preceded by words related in meaning (e.g., *doctor*). We explain how finding facilitation for the target word is more than a simple result; it informs us about how the concepts of the prime and target may be represented in memory. For example, mediated priming – in which the prime (e.g., *lion*) and target (e.g., *stripes*) are related only via a mediator (e.g., *tiger*) – can be explained and understood in terms of a spreading activation model (e.g., Collins & Loftus, 1975). That is, activation spreads in a semantic network from the mental representation associated with the prime to the mediator and finally to the target.

The Influences of Neuropsychological Research

After presenting a broad overview of historical studies that laid the foundation for modern cognitive psychology, we jump into a discussion of how to examine

individuals with brain damage to help elucidate cognitive theory. We do this because of the rich and long-lasting traditions that link cognitive psychology and cognitive neuropsychology. Along this vein, we emphasize the principles of association, dissociation, and double dissociation as ways to determine the relative independence of two or more cognitive processes. Furthermore, we highlight how the transcranial magnetic stimulation (TMS) technique, which is used to create temporary "virtual" lesions, represents an important breakthrough in cognitive neuropsychology. We believe TMS to be a powerful approach because it allows for the disruption of processes associated with precise brain areas at specific times during the course of completing a within-subjects design with relatively large sample sizes (see, e.g., Woollams, Madrid, & Lambon Ralph, 2017). We also discuss how the emphasis of relating structure to function has shifted to using methods in cognitive neuroscience that do not require examining people who have incurred brain damage but instead rely on typical functioning. In particular, we discuss the techniques used in cognitive neuroscience ranging from single-cell electrode recordings to event-related potentials (ERPs), magnetoencephalography (MEG), and functional magnetic resonance imaging (fMRI). We compare and contrast these methods and discuss how research questions and environmental constraints often dictate the most appropriate research methods.

Techniques in Memory Research

Within our section on memory, we discuss the variety of tests that have been developed to query explicit and implicit memory as well as short-term/working memory and long-term memory. These methods are sometimes surprisingly simple. For example, a common method for testing explicit memory is a simple list-learning free recall paradigm in which participants study a list of 12–20 unrelated words presented on a computer monitor, one at a time, and then recall as many of those words as possible in any order. Characteristics of the words can be predictive of recall. For example, even a very slight variation in how the words are presented (e.g., a change in font for some items) may result in different patterns of recall. We also discuss how memory for lists of words can be tested using basic free recall (as described above), serial recall (i.e., recalling the words in the order of presentation), and/or a recognition memory test where subjects study a list of words and are later tested with a list that contains the studied words and an equal number of unstudied words for which subjects make "old" (i.e., studied) and new (i.e., unstudied) decisions. Students find it particularly easy to understand the relative ease of *recognizing* something that they have seen before as compared to *recalling* the same thing because it links up to the difference between multiple-choice and essay test items. Of course, we relate all this material back to the neuropsychological and neuroscientific evidence showing that these two types of memory processes (recognition and recall) are dissociable based on behavioral and neuroimaging studies.

Using Cognitive Neuroscience to Inform Cognitive Theory

In fact, over the years, we have dedicated more and more time to discussing the links between cognitive psychology and cognitive neuroscience. Each of us also teaches a

separate course on cognitive neuroscience, in which a thorough discussion of neuroscience techniques is more appropriate. However, we do present the basic principles of cognitive neuroscience in our cognitive psychology courses as a natural extension of our discussion of neuropsychology. This is because some aspects of cognitive psychology are influenced by neuroimaging techniques. For example, positron emission tomography (PET) and functional magnetic resonance imaging (fMRI) have long been used to test the neurological validity of many of the mental process models first introduced in cognitive psychology. A nice illustration comes from a study by Smith and Jonides (1999) in which they used PET to demonstrate the separate representations of verbal and spatial working memory and a task domain-independent area serving as central executive. They were able to provide support for a model of working memory that had been introduced 25 years earlier (Baddeley & Hitch, 1974).

In discussing the techniques of cognitive neuroscience, we also highlight the distinctions among various neuroimaging techniques, especially those pertaining to each technique's spatial and temporal resolution. In addition, we discuss how the scientific question at hand can determine which technique is most appropriate. For example, many psycholinguistic researchers favor techniques with high levels of temporal resolution for studies of speech perception and processing. Thus, event-related potentials (ERPs) and magnetoencephalography (MEG) are better choices than PET and fMRI. When studying speech perception and comprehension processes that are ongoing and changing at a millisecond pace as a person interprets the speech they hear, it may be better to use PET and fMRI techniques because they allow millisecond-level resolution.

Using Big Databases to Explore Empirical and Theoretical Questions

To best serve our students, it is important to keep up to date with the current trends and paradigm shifts in cognitive science, including the collection and use of "big data." Of course, this "new" approach is not entirely new. For example, the child data language exchange system (CHILDES) that now serves as a repository for massive amounts of language data across 26 different languages was established in the early 1980s (e.g., MacWhinney & Snow, 1985). CHILDES allows researchers to access large samples of language interactions.

A more recent version of big data comes from the megastudy paradigm (see Keuleers & Balota, 2015). Megastudies involve the collection of performance measures for a large number of stimuli. For example, the English Lexicon Project (ELP) involved the collection of reaction time and accuracy measures for over 40,000 English words in reading aloud and lexical decision across 6 different universities. These data have served as the primary evidence in many different studies (e.g., Yap & Balota, 2009) and have motivated similar lexicon projects in many other languages. The megastudy paradigm has been extended to semantic priming (Hutchison et al., 2013), recognition memory (Cortese, Khanna, & Hacker, 2010), and more. Conducting megastudies offers many advantages over the traditional factorial design (see Balota, Yap, Hutchison, & Cortese, 2012, for a thorough description of these issues). For one thing, due to the sheer number of stimuli, the

megastudy offers a statistically powerful way to examine relationships among variables. Also, the data obtained from megastudies are usually easily accessible to researchers who wish to test novel hypotheses. In one study (Adelman & Estes, 2013), researchers were interested in how valence (i.e., positivity or negativity of a stimulus referent) and arousal (i.e., how boring or exciting a stimulus is) are related to recognition memory. They accessed previously published recognition memory data from Cortese et al., (2010) and then, using multiple regression, they entered valence and arousal values in the final step of the analyses, after controlling for the variables analyzed by Cortese et al. (2010). Interestingly, they found that as valence got increasingly positive or negative, recognition memory improved, whereas arousal was unrelated to memory. Later, we discuss how students can use megastudy data to test certain hypotheses in undergraduate cognitive psychology courses and laboratory classes.

Another major emphasis of our courses is a discussion of how a researcher can combine a series of methods and techniques to help explore scientific questions. By discussing the many methods that we use in cognition and relating them to cognitive neuropsychology and cognitive neuroscience, we hope that it becomes very obvious to students that continued technological development and interdisciplinary work will only further and deepen our understanding of cognition. Perhaps the most important application of this principle is seen in the design of experiments in cognitive neuroscience. The best-designed studies using neuroimaging are ones that use the well-planned and controlled designs of experiments in cognitive psychology.

Teaching, Learning, and Assessment in Cognition: Approaches and Strategies

One of the nicest things about teaching a course in cognition is that students can apply much of what we are discussing to their own learning. After all, the focus of the course is on mental processes such as attention and memory. It is easy for students to become interested in these processes because part of their academic success depends on maximizing their attention and memory capabilities. To enhance the students' level of interest, we both use what we think of as dynamic lectures and active lectures. That is, in addition to presenting material via traditional lectures illustrated by PowerPoint slides, we include many opportunities for active discussions and ask students to think of how topics in cognition are related to their own lives. For example, relatively early in the course, we discuss perception and the fact that it is a subjective experience. We ask students to think of examples from their own lives in which they have had a perception that was different from that of another person. Students typically come up with examples ranging from things that they have heard and interpreted differently than their friends (e.g., the sounds of an AC unit may be calming to one and menacing to another) to examples of visual stimuli that they have interpreted differently (e.g., seeing a color as blue vs. green).

Throughout the course, we ask students to apply our discussions to their lives and to share these examples with their classmates. Sometimes we ask students to do this

individually, and sometimes we ask them to use the "think-pair-share" technique in which they generate examples of their own, pair up with a classmate to compare their examples, and then share their combined examples with the rest of the class. As teachers, we find it pleasant and satisfying to hear students engaging in lively discussions of examples from real-life-related to course topics. Students are often surprised when they realize how much of their everyday lives relate to principles in cognition.

Another example of the practical value of cognition research for students' lives comes when we discuss retrieval practice and test-enhanced learning (e.g., Agarwal, Bain, & Chamberlain, 2012; McDaniel, Agarwal, Huelser, McDermott, & Roediger, 2011). There has been a recent surge in research in the practical applications of retrieval practice (i.e., repeatedly recalling previously learned information) to increase the likelihood of remembering the information on a future assessment. One form of retrieval practice is simply taking a test or quiz on a set of material. Doing so can enhance the durability of memory for that material, leading to better performance on subsequent assessments – including graded exams. Thus, in our classes, we discuss how students can use retrieval practice and self-testing to improve their memory for material in preparation for exams (and hopefully even after exams). This also helps us to justify our use of various forms of retrieval practice in our courses (e.g., quizzes, practice problems, research projects, etc.). For our graded learning assessments, we each use four to five exams throughout the academic term, each of which covers three to four major topics or chapters of material.

To further illustrate applications of cognitive science research to student, we discuss common mnemonic devices and related study strategies. This discussion can range from how to use acronyms and acrostics (e.g., phrases such as "please excuse my dear aunt Sally" to help remember the order of mathematical operations) to how to reorganize notes to encourage retention. Students really seem to perk up when we are discussing these strategies and the best ways to use them. We discuss not only how these strategies can help them study for our class and others but also how using these memory strategies can help them with everyday problem-solving (e.g., how to remember items on a grocery list).

We also highlight the practical nature of cognitive science by using many in-class demonstrations of experimental designs used in cognition research. One example is the Stroop task and the Stroop effect (Stroop, 1935). In this task, participants are shown a series of words printed in various colors. Participants are asked to ignore the word meaning and say aloud the color of ink in which the word is printed. The classic Stroop design includes words that spell color names (e.g., *blue*) as well as words unrelated to color (e.g., *book*). Some of the color words are presented in the color of ink that is congruent with the word meaning (e.g., *blue* printed in blue), whereas other words are presented in an incongruent color (e.g., *blue* printed in red). Participants are slower to respond correctly on incongruent trials compared to congruent trials; response times on neutral trials (e.g., *keep* printed in black) fall somewhere in between. We ask students to complete the Stroop task in class, either by having one student perform the task in front of the other students or in pairs in

which one student is the participant and the other is the tester who presents a sheet of Stroop stimuli. When performing this task, students can experience the need to override their prepotent reading response (i.e., to focus on word meaning) in order to complete the color-naming task in the incongruent condition, but not in the congruent condition. This experience serves as the basis for our discussion of how this task can be used as a measure of attention allocation and inhibition. Moreover, we discuss how simple reaction time and accuracy measures can help us understand the nature of the mental processes that are involved in performing the task.

We use many other demonstrations of research topics and common research paradigms. These include everything from simple free recall tasks (e.g., orally presenting a list of 12–15 words and asking students to remember them in any order), to demonstrations about word processing (e.g., using reading aloud and lexical decision tasks), to more complicated demonstrations about dichotic listening and multitasking. A list of research method demonstrations is presented in the Resources section at the end of the chapter.

Throughout our courses in cognition, we relate research findings from studies of memory, learning, attention, decision-making, and other realms to the strategies that teachers and students use to improve learning. Even in early lectures when we are discussing basic cognitive processes (e.g., auditory working memory), we discuss how we can use theoretical principles to improve study habits and learning. For example, we discuss early research in phonological working memory (e.g., Conrad, 1960) that highlights the fact that people often recode written information into an auditory representation. Our presentation about this phenomenon can help students see the advantage of studying information in both written and phonological format. In other words, students realize that talking out loud while problem-solving or even rehearsing information can help them retain it. These are just a few examples of how we link discussion of basic research findings to tips that can help students study more effectively.

Student Learning and Assessment

In teaching cognition, we are guided by several fundamental learning objectives. They are student-focused and transparent. They appear on the first page of each of our syllabi (i.e., a document that outlines the course content and objectives for students). Each learning objective takes the form of a statement about what we hope students will gain from the course, and each begins with the same words: "Students will be able to…" (SWBAT). These learning objectives fall into three main categories. The first is focused on students acquiring a basic understanding of cognition (e.g., SWBAT identify models of working memory). The second category is focused on the importance of relating data to theory (e.g., SWBAT use data collected from experiments to inform cognitive theories and to make specific predictions regarding these theories). The third set focuses on using cognitive theory for practical applications (e.g., SWBAT use research from studies in retrieval practice to identify successful study strategies). There are several learning objectives within

each of these categories, and we discuss them all with students on the first day of class. Students are sometimes at first surprised by our focus on data and our requirement for them to be comfortable working with data, but we quickly dispel their misconception that data are the exclusive domain of courses on statistics and research methods.

We are careful to make sure that we have created learning objectives that are measurable. Thus, we map our assessments back to learning objectives before the beginning of each semester. We ask ourselves, "What is it that I want my students to learn from this course?" Our next question is "How am I going to measure that?" For example, with regard to the learning objective, "Students will be able to use data collected from experiments to inform cognitive theories and to make specific predictions regarding these theories," there are several assessment options. One of these could be an essay exam question which asks students to first describe an experiment and sample data collected from it and then to explain how the data inform a theory (e.g., LOP theory). Finally, they would have to say how their new understanding of LOP can lead them to make predictions about a proposed experiment. Such essay questions are very detailed but also very doable.

Another way to assess the same learning objective is through a research proposal assignment. The students are asked to read material from an area of cognitive science (e.g., attention training, working memory, decision-making, etc.) and propose an original experiment whose results would extend our understanding of cognition within that area. Doing this requires students to develop a relatively deep understanding of the cognitive research related to their proposal. In addition to submitting the written proposal, the students prepare and deliver a 10–12-min presentation about it. This assignment requires students to engage in deep processing and retrieval practice, both while writing the proposal and while making their research presentations. Because they do not actually have to conduct the experiment, there are no limits to what they can propose. The study can focus on children, older adults, or left-handed synesthetes (one student actually proposed that population!). Our only requirement is that students provide a theory-based justification for including specific participant types. We also encourage students to propose research designs that are practical and doable. Furthermore, we ask students to make predictions about the results of their proposed experiment and explain how that pattern of results will expand our understanding of cognitive theory.

The research proposal assignment has many practical benefits. Every semester at least a handful of students remark on how completing this assignment helped them to understand assignment-related course material. In fact, several students have used their proposals as the basis for later independent studies or honors projects, some of which have been published. One student even used her proposed project when she entered graduate school. It is also satisfying for us to see how knowledgeably our students are able to respond to their classmates' questions about their proposals and how they are able to "think on their feet" about the theories related to their proposed research.

We use a variety of additional assessments to help us gauge student learning, as well as to provide students with the opportunity to engage in retrieval practice and

relatively deeper processing with the material. For example, we often use ungraded, unannounced ("pop") quizzes. These usually include 10–15 multiple-choice, fill-in-the-blank, or short-answer questions. We encourage our students to treat them as they would a graded quiz by setting them up in a closed-note, closed-book, and individually completed format. Although the quizzes are not graded, we do review the questions and appropriate answers in class. No-stakes quizzes such as these have been shown to provide beneficial retrieval practice without causing anxiety students typically experience in relation to graded pop quizzes (Khanna, 2015). Most of all, students can gauge their performance and use that information to direct their study strategies.

In short, when we map our assessments back to learning objectives, we are mindful that students vary in their feelings about various forms of assessment. Many students dread exams and prefer in-class, long-term group projects. Others have the opposite preferences. We try to please and annoy both types of students to about the same degree. Thus, we use exams, research proposals, database research projects, in-class quizzes (usually ungraded), in-class assignments (e.g., think-pair-share work or demonstrations), and long-term group projects. Each of our assessments is centered on at least one learning objective but often more.

Teaching Strategies Informed by Theory and Research

We try our best to structure our class sessions in ways that both convey important course information and – as illustrated by the research proposal assignment – allow students to actively engage with the material. We do this in several different ways.

Active Lecturing The most frequent of these is to structure our classes in an active lecture format (e.g., Bernstein, Frantz, & Chew, 2020). That is, we do follow the "sage on the stage" trope, but we also make sure that the students are active participants in our lectures. As already mentioned, one of the most common ways that we do this in cognitive courses is by providing demonstrations of classic research paradigms and asking students to participate or "play along." In the free recall demonstration alluded to above, for example, after students have written down in any order as many as possible of the 12–15 words they heard, we ask them to score their performance and then lead a discussion about what they did and did not remember. This discussion allows us to highlight numerous patterns, including the serial position curve, in which participants typically remember items from the beginning and end of the list better than the items in the middle. We can also discuss the lexical factors that can influence memory. For example, words that are highly imageable (i.e., easy to think of as an image) tend to be more memorable than those that are not. By using such demonstrations of research paradigms, we can convey raw information about research methods and cognitive processes while encouraging students to think more deeply about these processes as they experienced them for themselves.

Socratic Methods We also integrate Socratic teaching methods into our lectures. One way that we do this is by asking questions throughout our lectures and waiting (sometimes for a very long time) for students to answer them before moving on to another topic. Often these questions ask students to think of ways that specific cognitive theories are applicable to their own lives. For instance, when we discuss limits on attention capacity, we ask students to provide their own examples. We typically get examples involving texting and driving or integrating words that they are saying in a conversation into a paper they are writing for a class at the same time. Using active lecture formats and Socratic questioning is another way to encourage our students to engage in retrieval practice and relatively deep processing (ala LOP theory) that can facilitate learning and retention of course information. In addition, during the "think-pair-share" activities described earlier, we often ask students to relate course concepts to their personal experiences. This enables them to connect current course topics with memories and experiences from their lives, therein requiring relatively deep processing. These techniques alongside the retrieval practice provided by the in-class ungraded pop quizzes (discussed, above) give our students many opportunities for deep processing course material in several different ways.

Big Data Assignments Our "big data" processing assignment brings together all of the above techniques to encourage active learning, retrieval practice, deep thinking, and the like. For this assignment, students must access the English Lexicon Project (ELP; Balota et al., 2007) to help them answer questions about cognition. As already mentioned, the ELP is a megastudy in which thousands of participants across several universities were each asked to read aloud and/or make lexical (i.e., word/nonword judgments) on thousands of items (i.e., words and nonwords). The reaction time and accuracy of pronunciation and lexical decisions were recorded for each person for each item. These reaction time and accuracy measures are now archived and publicly available to anyone interested on the ELP database website (www.elexicon.wustl.edu). In addition, the database includes detailed information about each of the items, including each word's frequency of usage (according to three published measures), number of syllables, number of letters, it's part of speech, a measure of how similar its spelling pattern is to other words pronounced similarly, and many other "word nerd" characteristics. Using this information allows a person to access a specified list of words that have specific features (e.g., they are high or low frequency) and see how that characteristic influences participants' reaction time and accuracy for that word.

For the big data assignment, we ask students to hypothesize how these word characteristics should influence pronunciation or lexical decision responses. We then ask them to make specific predictions (e.g., high-frequency words should have shorter reaction times than low-frequency words). Next, the students are to access the ELP database and see if their predictions were correct. Then, we ask them to provide support for what they found in the ELP database but also in previously published articles (based on smaller-scale studies) that have examined these lexical factors. This assignment allows us not only to get students really thinking about how

lexical representation and lexical characteristics influence behavior but also to raise the question of whether big data sets offer a legitimate and efficient way to investigate mental processing. To conclude the assignment, we ask students to apply their findings to an everyday problem. For example, one group of students used the ELP to investigate the reading aloud performance of words according to their part of speech and imageability (they also accessed the Cortese & Fugett, 2004 imageability ratings). They found that nouns and highly imageable words were associated with faster reaction times and higher levels of accuracy. They translated these findings into a recommendation for preparing reading instruction materials for children that included a high concentration of very imageable nouns. This was not an earth-shaking recommendation, but it showed that the students learned how big data and research results can be used to support the development of curricular materials and even education policy.

In short, this assignment prompts deep processing of course information, provides retrieval practice, and requires relating the purpose of the study back to a real-world problem. We think the assignment is an excellent tool that students can use to help them answer future research questions in a scientific way. To assess the degree to which this is true, our final exams include questions in which students must outline a plan of action for using the ELP (or another publicly available big database) to answer a question about cognition.

Challenges and Lessons Learned

We have developed our methods for instruction in cognition courses over many semesters, and yet we still change some things each semester. Although we try to integrate what cognitive science tells us about learning, some things we do are not necessarily exciting or innovative. One of those things is to give PowerPoint-based lectures. We have found that in most classes, students need to have a basic vocabulary and need to hear and see the facts at least once before they can be expected to extrapolate or apply those facts. Similarly, though we give multiple-choice exams that include applied and detailed questions, we also ask some straightforward fact-based questions.

We also realize that although lecturing about basic course information is necessary, students learn best by doing. Thus, our lectures are presented in an active, engaging format with lots of in-class demonstrations and student activities. For example, we often ask students to participate in mock experiments that are similar to ones we are discussing. We ask them to note how they performed, and many times we will compare the "data" collected from the class to the published results. As an example, we ask students to engage in a variation of the classic Deese-Roediger-McDermott (DRM) false memory paradigm. In the classic DRM paradigm, participants receive lists of words related in meaning (e.g., *bed*, *rest*, *awake*, *pillow*, *peace*, etc.) to a central theme item (i.e., critical lure; e.g., *sleep*) that is not on the list. Participants are just as likely to recall this critical lure as they are to recall many of the items that actually appear on the list (e.g., Roediger & McDermott, 1995). We ask our students not only to engage in this classic version of the task but to also

engage in a version that highlights how lexical representations include semantic (i.e., meaning-based) features but also phonological (i.e., sound-based) features. We do this by first asking students to pair up in class. We then give one person within each pair three lists that we ask them to read aloud (one list at a time) to their partner – we randomize the order of the lists across students before class. They are to read each list at a pace of 2 s per word and then record all of the words recalled by their partner for each list, one list at a time. One of the lists contains a classic DRM list such as the *sleep* list provided above. Another list will contain a series of words that are all phonological neighbors (e.g., *fog*, *log*, *dot*, *bog*, *doll*, etc.) to a critical lure (e.g., *dog*). Another list will be a hybrid list in which there will be semantically related as well as phonologically related words to a critical lure (a list such as *sugar, sweat, heart, meet, bitter, beet,* etc. for the critical lure, *sweet*). We ask students to test their in-class partner on each of these lists. Students will see that although there are high rates of false recall for the critical lure for the semantic and phonological lists, there is a higher rate of false recall for the hybrid list (e.g., Watson, Balota, & Roediger, 2003). From this demonstration, we can discuss how lexical representations contain not only meaning-based but also sound-based codes. Furthermore, this 5-min demonstration allows us to discuss a major theory in cognition, generate data, and examine patterns of results and relate these data back to the original theory.

A final important lesson from our experiences teaching cognition is that not all results of laboratory research in cognitive psychology apply equally well in real classrooms. For example, cognitive science researchers have encouraged instructors to use frequent pop quizzes to provide students with retrieval practice that should lead to better performance on unit exams as well as cumulative final exams (e.g., Roediger, Agarwal, McDaniel, & McDermott, 2011). However, we have found that giving frequent, graded pop quizzes actually causes students to feel so anxious about the material and the class, in general, that it impairs rather than enhances learning. This doesn't negate the theory, though. When we have reduced the anxiety factor by giving *ungraded* (no stakes) pop quizzes, we see the expected higher performance on cumulative final exams. Moreover, students like ungraded pop quizzes because the ungraded feedback helps them to know where to concentrate their study efforts before the next test (Khanna, 2015). Our experience with pop quizzing illustrates a more general point, namely, that even the best theories and most impressive research results about pedagogical practice must be evaluated in real classrooms before they can be recommended for broad adoption. We are trying to do some of that evaluation ourselves by investigating how students' characteristics might help teachers select the pedagogical techniques best suited to their students. Consider, for example, that our results from graded vs. ungraded pop quizzes were collected at a university enrolling mainly high-achieving, goal-oriented, and anxious students. Would the same trepidation and distracting anxiety about graded pop quizzes occur in a different sample of students? This is a research question.

In short, we have found that the science of teaching is similar to the science of learning – you teach/learn best by doing. So we encourage you to try new things in your cognitive psychology courses, make incremental changes at first, and then see how well those new things suit you and your students.

Teaching, Learning, and Assessment Resources

We have found countless resources about teaching and articles about applying cognitive science to teaching practice. Here are just a few of our favorites. The articles are also listed in the References:

Craik, F. I. M., & Lockhart, R. S. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal behavior,* 11, 671–684.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest*, *14*, 4–58.

Khanna, M. M., Badura Brack, A. S., & Finken, L, L. (2013). Short- and long-term effects of cumulative finals on student learning. *Teaching of Psychology, 40*(3), 175–182.

Khanna, M. M. (2015). Ungraded Pop-Quizzes: Test-enhanced learning without all the anxiety. *Teaching of Psychology, 42*(2), 174–178.

Khanna, M. M., & Cortese, M. J. (2016). The benefits of quizzing in content-focused versus skills-focused courses. *Scholarship of Teaching and Learning in Psychology, 2*(1), 87–97.

https://www.retrievalpractice.org/ – a student and teacher oriented website highlighting why retrieval practice can help students retain information.

http://gocognitive.net/ – a great resource for online demonstrations in cognitive psychology

http://www.simonslab.com/index.html – a great researcher website with links to videos demonstrating attentional limitations.

Cognitive Psychology In-Class Demonstrations

Here is a list of many of the demonstrations that we conduct with our students in class. We will include details for the first few and a brief list for several others. Please email us if you would like more details or more specific examples: mayakhanna@creighton.edu; mcortese@unomaha.edu.

Free Recall List Short-term memory – Create a list of 12–15 words. Depending upon what you want to demonstrate, these can vary in length, imageability, frequency, etc. You can present these to your students verbally or visually or both. Present words one word per 2 s. At the end of the list, indicate to "Recall Now." This can be shown on the screen or give them a signal (we simply look up from the list) to start recall. After students have recorded all of the words that they recall, ask them to indicate how many words they recalled (hold up fingers corresponding to recall number). This is related to the 7+/− 2 short-term memory constraint. You can read

through the list and ask students to raise their hands when a word they recorded is read aloud. This can help them visualize the list position effect. You can also discuss proportion of items recalled that correspond to any of the lexical characteristics (e.g., frequency, length, etc.) that you may have embedded within your list.

Serial Recall Short-term memory – Similar to free recall, except specify that items must be recalled in order. When students are indicating the items that they recalled (i.e., raising their hands for the words they recorded), highlight how serial and free recall performance are different. Also, the primacy and recency effects are apparent (recalling relatively more items from the beginning and the end of the lists, respectively).

Stroop Attention – You can simulate a few trials of the classic paradigm within a PowerPoint slideshow. Create slides with the color words (e.g., *blue*, *green*, *red*, etc.), and vary the color of ink in which the words are presented. Ask a student volunteer to focus and report out the color of ink of each item while ignoring the actual word written. Use at least nine trials (three congruent, three incongruent, and three neutral items). Discuss the relative ease of color identification in the congruent versus the incongruent trials.

Levels of Processing Theory Memory – Create a list of words to be presented and remembered in a free recall test. These words should be presented visually (this is easy with PowerPoint). For each item, also include a question. One-third of the words should have a question based on the meaning of the words, another third should have questions related to the sound of the word, and the final third should have questions related to the spelling pattern of the words. For example, for a meaning-based question, if the word is *fox* this can be paired with the question, "Does this have a fuzzy tail?" For a sound-based question, the word *light* could be paired with the question, "Does this word rhyme with fight?" For a spelling-based question, the word could be *rural*, and the question could be, "How many *r*s are in the word?" At the end of the recall list, ask the students to recall all of the items that they can. After that, follow the reporting procedure for the free and serial recall lists (above). Invite students to reflect on which words had the highest recall rates across the class. Discuss this as it relates to LOP from Craik and Lockhart (1972).

Brief List of Other Possible Demonstrations

Visual Perceptual Distortions

Dichotic Listening with Shadowing: Attention

Dual-Task Performance – show how increased difficulty in primary task leads to increased RT in the secondary task

Release from Proactive Interference: Wickens (1975)

Analogical Problem-Solving

Deese-Roediger-McDermott Lists and False Memory – We especially like using lists that interleave semantic and phonological associates (see Watson et al., 2003)

Cross-References

- ▶ Neuroscience in the Psychology Curriculum
- ▶ Sensation and Perception
- ▶ Teaching the Foundations of Psychological Science

References

Adelman, J. S., & Estes, Z. (2013). Emotion and memory: A recognition advantage for positive and negative words independent of arousal. *Cognition, 129*, 530–535. https://doi.org/10.1016/j.cognition.2013.08.014.

Agarwal, P. K., Bain, P. M., & Chamberlain, R. W. (2012). The value of applied research: Retrieval practice improves classroom learning and recommendations from a teacher, a principal, and a scientist. *Educational Psychology Review, 24*, 437–448.

Baddeley, A. D., & Hitch, G. (1974). Working memory. In G. H. Bower (Ed.), *The psychology of learning and motivation: Advances in research and theory* (Vol. 8, pp. 47–89). New York, NY: Academic.

Balota, D. A., Yap, M. J., Cortese, M. J., Hutchison, K. A., Kessler, B., Loftus, B., Neely, J. H., Nelson, D. L., Simpson, G. B., & Treiman, R. (2007). The English lexicon project: A users guide. *Behavior Research Methods, 39*, 445–459. https://doi.org/10.3758/BF03193014.

Balota, D. A., Yap, M. J., Hutchison, K. A., & Cortese, M. J. (2012). Megastudies: Large scale analyses of lexical processes. In J. S. Adelman (Ed.), *Visual word recognition Vol. 1: Models and methods, orthography and phonology* (pp. 90–115). New York, NY: Psychology Press.

Barsalou, L. W. (2008). Grounded cognition. *Annual Review of Psychology, 59*, 617–645. https://doi.org/10.1146/annurev.psych.59.103006.093639.

Bernstein, D. A., Frantz, S., & Chew, S. L. (2020). *Teaching psychology: A step by step guide* (3rd ed.). New York, NY: Routledge.

Chomsky, N. (1965). *Aspects of the theory of syntax*. Cambridge, MA: MIT Press. ISBN:9780262260503.

Collins, A. M., & Loftus, E. F. (1975). A spreading-activation theory of semantic processing. *Psychological Review, 82*(6), 407–428.

Coltheart, M. (2013). How can functional neuroimaging inform cognitive theories? *Perspectives on Cognitive Science, 8*(*1*), *98–103*. https://doi.org/10.1177/1745691612469208.

Coltheart, M., Rastle, K., Perry, C., Langdon, R., & Ziegler, J. (2001). DRC: A dual route cascaded model of visual word recognition and reading aloud. *Psychological Review, 108*, 204–256. https://doi.org/10.1037//0033-295X.108.1.204.

Connell, L., & Lynott, D. (2009). Is a bear white in the woods? Parallel representation of implied object color during language comprehension. *Psychonomic Bulletin & Review, 16*(*3*), 573–577. https://doi.org/10.3758/PBR.16.3.573.

Conrad, R. (1960). Serial order intrusions in immediate memory. *British Journal of Psychology, 51* (1), 45–48.

Cortese, M. J., & Fugett, A. (2004). Imageability ratings for 3,000 monosyllabic words. *Behavior Research Methods, Instruments, & Computers, 36*(3), 384–387.

Cortese, M. J., Khanna, M. M., & Hacker, S. (2010). Recognition memory for 2,578 monosyllabic words. *Memory, 18*, 595–609. https://doi.org/10.1080/09658211.2010.493892.

Craik, F. I. M., & Lockhart, R. S. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal Behavior, 11*, 671–684.

Donders, F. (1868-69/1969). On the speed of mental processes. In W.G. Koster (ed.) *Acta psychologica 30: Attention and performance II* (pp. 412-431). Amsterdam, The Netherlands: North-Holland Press Company.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest, 14*, 4–58.

Goodglass, H., & Kaplan, E. (1972). *The assessment of aphasia and related disorders*. Philadelphia, PA: Lea & Febiger.

Hauk, O., Johnsrude, I., & Pulvermu ̈ller, F. (2004). Somatotopic represen-tation of action words in human motor and premotor cortex. *Neuron, 41*, 301–307.

Hutchison, K. A., Balota, D. A., Neely, J. H., Cortese, M. J., Cohen-Shikora, E., Tse, C., Yap, M. J., Bengson, J. J., Niemeyer, D., & Buchanon, E. (2013). The semantic priming project. *Behavior Research Methods, 45*, 1099–1114. https://doi.org/10.3758/s13428-012-0304-z.

Joanisse, M. F., & Seidenberg, M. S. (1999). Impairments in verb morphology after brain injury: A connectionist model. *Proceedings of the National Academy of Sciences, 96*, 7592–7597. https://doi.org/10.1073/pnas.96.13.7592.

Keuleers, E., & Balota, D. A. (2015). Megastudies, crowdsourcing, and large datasets in psycholinguistics: An overview of recent developments. *The Quarterly Journal of Experimental Psychology, 688*, 1457–1468. https://doi.org/10.1080/17470218.2014.945096.

Khanna, M. M. (2015). Ungraded pop-quizzes: Test-enhanced learning without all the anxiety. *Teaching of Psychology, 42*(2), 174–178.

Khanna, M. M., Badura Brack, A. S., & Finken, L. L. (2013). Short- and long-term effects of cumulative finals on student learning. *Teaching of Psychology, 40*(3), 175–182.

MacWhinney, B., & Snow, C. (1985). The Child Language Data Exchange System. *Journal of Child Language, 12*, 271–295.

Marcus, G. F., Vijayan, S., Bandi Rao, S., & Vishton, P. M. (1996). Rule learning by seven-month old infants. *Science, 283*(*1*), 77–80. https://doi.org/10.1126/science.283.5398.77.

McClelland, J. L., McNaughton, B. L., & O'Reilly, R. C. (1995). Why there are complementary learning systems in the hippocampus and neocortex: Insights from the successes and failures of connectionist models of learning and memory. *Psychological Review, 102*(3), 419–457.

McClelland, J. L., et al. (2010). Letting structure emerge: Connectionism and dynamical systems approaches to cognition. *Trends in Cognitive Science, 14*(8), 348–356.

McDaniel, M. A., Agarwal, P. K., Huelser, B. J., McDermott, K. B., & Roediger, H. L. (2011). Test-enhanced learning in a middle school science classroom: The effects of quiz frequency and placement. *Journal of Educational Psychology, 103*, 399–414.

Morris, C. D., Bransford, J. D., & Franks, J. J. (1977). Levels of processing versus transfer appropriate processing. *Journal of Verbal Learning and Verbal Behavior, 16*(*5*), *519–533*. https://doi.org/10.1016/s0022-5371(77)80016-9.

O'Reilly, R. C., Bhattacharyya, R., Howard, M. D., & Ketz, N. (2014). Complimentary learning systems. *Cognitive Science, 38*(*6*), 1229–1248. https://doi.org/10.1111/j.1551-6709.2011.01214.x.

Patterson, K., & Lambon Ralph, M. (2015). The hub-and-spoke hypothesis of semantic memory. In G. Hickok & S. L. Small (Eds.), *Neurobiology of language* (pp. 765–773). London, UK: Academic. https://doi.org/10.1016/B978-0-12-407794-2.00061-4.

Pinker, S. (1999). *Words and rules: The ingredients of language* (1st ed.). New York, NY: Basic Books.

Roediger, H. L., & McDermott, K. B. (1995). Creating false memories: Remembering words not presented in lists. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 21* (4), 803–814.

Roediger, H. L., Agarwal, P. K., McDaniel, M. A., & McDermott, K. B. (2011). Test-enhanced learning in the classroom: Long-term improvements from quizzing. *Journal of Experimental Psychology: Applied, 17*, 382–395.

Rumelhart, D. E., & McClelland, J. L. (Eds.). (1986). *Parallel distributed processing: Explorations in the microstructure of cognition (V1 and V2)*. Cambridge, MA: MIT press.

Saffran, J. R., Aslin, R. N., & Newport, E. L. (1996). Statistical learning by 8-month-old infants. *Science, New Series, 274*(5294), 1926–1928.

Seidenberg, M. S., & McClelland, J. L. (1989). A distributed, developmental model of word recognition and naming. *Psychological Review, 96*(*4*), 523–568. https://doi.org/10.1037/0033-295X.96.4.523.

Smith, E., & Jonides, J. (1999). Storage and executive processes in the frontal lobes. *Science, 283*, 1657–1661.

Sternberg, S. (1969). The discovery of processing stages: Extensions of Donders' method. *Acta Psychologica, Amsterdam, 30*, 276–315.

Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology, 18*(6), 643–662.

Watson, J. M., Balota, D. A., & Roediger, H. L. I. I. I. (2003). Creating false memories with hybrid lists of semantic and phonological associates: Over-additive false memories produced by converging associative networks. *Journal of Memory and Language, 49*(9), 95–118.

Wickens, D. (1975). A test of four proposed new dimensions of semantic space. *Bulletin of the Psychonomic Society, 6*(4), 381–382.

Woollams, A. M., Madrid, G., & Lambon Ralph, M. A. (2017). Using neurostimulation to understand the impact of pre-morbid individual differences on post-lesion outcomes. *Proceedings of the National Academy of Sciences, 114*(*46*), 12279–12284. www.pnas.org/cgi/doi/10.1073/pnas.1707162114.

Yap, M. J., & Balota, D. A. (2009). Visual word recognition of multisyllabic words. *Journal of Memory and Language, 60*, 502–529. https://doi.org/10.1016/j.jml.2009.02.001.

Zevin, J. D., & Balota, D. A. (2000). Priming and attentional control of lexical and sublexical pathways during naming. *Journal of Experimental Psychology: Learning, Memory, & Cognition, 26*, 121–135. https://doi.org/10.1037//0278-7393.26.U21.

Zwaan, R. A., & Yaxley, R. H. (2003). Hemispheric differences in semantic relatedness judgments. *Cognition, 87*, B79–B86. https://doi.org/10.1016/S0010-0277(02)00235-4.

How to Design and Teach Courses on Volition and Cognitive Control

9

Thomas Goschke and Annette Bolte

Contents

T. Goschke (✉) · A. Bolte
Faculty of Psychology, Technische Universität Dresden, Dresden, Germany
e-mail: thomas.goschke@tu-dresden.de; annette.bolte@tu-dresden.de

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Abstract

While volition has long been a topic of philosophical debates, in the past decades the mechanisms underlying voluntary action have become a central research topic in experimental psychology and cognitive neuroscience. Volitional control is conceived of as the result of cognitive control mechanisms, which enable humans to flexibly adapt behavior to changing goals and task demands and to override habitual or impulsive responses in favor of long-term goals or social norms. Understanding these mechanisms is not only a key challenge for basic research but highly relevant in wide range of applied (educational, work, and clinical) contexts. Courses on volition and cognitive control are thus an essential part of the training of psychologists both at undergraduate and graduate levels. Designing and teaching such courses pose specific challenges for lecturers, given that research on these themes cuts across various disciplines (cognitive, motivational, social, and clinical psychology as well as cognitive neuroscience) and levels of analyses (behavioral, computational, neural). Given that especially undergraduates often experience cognitive control as an abstract and difficult topic, it is important to not only convey why the theme is important for a scientific understanding of human behavior but also to provide examples of its relevance for practical applications. We present a systematic overview of key contents a course on volition and cognitive control should cover and provide recommendations: (i) how to tailor course contents to the learning objectives of different study programs (B.Sc. psychology programs versus M.Sc. programs in clinical psychology or cognitive neuroscience), (ii) how to provide students with knowledge of psychological and neural mechanisms underlying cognitive control and its impairments in mental or neurological disorders, (iii) how to enable them to apply this knowledge in practical contexts, and (iv) how to critically reflect on implications of this research for ethical and philosophical questions related to concepts of free will and personal responsibility. Moreover, we give tips how to instigate students' motivation and interest in the topic and how to promote deep and elaborative encoding of the course contents.

Keywords

Volition · Cognitive control · Executive functions · Goal-directed action · Self-control · Willpower · Intention · Prefrontal cortex

Introduction

Human volitional action exhibits a remarkable flexibility and future directedness, which shows up in our ability to adapt behavior to changing goals and task demands and to override impulsive or habitual responses in order to render behavior consistent with long-term goals or social norms. In experimental psychology, volitional actions are not attributed to an undetermined "free will," which is independent from any causal antecedents. Rather, what sets volitional action apart from reflexes is that they are not completely determined by fixed stimulus-response associations, but depend on intentions, goals, and anticipations of future consequences (Goschke, 2013; Haggard, 2019). The term cognitive control denotes a set of mechanisms, which are required when routine behaviors do not suffice to achieve a goal or accomplish a task, but response dispositions must be configured in novel ways, new action sequences must be planned, or competing desires or habits must be overridden to attain long-term goals (Cohen, 2017). The concept of cognitive control overlaps with the construct "executive functions," which is used as umbrella term for "higher-order" cognitive processes that coordinate perceptual, emotional, and motor activity during the execution of new and complex tasks (Diamond, 2013). Cognitive control also overlaps with the concept "self-control," which denotes the ability to resist momentary temptations and to override short-term desires in the service of long-term goals or social norms (Kotabe & Hofmann, 2015). Finally, apart from its use as a summary term for mechanisms underlying goal-directed action, the term volition is sometimes used to refer to the subjective experience of agency associated with intentional actions (Haggard, 2019; Roskies, 2010).

In the past decades, research on volition and cognitive control has advanced to one of the most active fields in experimental psychology and cognitive neuroscience (the number of peer-review articles listed in the Web of Science, which contain one of the terms "volition," "cognitive control," "self-control," or "executive functions" in their title, increased from a handful in 1980 to currently more than 1000 per year). Substantial progress has been made in elucidating the cognitive, computational, and neural mechanisms underlying volition and cognitive control, due to the integration of behavioral tasks from experimental psychology, advanced neuroimaging techniques, and computational modeling approaches (for a recent selection of authoritative reviews, see the handbook by Egner, 2017).

Importantly, insights into the mechanisms of volition and cognitive control are not only of interest from a scientific perspective but are relevant in a wide range of applied domains of high societal relevance. For instance, individual differences in cognitive control account for the degree of persistence or the tendency to procrastinate in academic or work contexts (Johnson, Lin, & Lee, 2018). Moreover, cognitive control plays an important role in self-regulated learning, explanations of insufficient academic effort, or deficient impulse control in educational contexts (Duckworth, Taxer, Eskreis-Winkler, Galla, & Gross, 2019; Job, Friese, & Bernecker, 2015; Panadero, 2017). More generally, deficient self-control is a key characteristic of a wide range of maladaptive and harmful behaviors, such as

unhealthy eating habits, lack of physical exercise, shortsighted and impulsive choices, as well as substance abuse and behavioral addictions (Goschke, 2014; Volkow & Baler, 2015). Finally, cognitive control impairments are a key characteristic of the decline of cognitive abilities in old age and neurodegenerative diseases (Reuter-Lorenz, Festini, & Jantz, 2016; Stuss & Craik, 2019). Given the adverse personal consequences and immense societal costs that are directly or indirectly caused by deficient cognitive control abilities, elucidating their causal antecedents and underlying mechanisms is of central importance for mechanism-based prevention, intervention, and training.

Purposes and Rationale of a Curriculum in Volition and Cognitive Control

Given the wide range of theoretical frameworks, empirical findings, and methodological approaches in research on volition and cognitive control, it is important to specify the knowledge, skills, and competencies students should acquire in a respective course. Course contents and learning objectives should be tailored to the course level (undergraduate, graduate, postgraduate) (cf. the APA competency-based approach to psychology program curriculum development (Association, 2020a, 2020b).

For an introductory-level first or second year course in a general B.Sc. psychology program, a course should provide a broad overview of theories and empirical results on volition and cognitive control (see also the list of learning outcomes and skill-based goals in APA's (2020) guidelines for the psychology undergraduate major). For more specialized B.Sc. or advanced M.Sc. courses, additional learning aims will be defined, which will depend on whether it is a research-focused or applied track. For instance, in a specialized study program in organizational psychology, the focus will be on applied themes like cognitive effort investment and self-control in work contexts. In contrast, in a master's program in cognitive neuroscience, the emphasis will be on neural systems and computational mechanisms underlying cognitive control, while in a clinical psychology or neuropsychology program, the focus will be on impairments of cognitive control in mental or neurological disorders, neuropsychological tests assessing executive functions, and interventions to improve cognitive control competencies. Table 1 shows key learning objective for different types and levels (B.Sc., M.Sc.) of study programs.

Core Contents and Topics of a Curriculum on Volition and Cognitive Control

In the following sections, we outline key topics that should be addressed in a one- or two-semester course on volition and cognitive control. Our selection of topics must necessarily be incomplete, and we focus on topics we consider particularly

Table 1 Key learning objectives of a course on volition and cognitive control in different types of study programs

Study program	Learning objectives
B.Sc. Program in psychology: Introductory-level 1st or 2nd year course	–Sound understanding of key theoretical constructs, major theories and models, exemplary tasks and experimental paradigms, and key empirical findings in the field of volition and cognitive control –Basic ability to relate this knowledge to other research fields (e.g., the role of impaired cognitive control as a possible vulnerability factor for certain mental disorders) –Basic ability to transfer knowledge about cognitive control to applied problems (e.g., the use of tests to assess executive functions; the role of self-control strategies for impulse control, procrastination, and cognitive effort in school contexts)
M.Sc. program in Psychology or Cognitive Neuroscience: Research-focused track	–Deeper understanding of neural systems and circuits underlying volition and cognitive control (e.g., role of prefrontal cortical regions in different control functions, response inhibition, and goal-directed action; neural correlates of self-control; neural representation of intentions and task sets) –Ability to derive novel predictions from theories of cognitive control, to develop experimental paradigms, and to design own experiments to test these predictions –Ability to conduct basic analysis of functional magnetic resonance imaging (fMRI) and EEG data from simple cognitive control tasks using standard software packages (e.g., SPM, EEGLab) –Deeper understanding of computational models of cognitive control (e.g., neural network models). Depending on the course level, basic experience in computer simulations of simple cognitive control models with Matlab or neural network simulation software
M.Sc. program in Psychology: Applied or clinical track	–Ability to apply knowledge about cognitive control in the context of clinical psychology and psychotherapy (e.g., cognitive-behavioral interventions to promote self-control; interventions to enhance the monitoring of one's own behavior and the use of precommitment strategies) –Ability to apply knowledge about cognitive control in the context of neuropsychological assessment (e.g., competence to apply, analyze, and interpret tests and task batteries assessing executive functions) –Ability to transfer knowledge about cognitive control in further applied contexts (e.g., promotion of self-regulated learning and cognitive effort mobilization in school and work contexts)

relevant for an introductory undergraduate course, but also point to more specialized themes that could be addressed in an advanced course in a master program in psychology or cognitive neuroscience (see Table 2 for a condensed overview).

Table 2 Overview on key learning objectives, topics, and concepts for a course on volition and cognitive control

Course unit	Learning objective	Key concepts and themes
1. Introduction	General course overview and introduction to key concepts (goal-directed action, volition, cognitive control) using real-life examples	–Voluntary actions are not determined by the current stimulus situation but depend on goals, intentions, and anticipated outcomes –Goals as mental representations of distal action effects –Examples of the relevance of cognitive control in applied contexts and everyday life behavior –Optional: Brief historical overview of classical research on volition (e.g., James, Ach, Lewin)
2. Key concepts and research questions	Knowledge of the definitions of the core constructs of volition, intention, cognitive control, executive functions, self-control, and understanding the adaptive functions of cognitive control	–Open discussion of possible adaptive functions of cognitive control from an evolutionary perspective –Key functional features of human volitional action –Extended future time perspective and ability to anticipate and evaluate long-term consequences of actions –Ability to anticipate own future needs and motivational states as the basis for precommitment strategies –Ability to generate hierarchical action plans and to represent intentions and instructions in a verbal format as the basis for the flexible and rapid reconfiguration of behavioral dispositions –Overview of central research questions
3. Cognitive mechanisms of intentional action	Understanding the distinction between automatic and controlled processes and knowledge of experimental tasks assessing the two types of processes and their interaction	Introduction to the distinction between automatic versus control processing –Everyday life examples of automatic and controlled behavior –Classical definition of automatic vs. controlled processes (e.g., Posner & Snyder, 1975) –Standard tasks used to investigate the interplay of automatic and controlled processes (e.g., Stroop color naming task) Preconditions for automatic processing and conditions requiring controlled processes –Does the current stimulus information specify the correct response and all execution parameters, or is planning or problem solving required to determine the correct response? –Has the agent acquired all necessary skills to perform a task? –Are there conflicts between an intended action and competing responses or motivational tendencies? Critical reflection on the distinction

		–Critique of dual processes models assuming a dichotomy of automatic and controlled processes –Alternative models of "conditional automaticity" and of intentional control as the modulation of automatic processes –Understanding that most tasks are not "process-pure" but involve an interplay of automatic and controlled processes Optional expansions and advanced themes –Role of conscious intentions and unconscious processes in the causation of intentional actions –Classical experiment by Libet et al. (1983) –Overview of the debate whether voluntary actions are caused by unconscious brain processes and the subjective feeling of conscious will is an illusion (e.g., Wegner's theory of apparent mental causation) –Neuroimaging studies showing that free choices can be decoded from neural activity patterns in prefrontal cortex several seconds before individuals become conscious of their choices
4. Functional decomposition and assessment of cognitive control abilities	Understanding that cognitive control can be decomposed into a set of specific mechanisms and knowledge of tasks assessing cognitive control	–Functional decomposition of cognitive control and executive functions into sub-mechanisms (goal maintenance and shielding, set shifting, response inhibition, emotion regulation, episodic future thinking, action planning) –Standard tests and tasks assessing cognitive control and executive functions (e.g., task-switching, n-back, go/nogo, stop signal tasks, Stroop and flanker interference tasks, emotion regulation) –Individual difference studies and latent variable analyses of task batteries assessing executive functions, which suggest that set shifting, working memory updating, and inhibition are three core executive functions –Recent critique and revisions of the three factor model of executive functions
5. Self-control and volitional strategies	Understanding the concepts of intertemporal choice and self-control and being familiar with key theories of self-control,	Intertemporal choice conflicts –Intertemporal choice conflicts in everyday life and laboratory tasks to investigate intertemporal choices –Temporal discounting (optional: mathematical discounting models in behavioral economics)

(continued)

Table 2 (continued)

Course unit	Learning objective	Key concepts and themes
	relevant empirical evidence, and theoretical critiques	–Preference reversals and explanation why they violate rationality axioms of standard expected utility theory –Different explanations of preference reversals and shortsighted choices The concept of self-control –Definition of self-control as a summary term for strategies that serve to override temporary temptations or competing habits in order to render behavior consistent with long-term goals –Commonalities and differences between self-control and the constructs cognitive control, executive functions, and volitional strategies –Different forms of self-control (preventive self-control and precommitment; interventive self-control and response inhibition; formation of beneficial habits) Major theories of self-control –Baumeister's strength model and ego depletion effect; theoretical critique of resource theories of self-control; failures to replicate the ego depletion effect and alternative interpretation of the effect in terms of a motivational shift –Dual systems/dual process models of self-control and theoretical critique of the assumption two competing "impulsive" and "reflective" systems; behavioral and neuroimaging evidence for dual systems –Alternative models of self-control as the top-down modulation of a common value signal and relevant evidence from neuroimaging studies –Theories of volitional strategies in motivational psychology; distinction between motivation (goal selection) and volition (goal realization) Optional expansions –Meta-analyses reporting little-to-no relationships between trait self-control and performance on response inhibition tasks; discussion of alternative explanations for this dissociation (e.g., low retest-reliability of laboratory tasks; trait self-control and behavioral tasks reflecting distinct mechanisms underlying self-control) –Individual differences: action vs. state-orientation as a moderator of the mobilization of self-control strategies

6. Neural mechanisms underlying volition and cognitive control	Knowledge of exemplary neuropsychological and neuroimaging studies of cognitive control and of brain systems and networks mediating cognitive control functions	Optional propaedeutic tutorials (depending on student's prior knowledge and on selected studies) –Functional neuroanatomy (subregions and connectivity of the prefrontal cortex, PFC) –Basic principles of functional magnetic resonance imaging (fMRI) and fMRI data analyses –Basic principles of EEG and ERPs, noninvasive brain stimulation (TMS), single cell recordings –Advantages and limitations of different methods (e.g., spatial and temporal resolution in hemodynamic and electrocortical measures) –Importance of theoretically derived experimental tasks and control conditions for neuroimaging studies Neuropsychological studies of cognitive control –Impaired executive functions after brain lesions in the PFC and other relevant regions ("dysexecutive syndrome") –Concept and interpretation of single and double functional dissociations –Understanding that there is not a one-to-one mapping of cognitive functions to brain regions –Neuroimaging studies of cognitive control –fMRI studies of cognitive control functions to demonstrate that cognitive control is not located in single brain region –Concept of the "control network" ("central executive network") –Functional fractionation of the control network into sub-regions and exemplary studies of their functions –"Brain-as-predictor" studies combining fMRI with experience sampling of real-life behaviors and self-control failures Advanced themes –Hierarchical (rostral-to-caudal) organization of the lateral prefrontal cortex –Conflict-monitoring theory –Expected value of control theory –Control dilemmas and meta-control –Modulation of cognitive control by emotions, reward, stress, and associated neuromodulatory systems

(continued)

Table 2 (continued)

Course unit	Learning objective	Key concepts and themes
7. Computational models of cognitive control	Basic knowledge of computational models of cognitive control and their relevance for psychological research	General introduction to computational models in psychology –Relevance of mechanistic explanations and computational models; advantages compared to verbal theories –Explanation how testable predictions can be derived and how they can be fit to empirical data –Limitations of computational models Discussion of an exemplary "toy" model –Connectionist model of the Stroop task –Distinction between activation-based and connection-based processing; automatic responses as the result of the incremental strengthening of direct stimulus-response connections via learning –Demonstration how goals and task rules can be represented as neural activation patterns, how cognitive control emerges from the capacity for (a) rapid updating and active maintenance of activation patterns and (b) top-down biasing of perceptual processes by currently active goal or task representations –Demonstration how "lesions" of a network can impair goal maintenance and lead to interference and stimulus-driven behavior Advanced themes –Additional modeling approaches (e.g., Bayesian inference, reinforcement learning) –More complex neural network models of cognitive control –Practical training in implementing models using Matlab or specialized simulation software (e.g., the "Leabra" framework –practical exercises with neural network simulations of cognitive control tasks
8. Cognitive control in applied contexts	Understanding why cognitive control is relevant in applied or clinical contexts and ability to transfer knowledge of cognitive control mechanisms to practical problems	Exemplary applications of cognitive control research in practical or clinical contexts –Role of cognitive control dysfunctions as transdiagnostic mechanism or vulnerability factor for mental disorders (e.g., substance use, behavioral addictions, impulsivity-compulsivity spectrum disorders, ADHD) –Training of executive functions in children with ADHD or in elderly people with age-related cognitive decline –Meta-analyses suggesting that effects of executive function trainings are usually

		limited to near transfer tasks –Cognitive control training as a tool in psychotherapy (e.g., attentional bias training in anxiety and/or substance use disorder) –Cognitive control in work and engineering psychology (e.g., in the context of man-machine interactions, software engineering, high-tech multitasking environments)
9. Philosophical issues and implications	Basic understanding of philosophical foundations of research on volition and cognitive control and its implications for concepts of free will, agency, and personal responsibility	Guiding questions for an open discussion –Do insights into neurocognitive mechanisms of self-control and volitional action show that lay concepts of free will are illusory? –Does psychology and neuroscience undermine our view of humans as autonomous agents? –Should knowledge about cognitive and neural mechanisms underlying self-control influence our moral evaluation of actions? –Should neurobiological markers of impaired self-control play a role in the assessment of an offender's criminal responsibility and culpability? Key concepts and themes –Main positions and arguments in the philosophy of free will (e.g., incompatibilistic/libertarian versus compatibilistic theories; concepts of causality and determinism) –Implications of incompatibilistic and compatibilistic theories of free will for concepts of personal responsibility, agency, and authorship –Relevance of empirical research on self-control for philosophical theories of weakness of will, akrasia, and intentionality –Critical reflection about what psychology and neuroscience can and cannot contribute to philosophical debates (distinction between empirical, conceptual, and normative questions)

Section 1: Introducing the Topic and Learning Objectives and Instigating Students' Interest

In an introductory section, students should be given a broad overview of the topic and acquire an intuitive understanding of the concepts volition and cognitive control. Students should understand that the defining feature of voluntary actions is that they are not fully determined by the immediate stimulus situation, but depend on intentions, mental representations of goals, and anticipated consequences. This includes understanding that voluntary action rests on subjective knowledge about the probability and value of short- and long-term outcomes of actions, which enables humans to select actions of which they have learned that they will produce desired effects (Hommel & Wiers, 2017). Students should understand that goals can be conceived as mental representations of distal effects of actions and that they have a hierarchical structure and differ widely in their abstractness and temporal distance.

The introductory section should instigate students' interest and ensure that they understand the relevance of the topic both for the scientific quest for the mechanisms underlying human action and for understanding voluntary behavior in applied contexts. One way to achieve this is to introduce key concepts with reference to real-life examples that illustrate why cognitive control is an important and personally relevant topic. Moreover, students' motivation can be stimulated by an exchange about their prescientific understanding of folk-psychological concepts like willpower, weakness of will, and self-control and a discussion of situations in daily life involving choice conflicts or examples of persistence versus procrastination in the pursuit of goals. Moreover, the societal relevance of the theme can be documented by pointing to the fact that deficient self-control increases the risk of a wide range of maladaptive behavioral patterns such as shortsighted choices, unhealthy eating habits, substance use, and behavioral addictions (Goschke, 2014; Volkow & Baler, 2015), which have adverse personal consequences and incur immense societal costs due to reduced health, educational deficits, and even premature death. Finally, interest in the topic can often be instigated by initiating a nontechnical discussion about whether knowledge about psychological and neural mechanisms underlying human action challenges concepts of free will, autonomy, and personal responsibility.

Optionally, one may include a brief historical exposition of classical research in early psychology of "the will" as represented by late nineteenth- and early twentieth-century scholars like William James, Narciss Ach, and Kurt Lewin.

Section 2: Basic Concepts, Theoretical Constructs, and Key Research Questions

Section 2 should provide more precise working definitions of core constructs (volition, cognitive control, executive functions, self-control) and their differences and commonalities. This should not simply consist in presenting a list of definitions,

but be combined with a discussion of the *adaptive functions* of cognitive control from an evolutionary perspective. Guiding questions for such a discussion could be:

- Why have humans (and to lesser degrees nonhuman animals) evolved cognitive control capacities?
- What are universal adaptive problems that goal-directed agents must cope with in changing and uncertain environments?
- What are adaptive advantages of the ability to pursue long-term goals and shield temptations from short-term temptations?
- Have simpler levels of behavioral control (e.g., reflexes, instincts, Pavlovian and instrumental conditioning) been extinguished in the course of the evolution of "higher" forms of volitional control, or do they still determine human behavior?

The discussion should then focus on functional properties that set volitional actions apart from other forms of behavior, while making clear that differences between different forms of behavioral control are often gradual and reflect a continuum of increasing cognitive complexity and flexibility. Key functional features of volitional action that students should understand are:

- An extended future time perspective, which shows up in the ability to anticipate and evaluate long-term consequences of actions.
- The ability to anticipate own future needs and motivational states as the basis for precommitment strategies, which serve to restrict the space of one's future behavioral choices and to prevent or avoid temptations and self-control conflicts.
- The ability to generate hierarchically structured action plans and to represent intentions and instructions in a verbal format, which enables flexible and rapid reconfiguration of behavioral dispositions.

Based on this discussion, an overview of key research questions should be presented:

- Which cognitive mechanisms underlie the ability to persist in pursuing long-term goals in the face of transient temptations or competing habits?
- How and when are cognitive control processes recruited, and why do some people succeed in mobilizing control better than others do?
- Why do people sometimes act against their long-term goals and make short-sighted choices?
- Does cognitive control reflect a unitary capacity, or can it be decomposed into specific sub-mechanisms (e.g., response inhibition, goal maintenance, task switching), which can be functionally dissociated?
- Which brain systems mediate volition, cognitive control, and flexible goal-directed action?
- How are cognitive control processes modulated by emotions, reward, and stress?
- How do cognitive control abilities develop across the lifespan?

– Are impairments of cognitive control vulnerability factors and/or transdiagnostic mechanisms increasing the risk of mental disorders such as substance use, behavioral addictions, attention deficit/hyperactivity disorder, major depression, and impulsivity-compulsivity spectrum disorders?

Section 3: Cognitive Mechanisms of Intentional Action

Section 3 focuses on the influential distinction between automatic and controlled processes. This distinction can be introduced by reference to everyday life examples. Every student will have had the experience that highly practiced actions can often be executed with minimal conscious control, whereas novel actions or complex problems require effortful cognitive control and put high demands on working memory. For instance, an experienced driver may steer a car through rush hour traffic without having to consciously control each individual action (braking, changing gears, etc.). By contrast, a novice driver maneuvering in an unfamiliar big city must allocate full attention to the task and will consciously control each individual action. Based on such examples, students can be invited to reflect about the preconditions under which actions can run off automatically. They should come to understand that actions require minimal conscious control when (i) the current stimulus information in conjunction with a currently active goal is sufficient to specify which action should be executed and how it should be executed, (ii) the person has the skills required to execute the action, (iii) no additional planning or problem-solving is required to determine the correct response, and (iv) there are no conflicts between the intended action and competing responses.

Based on this discussion, students should be familiarized with the classical definition of Posner and Snyder (1975), according to which automatic processes are triggered in an obligatory manner by stimuli, are unconscious, and require little processing capacity, whereas controlled processes depend on intentions, are conscious, and put high demands on limited processing capacity.

Importantly, students should learn that subsequent research called into question that automatic and controlled processes constitute a strict dichotomy, because the different criteria for automaticity and control can dissociate (Hommel, 2019). This point can again be illustrated by everyday life examples (e.g., the case of an experienced driver who shifts gears to pass another car "automatically" in response to the sight of a slow car in front of her, but whose action nevertheless depends on (and is "controlled" by) the intention to arrive at an important meeting in time). In addition, one may discuss experimental evidence showing that responses, which are automatic in the sense that they are triggered by stimuli without conscious control, can nevertheless depend on prior intentions or instructions. These findings led to alternative models, which conceive of intentional control as the modulation of automatic processes by goals and task instructions, by which certain response disposition is set into a state of readiness, while individual responses may be triggered directly by stimulus conditions specified by the intention (Bargh, 1989; Goschke, 2003; Hommel, 2019).

In this section, students should also be introduced to standard tasks used to investigate the interplay of automatic and controlled processes (e.g., the Stroop color naming task), and they should understand that there are no "process-pure" tasks measuring exclusively automatic or controlled processes, but that most tasks involve a dynamic interplay of both types of processes.

In an optional expansion of this section, one might discuss the role of conscious intentions and unconscious processes in the causation of intentional actions. A good starting point is the classical experiment by Libet et al. (1983), which showed that the readiness potential (a negative potential shift in the electroencephalogram (EEG) that precedes a self-initiated movement) started several 100 milliseconds before participants became aware of their intention to move. This and related findings (see review by Haggard, 2008) provoked a heated debate as to whether willed actions are caused by unconscious neuronal processes rather than by conscious intentions (Sinnot-Armstrong & Nadel, 2011) and whether conscious will is an "illusion" (Wegner, 2003). The discussion may also include neuroimaging studies showing that individuals' free choices between two simple actions can be decoded from neural activity in the prefrontal cortex already several seconds before participants reported that they consciously made their choice (Soon, He, Bode, & Haynes, 2013).

Section 4: Functional Decomposition and Assessment of Cognitive Control Abilities

Building on the discussion of automatic and controlled processes, Section 4 provides a more differentiated perspective on the concept of cognitive control. In particular, students should understand that cognitive control does not denote a unitary function, but can be decomposed into a set of specific mechanisms (see Table 3).

A second learning objective is that students acquire knowledge about standard tests and tasks used to measure cognitive control abilities, as well as experimental paradigms used to investigate underlying mechanisms and their temporal dynamics. Examples are task-switching paradigms assessing cognitive set shifting, *n*-back tasks assessing working memory updating, go/no-go and stop signal tasks assessing response inhibition, Stroop and flanker tasks assessing interference control, and cognitive reappraisal tasks assessing emotion regulation. Students should acquire an understanding that such tasks are no process-pure measures of a single control function, but involve several cognitive processes to varying degrees. A good example is the Wisconsin Card Sorting task that is often considered a neuropsychological test of cognitive flexibility, but does not only require participants to switch between response rules but also to update working memory, to inhibit no-longer-relevant rules, to process feedback, and to adjust behavior accordingly.

This section should also include a discussion of individual difference studies of task batteries assessing executive functions, which revealed that confirmatory factor models with a small number of latent variables yielded a moderate to good fit to the observed pattern of inter-task correlations (Miyake et al., 2000; Wolff et al., 2016).

These variables have been interpreted as *set shifting* (the ability to switch quickly between tasks or response rules), *updating* (the ability to maintain and update information in working memory), and *inhibition* (the ability to suppress prepotent but unwanted responses). These latent variables are moderately correlated with each other, which offers an opportunity to discuss with students possible interpretations of the shared variance between tasks measuring executive functions (e.g., whether all such tasks rest on the ability to maintain task-relevant information in working memory and whether response inhibition may be just a by-product of the goal-directed focusing of attention on task-relevant information in conjunction with lateral inhibition) (cf. Karr et al., 2018). Instead of a separate section, tasks and experimental paradigms to measure cognitive control and executive functions may alternatively be addressed at various points throughout a course when specific control functions (e.g., response inhibition, task switching) are discussed.

Section 5: Self-Control and Volitional Strategies

In contrast to simple response conflicts in laboratory tasks (e.g., the Stroop task), in everyday life conflicts often arise when long-term goals stand in conflict with transient temptations and current desires (Hofmann, Baumeister, Förster, & Vohs, 2012). A typical example is a person who intends to maintain a healthy diet, but experiences a strong craving for a tasty but high-caloric dessert. Section 5 focuses on self-control, which can be defined as the ability to override impulsive or habitual responses in order to render behavior congruent with long-term goals or social norms (Duckworth et al., 2019; Kotabe & Hofmann, 2015).

One may start this section with an open discussion about possible alternative explanations for why people make shortsighted ("impulsive") choices and do not act in accordance with their long-term goals. The learning objective of such a discussion is the insight that there are multiple explanations for self-control failures, including a lack of future-directed thinking, overly steep discounting of the value of future outcomes, deficient inhibitory control, or deficient conflict monitoring resulting in an insufficient mobilization of cognitive control. Such an introductory discussion can also serve to underline the practical relevance of the topic, given that deficient self-control is associated with a wide range of maladaptive behaviors such as unhealthy eating habits, lack of exercise, insufficient academic effort, substance use, and impulsive aggression.

Next, one should introduce more formally the concept of intertemporal choice conflicts, i.e., situations in which individuals must choose between a smaller sooner reward and a larger later reward (e.g., between 5$ now and 8$ in 6 months). Students should understand the concepts of temporal discounting and of preference reversals (i.e., the finding that individuals often prefer a later larger reward over a smaller sooner reward when both options are delivered in the future, but choose the smaller reward when it is immediately available). They should understand why preference reversals violate rationality axioms of standard expected utility theory and are often

Table 3 Sub-functions and mechanisms of cognitive control

Sub-process	Short description
Goal shielding	Ability to maintain goals, task instructions, and intentions in working memory and shield them from distracting stimuli
Set shifting	Ability to flexibly update goal representations and to reconfigure behavioral dispositions in order to adapt to changing contexts or task demands
Top-down modulation	The biasing of processes in perceptual, emotional, and response systems by currently active goals, intentions, and task sets
Response inhibition	Ability to suppress strong but unwanted habitual, automatic, or impulsive responses
Emotion regulation	Ability to voluntarily self-regulate emotions (e.g., via cognitive reappraisal strategies)
Anticipation and episodic prospection	Ability to anticipate future consequences of actions and engage in future-directed thinking
Planning	Ability to generate and mentally simulate novel action sequences before their execution

interpreted as an indicator of impulsivity (Kable, 2014). In a more advanced course, one should discuss mathematical models of temporal discounting and explain why exponential discounting conforms to normative rationality rules, whereas hyperbolic discounting models account for violating of these rules such as preference reversals.

Building on the concept of intertemporal choice conflicts, one can then discuss cognitive strategies supporting self-controlled choices. The learning objective is that students understand that self-control comprises a variety of cognitive strategies, which can be classified into preventive, interventive, and habitual strategies (Hofmann & Kotabe, 2012):

- *Preventive self-control* refers to precommitment strategies that serve to avoid self-control conflicts before they arise or to restrict one's future behavioral options in order to reduce the likelihood of giving into an anticipated temptation (Studer, Koch, Knecht, & Kalenscher, 2019).
- *Interventive self-control* denotes strategies that serve to render behavior congruent with long-term goals when self-control conflicts and temptations cannot be avoided, but one finds oneself in a situation, in which goal pursuit is challenged by competing desires or habits. These strategies include episodic future thinking (Peters & Büchel, 2011) and modulation of value representations by anticipated future outcomes (Hare, Malmaud, & Rangel, 2011; Krönke et al., 2020), control of selective attention (Harris, Hare, & Rangel, 2013; Mischel, Ebbesen, & Raskoff Zeiss, 1972), downregulation of craving (Hofmann, Friese, & Roefs, 2009; Kober, Kross, Mischel, Hart, & Ochsner, 2010; Kruschwitz et al., 2018), and response inhibition (Berkman, Falk, & Lieberman, 2011; Krönke et al., 2018).
- *Habitual self-control* has recently attracted increasing attention due to studies showing that self-controlled behavior often relies on the formation of beneficial

habits, which support the goal pursuit without requiring effortful interventional self-control (e.g., Galla & Duckworth, 2015).

At this point one may include a discussion of recent meta-analyses, which found little-to-no relationships between trait self-control and performance on tasks measuring response inhibition (Saunders, Milyavskaya, Etz, Randles, & Inzlicht, 2018). Students should discuss possible reasons for this dissociation (e.g., whether it may reflect the low retest reliability of many laboratory tasks of cognitive control or whether self-report scales and behavioral tasks may assess separate components or mechanisms mediating of self-control).

Building on the introductory discussion of different possible explanations for self-control failures, one should introduce important theories of self-control. This should include a discussion of the influential yet controversial *strength model*, which conceives of self-control as a limited and exhaustible "willpower" resource (Baumeister, Tice, & Vohs, 2018). A section on the strength model should include a discussion of recent failed attempts to replicate the so-called ego depletion effect (e.g., Friese, Loschelder, Gieseler, Frankenbach, & Inzlicht, 2019) as well as a discussion of alternative accounts and theoretical critiques of the strength model (Inzlicht, Schmeichel, & Macrae, 2014; Job, Dweck, & Walton, 2010; Lurquin & Miyake, 2017).

A second influential class of self-control theories that should be discussed is *dual systems* or *dual process models*, which conceive of self-control as the suppression of an impulsive (hot) by a deliberative ("cool") control system (Hofmann, Friese, & Strack, 2009; McClure, Laibson, Loewenstein, & Cohen, 2004). In addition to behavioral evidence, one may refer to early neuroimaging studies, which yielded evidence for separate neural valuation systems (McClure et al., 2004). Dual systems theories should be contrasted with more recent evidence for the alternative view that behavioral choices are determined by a *common neural value signal* that integrates short- and long-term outcomes (Hare, Camerer, & Rangel, 2009; Krönke et al., 2020). According to this view, self-control does not reflect the suppression of an impulsive by a reflective system, but rests on the modulation of this common value signal by anticipated future outcomes (Hare et al., 2009; Krönke et al., 2020).

Finally, a discussion of self-control theories should also include theories of volitional strategies that emerged from motivational psychology, in particular Kuhl's action control theory (Kuhl, 2018; Kuhl & Goschke, 1994) and Heckhausen and Gollwitzer's model of action phases (Achtziger & Gollwitzer, 2018). These theories distinguish between *motivational* processes, which mediate the selection of goals and *volitional* processes, which comprise cognitive strategies (e.g., the focusing of attention on goal-relevant information or the formation of so-called implementation intentions) that serve to support the realization of goals in face of competing motivational tendencies. In this context, one should also discuss the personality disposition action-state orientation (Kuhl, 2018) as an important moderator of the mobilization of volitional strategies (Wolff et al., 2016). Section 5 may be concluded by discussing recent attempts to integrate different self-control

mechanisms within general process models (Inzlicht, Werner, Briskin, & Roberts, 2020; Kotabe & Hofmann, 2015).

Section 6: Neural Mechanisms Underlying Volition and Cognitive Control

In the past decades, knowledge about neural systems and circuits underlying volition and cognitive control has dramatically increased, and a vast body of evidence has accumulated from studies of patients with focal brain lesions and experiments using neuroimaging methods such as functional magnetic resonance imaging (fMRI) and electrophysiological measures (EEG and event-related potentials). The neural basis of cognitive control could thus easily be the sole topic for a one- or two-semester course. In a general introductory course on volition and cognitive control, where cognitive neuroscience studies are just one of many themes, one must therefore decide which topics to include. Once again, this will obviously depend on the course level and overall learning objectives of the study program. In the following paragraphs, we suggest selected key topics that should be addressed in an undergraduate course on volition and cognitive control program, and we make some suggestions how these topics could be expanded in more advanced courses in a master program in cognitive neuroscience or clinical psychology/neuropsychology.

Given that not all psychology students are intrinsically interested in functional neuroanatomy, it is a particular challenge for lecturers to instigate interest in the study of brain systems underlying cognitive control and to convey why knowledge about neural correlates is also relevant for understanding *psychological* processes. One should make clear that the aim of cognitive neuroscience is not merely a mapping of psychological functions to brain structures, but that knowledge about neural mechanisms can provide important constraints for psychological theories of human behavior. Moreover, one should make clear that neuroimaging methods do not call into question the relevance of behavioral experiments, but that, to the contrary, well-designed behavioral tasks are an essential precondition to ensure that neuroimaging findings can be interpreted in meaningful ways.

Optional Propaedeutic Tutorial on Neuroanatomical and Neuroscience Methods

To ensure that students profit optimally from this section, depending on their prior knowledge, a propaedeutic tutorial on functional neuroanatomy and neuroscience methods is recommended.

Functional neuroanatomy. Students should have basic knowledge of brain anatomy and subregions of the prefrontal cortex (PFC) in particular (including dorsolateral, orbitofrontal, ventromedial, frontopolar regions and the anterior cingulate cortex). A tutorial should also convey a basic understanding of the connectivity between the PFC and other relevant cortical (e.g., posterior parietal) and subcortical regions (e.g., basal ganglia). For an introductory course on cognitive control,

knowledge at the level of standard cognitive neuroscience textbooks (e.g., Gazzaniga, Ivry, & Mangun, 2018; Purves et al., 2013) should suffice.

Cognitive neuroscience methods. To understand and be able to critically reflect on cognitive neuroscience studies, students need basic knowledge of the most important methods. If students have not yet acquired the respective knowledge in other courses (e.g., biopsychology), a propaedeutic tutorial should convey basic knowledge about the following aspects:

- Basic principles underlying the blood oxygen level-dependent (BOLD) response in fMRI; the preprocessing of fMRI data (motion correction, normalization, coregistration); experimental designs of fMRI studies (i.e., block, event-related, and parametric designs); basic principles of statistical analyses of fMRI data (generalized linear model, statistical parametric mapping, regions of interest analyses, subtraction logic and its limitations, multiple testing problem); basic principles of functional connectivity, network analyses, and multi-voxel pattern analyses.
- Basic knowledge of how event-related potentials are generated in the brain and how they are derived from the EEG. Depending on the selection of studies to be discussed, basic knowledge of noninvasive brain stimulation methods (transcranial magnetic stimulation) and single-cell recordings may also be required.
- Advantages and limitations of different methods (e.g., tradeoffs between spatial and temporal resolution in hemodynamic and electrocortical measures).
- Importance of theoretically derived and carefully designed experimental tasks and control conditions for neuroimaging studies and important methodological caveats in fMRI studies (reverse inference, circular analyses).

For an introductory course on cognitive control, knowledge at the level of the abovementioned cognitive neuroscience textbooks should suffice; for advanced courses with a focus on neuroimaging studies, several excellent introductory textbooks on neuroimaging are available (e.g., Huettel, Song, & McCarthy, 2014).

Suggestions for Key Themes from the Cognitive Neuroscience of Volition and Cognitive Control

Given that the cognitive neuroscience of cognitive control is an extremely broad field, lecturers must decide which themes to include, depending on the overall learning objectives of a course. For an introductory course in a B.Sc. psychology program, we recommend including the following topics.

Neuropsychological studies. A good starting point that usually instigates students' interest is neuropsychological studies of cognitive control impairments in patients with lesions in the prefrontal cortex. Students should obtain knowledge about the profile of intact and impaired functions associated with prefrontal lesions (sometimes termed the dysexecutive syndrome) (Stuss & Knight, 2013). They should also learn that the prefrontal cortex is not a unitary "central executive," but that different prefrontal regions mediate dissociable control functions. Students should be made familiar with the concept of functional dissociations and understand

why double dissociations (where a lesion in a region X affects performance in task A but leaves task B intact, while a lesion in another region Y has the reverse effect) are critical for mapping psychological functions to brain structures. Moreover, students should acquire the competence to reflect critically on methodological limitations of brain lesion studies and understand why an impaired cognitive function following injury to a particular brain structure does not necessarily imply that this structure is exclusively responsible for the function in the healthy brain (e.g., because impaired functions may reflect disrupted connectivity between brain regions). More generally, they should understand that there is usually not a one-to-one mapping of cognitive functions to brain regions, but that brain regions are often involved in multiple functions and cognitive functions are often mediated by multiple brain systems.

Neuroimaging studies of cognitive control. Given the vast number of neuroimaging studies of cognitive control, the selection of studies will depend heavily on the focus and aims of a course. We can thus give only some general recommendations for exemplary topics and learning objectives as regards neural correlates of cognitive control. A starting point can be a discussion of the so-called control network (also termed "central executive network" or "multi-demand network") (Duncan, 2010), which comprises the lateral PFC, parts of the parietal cortex, and the dorsal anterior cingulate cortex (dACC) as core nodes. Students should learn that this control network can be functionally fractionated into subregions, which can be conveyed by discussing selected fMRI studies on neural correlates of central control functions (e.g., on the role of the dorsolateral PFC in active maintenance of task-relevant information and top-down modulation of attention; of the right inferior-frontal gyrus in response inhibition; of the ventrolateral PFC and inferior-frontal junction area in the retrieval and implementation of response rules; of the frontopolar cortex in planning, prospective memory, multitasking, and metacognitive strategies; of the ventromedial PFC in emotion regulation and value-based decision-making; and of the dACC in conflict monitoring) (cf. Egner, 2017; Gazzaniga et al., 2018; Purves et al., 2013). An overarching learning objective is that students understand that cognitive control is not located in single brain region, but emerges from dynamic interactions between the prefrontal cortex and other cortical and subcortical brain systems.

Hierarchical organization of the prefrontal cortex. In addition to specific control functions, one should discuss general principles of the functional organization of the prefrontal cortex. In particular, one should discuss evidence for a hierarchical organization of the lateral PFC that unfolds along an axis from caudal (posterior) to rostral (anterior) regions (Badre & Nee, 2018). Students should learn that more rostral regions play a role in action planning and control by higher-level or longer-term goals, whereas more posterior regions mediate lower-level sensory-motor rules and response selection based on the current context.

Neural correlates of self-control. Building on the discussion of self-control in Section 5, a particularly interesting expansion may be recent studies using a "brain-as-predictor" approach, which combine neuroimaging in laboratory tasks with the smartphone-based ecological momentary assessments of real-life behavior. These studies showed that activity in brain regions involved in cognitive control and

decision-making reliably predicts individual differences in the proneness to commit daily self-control failures, i.e., to execute behaviors that satisfy short-term desires even if they stand in conflict with personal long-term goals (Berkman et al., 2011; Krönke et al., 2018).

Conflict monitoring and cognitive control. A fundamental question that should be addressed in a section on neural mechanisms of cognitive control is how to explain the context-dependent recruitment and allocation of control without postulating a homunculus-like "executive controller" in the brain. One influential attempt to answer this question is the conflict-monitoring model (Botvinick, Cohen, & Carter, 2004; Mansouri, Egner, & Buckley, 2017), according to which the dACC monitors response conflicts and in case of a conflict signals the demand for enhanced control to brain systems such as the dorsolateral PFC, which mediates goal maintenance and the top-down biasing of perceptual processing and response selection. More recently, this idea has been integrated into a broader framework, the expected value of control theory (Shenhav, Botvinick, & Cohen, 2013), which assumes that the dACC integrates rewards and costs of effortful control and computes the expected value of control, which determines how much control is recruited and to which task it is allocated.

In the following we suggest a number of optional themes for more advanced courses with a focus on neural mechanisms of cognitive control.

Control dilemmas and meta-control. A central unresolved challenge and emerging field of research concerns the problem of meta-control, i.e., the question how the brain regulates the balance between complementary modes of control serving antagonistic functions. An example is the stability-flexibility dilemma: While the pursuit of goals often requires shielding a goal from distracting information or competing responses, in a constantly changing and uncertain environment, agents must also be prepared to switch rapidly between goals and adapt behavior to unexpected changes. While goal shielding promotes persistence and cognitive stability, it may also lead to dysfunctional perseveration and rigidity. Conversely, while weak goal shielding facilitates flexible goal switching, it may increase distractibility and susceptibility to interference. Another example is the exploitation-exploration dilemma. It is usually adaptive to select actions that were rewarded in the past (*exploitation*). However, in order to discover such actions (or even better options), agents must select novel but potentially risky actions (*exploration*). Such control dilemmas require that agents regulate the balance between complementary control modes in an adaptive and context-sensitive manner (Goschke, 2003, 2013; Goschke & Bolte, 2014). It is currently a mostly unresolved question, which computational mechanisms and neural systems underlie this regulation. As the basis for a discussion of this emerging field of research in an advanced course, we recommend a recent special issue on psychological, computational, and neural perspectives on meta-control (Eppinger, Goschke, & Musslick, 2021).

Modulators of cognitive control. A related optional theme concerns modulators of cognitive control. The learning objective is that students understand that the prefrontal cortex not only plays a key role in cognitive control, but is strongly modulated by brain systems involved in emotion, reward, stress, and associated brainstem

neuromodulatory systems. Specific topics may include effects of positive affect and reward (e.g., Braver, 2016; Goschke & Bolte, 2014) as well of psychosocial stress on cognitive control (Tsai, Eccles, & Jaeggi, 2019). Moreover, one may include a discussion of the influence of neuromodulators like dopamine and serotonin on prefrontal control processes (Cools, 2019; Ott & Nieder, 2019). Given that the latter theme is a complex research field, given that effects of neuromodulators depend on a multitude of variables (e.g., target brain regions, receptor types, tonic versus phasic activity), it may be more apt to cover it in an advanced course with a focus on the neurobiology of cognitive control.

Section 7: Computational Models of Cognitive Control

Complementing the section on neural correlates of cognitive control, we consider it important to also discuss computational mechanisms underlying cognitive control (for an overview see Verguts, 2017). A special challenge for lecturers is that psychology students often find it difficult to understand why computational models are needed in psychology. We thus recommend introducing this topic by discussing the relevance of mechanistic explanations in psychology in general and the specific advantages of computational models in comparison to verbal ("arrows-and-boxes") theories. For instance, one should point to the fact that computational models (especially when implemented as computer simulations) contain no "magic" or "homunculus," that they support a particularly stringent derivation of testable hypotheses and can demonstrate unexpected behaviors of nonlinear dynamic systems that are not easily predicted by verbal theories.

While current computational models of cognitive control are often highly complex, basic principles can be conveyed even with relatively simple "toy models," which put modest demands on students' mathematical skills. An example is simple connectionist models of cognitive control such as the "guided activation model" by Cohen and colleagues, which has been used to account for cognitive control processes in the Stroop color-word interference task (Botvinick & Cohen, 2014; Cohen, Dunbar, & McClelland, 1990). In this model, goals and task rules are represented as activation patterns over simple interconnected processing units, which bias perceptual processing such that task-relevant information gains a stronger impact on response activation, while irrelevant information is suppressed. For didactic purposes, this model has several advantages: it is relatively easy to understand; it illustrates general principles of connectionist networks and shows how goals and task sets can be represented and maintained as self-sustaining activation patterns over simple processing units; it shows how automatic responses emerge from the gradual strengthening of stimulus-response connections; it shows how active goal representations can bias "top-down" perceptual processes such that automatic responses can be overridden; it explains how impaired goal maintenance leads to interference and stimulus-driven behavior; and it can be used to demonstrate how testable predictions can be derived from a computational model and fit to empirical data.

In more advanced and specialized courses in a master program with a focus on cognitive or computational neuroscience, one may discuss a wider variety of modeling approaches to cognitive control (e.g., Bayesian inference, reinforcement learning) and more complex neural network models of cognitive control (e.g., Herd et al., 2014). Moreover, an advanced course may include practical training in the implementation of models using general software packages such as MATLAB or dedicated software packages for the simulation of neural network such as the "Leabra" framework by O'Reilly and colleagues (O'Reilly et al., 2020), which includes practical exercises with neural network models of a range of cognitive control tasks.

Section 8: Cognitive Control in Applied Contexts

Insights into mechanisms of cognitive control are relevant in a wide range of applied contexts, and students' interest can often be increased by examples of where cognitive control becomes practically relevant. While we address this theme in a separate section of this chapter, from a didactic perspective, we recommend integrating applied themes directly into discussions of specific research themes at various points throughout a course. Here, we just mention mental disorders and cognitive training as two examples of applied contexts in which cognitive control is relevant.

Dysfunctions of cognitive control in mental and neuropsychiatric disorders. Impairments and dysfunctions of cognitive control have been conceived as (possibly transdiagnostic) mechanisms and vulnerability factors increasing the risk of various mental disorders, including substance use disorders, behavioral addictions, impulsivity-compulsivity spectrum disorders, attention deficit and hyperactivity disorder, and major depression (Goschke, 2014; Santens, Claes, Dierckx, & Dom, 2020).

Training of cognitive control. A question of high practical relevance is whether and how executive functions and cognitive control abilities can be improved via training, as, for instance, in children with attention deficit/hyperactivity disorders or in elderly people with age-related cognitive decline. Meta-analyses suggest that training of executive functions and working memory significantly improves performance in older adults (Karbach & Verhaeghen, 2014) as well as in children and adolescents (Strobach, Salminen, Karbach, & Schubert, 2014). However, one should also critically discuss that training effects are usually short-lived or confined to tasks that are similar to the training tasks (Kassai, Futo, Demetrovics, & Takacs, 2019; Melby-Lervag & Hulme, 2013), although recent evidence suggests that cognitive training seems to promote far transfer in developmentally at-risk children (Scionti, Cavallero, Zogmaister, & Marzocchi, 2020).

Cognitive control and attentional bias training in psychotherapy. A related applied theme concerns the use of cognitive control trainings as a part of psychotherapeutic interventions. Examples include trainings to reduce attentional biases and enhance attention control in anxiety disorders (Linetzky, Pergamin-Hight, Pine, & Bar-Haim, 2015; MacLeod & Clarke, 2015) and substance use disorders (Heitmann, Bennik, van Hemel-Ruiter, & de Jong, 2018).

Section 9: Philosophical Issues and Implications

Although research on volition and cognitive control is primarily the domain of experimental psychology and cognitive neuroscience, we consider it important that students acquire a basic understanding of philosophical foundations as well as implications of this research for concepts of free will, agency, and personal responsibility. Questions that have proven useful to instigate an open discussion on these themes include the following:

- Do insights into neurocognitive mechanisms of self-control and volitional action show that lay concepts of free will are illusory?
- Does psychology and neuroscience undermine our view of humans as autonomous agents (Roskies, 2010)?
- Should knowledge about cognitive and neural mechanisms underlying self-control influence our moral evaluation of actions (Roskies, 2012)?
- Should psychological or neurobiological markers of impaired cognitive control play a role in the assessment of an offender's criminal responsibility and culpability (Glannon, 2015; Meixner, 2015)?

Some of these questions may appear purely hypothetical given our limited current knowledge of cognitive control and the modest reliability of measures of control abilities, which hardly justify it to apply them to individual cases. Nevertheless, we believe that the next generation of clinical, educational, or forensic scientists and practitioners should be able to critically reflect on the rapid development of the cognitive neuroscience of volition and cognitive control in order to competently participate in the societal discourse on implications of this research for moral, philosophical, and legal questions. We thus recommend addressing at least some of the following specific themes in a psychology or cognitive neuroscience course on volition and cognitive control:

- Key positions and arguments in the philosophy of free will (e.g., incompatibilistic (libertarian) versus compatibilistic theories; concepts of causality and determinism).
- Implications of incompatibilistic and compatibilistic theories of free will for concepts of personal responsibility, agency, and authorship.
- Relevance of empirical research on self-control for philosophical theories of "weakness of will," akrasia, and intentionality.
- Reflection about what psychology and neuroscience can and cannot contribute to philosophical debates (i.e., students should understand the difference between empirical questions concerning causal mechanisms, conceptual questions as how to define free will, and normative questions related to moral responsibility).

As a basis for discussing these questions, there are excellent short and non-technical introductions to the philosophy of free will (e.g., Kane, 2005) as well as edited volumes on psychological perspectives on free will (e.g., Baer, 2008).

Teaching and Learning in Courses on Volition and Cognitive Control: Approaches and Strategies

In this section, we will not recapitulate general teaching and learning strategies that can be applied across different topics and that have been excellently summarized in other chapters of this volume (e.g., Chap. 20, "▶ Psychological Assessment and Testing," by Miller and Daniels in this handbook). We rather describe two alternative organizing frameworks for a course on volition and cognitive control.

A fundamental decision when planning such a course is whether to structure course contents along *research fields and (sub)disciplines* or along *research topics and questions*, which cut across disciplinary boundaries. Both organizing principles have complementary advantages and challenges. When using a disciplinary scheme, a course would be structured along the main (sub)disciplines in which research on volition and cognitive control is conducted:

- In *cognitive psychology*, research on cognitive control emerged in the 1970s with the distinction between automatic and controlled processing (Posner & Snyder, 1975) and focuses on laboratory experiments with the aim to elucidate mechanisms underlying the configuration of perceptual and motor processes according to intentions and task instructions, as well as the processing of task-relevant information in the face of interfering stimuli or competing responses (Cohen, 2017).
- In *motivational psychology*, research on volitional control originated in the 1980s, when researchers distinguished between motivational processes mediating goal selection and volitional processes mediating goal pursuit (for overviews see Achtziger & Gollwitzer, 2018; Kuhl, 2018). The focus is on volitional control strategies, which support the realization of intentions when goal pursuit is challenged by competing motivational tendencies or habitual responses.
- In *social psychology*, research focuses on self-control strategies that underlie the ability to resist temptations and to override transient desires or impulsive responses in order to render behavior consistent with long-term goals or social norms (Kotabe & Hofmann, 2015).
- In *cognitive and clinical neuropsychology*, the focus is on impairments of executive functions in patients with prefrontal brain lesions, which show up in deficient action planning and cognitive flexibility, increased susceptibility to interference, and a predominance of stimulus-driven over goal-directed behavior (Stuss & Knight, 2013).
- In *cognitive neuroscience*, tasks and paradigms from cognitive psychology are combined with functional neuroimaging or noninvasive brain stimulation methods to elucidate the neural systems and networks underlying cognitive control (Cohen, 2017; Gazzaniga et al., 2018; Purves et al., 2013).
- In *educational and lifespan developmental psychology*, cognitive control is an important topic in research on self-regulated learning and impulse control in childhood and adolescence (Duckworth et al., 2019; Job et al., 2015; Panadero, 2017), as well as in research on cognitive decline in old age and neurodegenerative diseases (Reuter-Lorenz et al., 2016; Stuss & Craik, 2019).

– In *clinical psychology*, dysfunctions of cognitive control play an important role as putative vulnerability factors and mechanism of mental disorders including substance abuse, behavioral addictions, obsessive-compulsive spectrum disorders, and major depression (Goschke, 2014; Volkow & Baler, 2015; Zelazo, 2020).

Such a disciplinary organization has the advantage that one can introduce key concepts using the coherent terminology within a particular research field, convey the inherent logic of consecutive studies, and delineate the evolution of theories within a given subdiscipline. However, a major disadvantage is that such an approach renders cross-disciplinary overlap between key concepts less obvious. Despite different methodologies and theoretical frameworks, the lines of research listed above all share a largely overlapping subject matter. There will thus be considerable redundancy when explaining the overlapping concepts of cognitive control, executive functions, and self-control repeatedly from different disciplinary angles. More importantly, a disciplinary course organization may create the impression of an artificial segregation of actually closely related topics, which may make it more difficult to convey important interrelations between behavioral studies of self-control, neuropsychological studies of executive functions, and neuroimaging studies of cognitive control.

Thus, although it is still a common practice in psychology curricula and textbooks to address cognitive control, volition, and self-control as separate subjects, teaching them as a coherent theme in a systematic and integrative manner has several advantages. First, a systematic course organization along key research questions that cut across disciplines makes the overlap between key concepts transparent. More importantly, central topics (e.g., response inhibition, cognitive flexibility, intentional action) can be discussed across different (behavioral, computational, neural) levels of analyses, which promotes deeper encoding and more elaborative knowledge representations in students. While such an approach may initially put higher demands on students' ability to relate theoretical concepts from different research traditions with often idiosyncratic terminologies and methodologies, the cost of this increased intellectual effort is outweighed by the benefits of a more comprehensive understanding of the field, the ability to take different perspectives on volition and cognitive control and to integrate levels of analyses. In fact, in the long run, such an integrative cross-disciplinary approach is often experienced as intellectually more rewarding by students, because it helps to counteract the impression (prominent in novice students) that psychology consists of a bewildering array of segregated research paradigms.

Challenges and Lessons Learned

Volition and cognitive control are complex themes, which pose various challenges to students. First, as this chapter shows, the topic cuts across several (sub)disciplines and demands an understanding of theoretical concepts and models from profoundly different research traditions, as well as knowledge of a wide range of methods (cognitive tasks,

neuropsychological assessments, functional neuroimaging, computational modeling). Moreover, especially first-year students often experience theoretical constructs in this field as abstract and difficult to grasp. This impression is further fueled by the fact that cognitive control research mostly employs experimental paradigms that may appear remote from real-life behavior. Thus, instigating students' interest and maintaining their motivation pose challenges that go beyond the general aim to convey contents in a systematic and clearly structured manner. Instructors should therefore pay attention not only to the contents of a curriculum and ways to ensure that students understand core concepts, but they should also make students personally care about what they learn; see why topics are relevant, both for the scientific aim to elucidate mechanisms underlying human action and for applied problems; and motivate them to actively and critically reflect about what they have learned. In the following we give some recommendations from our own teaching experience for how to increase students' interest and engagement in a course on volition and cognitive control.

Tip 1: Include Real-Life Examples and Instigate Transfer to Daily Behavior

Examples demonstrating the relevance of cognitive control for real-life behavior or clinical conditions usually instigate students' interest and increase the motivation even of those who are not primarily interested in basic science but in practical applications of psychological knowledge. Applied themes should ideally not be discussed in a separate section at the end of a course, but be integrated in thematic sections throughout a course. Moreover, students should learn to transfer their knowledge to real-life contexts and be invited to provide examples of where findings from experiments on cognitive control are relevant for daily behaviors. For example, when introducing the distinction between goal-directed and automatic or habitual behavior, students may be asked to generate everyday life examples of both types of behaviors, to discuss their costs and benefits, and to critically reflect upon whether real-life behaviors can be neatly classified as being either automatic or controlled. Likewise, when discussing experimental tasks to investigate cognitive flexibility, students may be asked to provide examples of task switching or dual tasking in daily life and to discuss their phenomenology and behavioral consequences. Analogously, in a section on self-control, students may be asked to provide examples of real-life self-control failures and discuss possible causes and strategies for how to avoid them. In a similar vein, when discussing neural mechanisms of cognitive control, one may include recent studies using a "brain-as-predictor" approach (see Section 6), which combines neuroimaging with ecological momentary assessments to examine whether brain activation measured in laboratory tasks predicts self-control in real-life contexts.

Tip 2: Use Socratic Dialogues

Students' interest and involvement can be significantly increased by Socratic dialogues to encourage active reflection and critical thinking. This holds in particular,

but by no means exclusively, for theoretical topics (e.g., competing models of self-control) and philosophical themes (e.g., theories of free will). Some examples for questions that have proven helpful for instigating Socratic dialogues in a course on volition and cognitive control include the following:

- Why is cognitive control important for understanding human behavior?
- What are the benefits and costs of automatic or habitual behavior?
- In which daily contexts is cognitive control practically relevant?
- Which conceptual problems does the view of self-control as a limited willpower resource face?
- What are strengths and weaknesses of dual systems theories of self-control?
- Is self-control always adaptive, or can it also have adverse consequences for mental health or well-being (e.g., in cases of chronic "overcontrol")?
- Is addiction a brain disease that reflects impaired cognitive control abilities?
- Does neuroscience show that free will is merely an illusion, and if so, what does this imply for our concept of personal responsibility and agency?
- If intentions can be decoded from brain activity before persons become conscious of their intention, does this imply that conscious intentions play no role in the causation of behavior?
- How might the ecological validity of experimental paradigms used to investigate cognitive control be increased without sacrificing experimental control?
- What might be interventions to improve self-control competencies?

Although Socratic dialogue is more easily instigated in face-to-face seminars with small groups of students, it is worthwhile to integrate them also in lectures. We recommend to regularly insert discussion periods into lectures, where students can be engaged in Socratic questioning to increase their interest, curiosity, and critical reflection. Moreover, often it is possible to not simply present a chunk of knowledge to students, but rather motivate them to *actively generate* the to-be-learned knowledge. As a concrete example, instead of describing the go/no-go task or the task-switching paradigm, students may be asked to come up with ideas how one might measure response inhibition and cognitive flexibility.

Tip 3: Motivate Students to Read and Critically Reflect on Original Research Papers

It is strongly recommend that a course on volition and cognitive control be not exclusively based on textbooks or review articles, but that one motivates students to read, critically reflect on, and discuss selected original journal articles. This is indispensable if students are to acquire the competence to search, understand, and evaluate research results in a rapidly progressing research field. Moreover, reading original research articles usually leads to more engaging and profound classroom discussions. It should be stressed that this will not only be relevant for those students aiming for a research career, but is also important for practitioners (e.g., psychotherapists, neuropsychologists, educational psychologists) who should

acquire the competence to keep up with relevant developments in research fields of relevance for their professional activity.

Tip 4: Use Multimedia and Classroom Demonstrations of Experimental Tasks

It is a truism that courses can be made more interesting and stimulating by employing various media and demonstration tools. This may include video documentaries of neuropsychological case studies, video tutorials of brain anatomy, and principles underlying functional neuroimaging. Moreover, it is recommended to include classroom demonstrations of experimental tasks and paradigms. In fact, many tasks used to assess cognitive control (e.g., go/no-go, Stroop, or set-switching tasks) can easily be demonstrated in the classroom. Having students actively execute these tasks not only improves their understanding, but usually stimulates a much more lively discussion about the cognitive processes required in a task and possible limitations of experimental paradigms. Building on this, one may initiate small-group discussions on how to overcome such limitations and improve tasks to investigate cognitive control functions.

Tip 5: Promote Deep and Elaborative Encoding

It is well established by research on memory and learning that memorization and understanding of new material is enhanced by deep (semantic) encoding, elaborative processing, critical reflection, and active generation rather than passive reception of to-be-learned materials. Some of these principles form the basis for the PQ4R method (Thomas & Robinson, 1972), which specifies six stages of active learning from textbooks, but which can be transferred to learning in a classroom context (see Table 4).

Table 4 Six stages of active learning according to the PQ4R method

Stage	Learning/teaching objective
Preview	Provide a broad overview of relevant themes and identify the key topics to be covered
Questions	Encourage students to formulate questions for each theme
Read	Encourage students to read the relevant literature prior to each thematic session and to follow the classroom discussion while trying to answer the aforementioned questions
Reflect	Encourage students to find examples and counterexamples, critically review arguments given, and develop additional arguments, and relate these to their previous knowledge of the subject
Recite	Encourage students to try to actively recall the content, preferentially in small learning groups
Review	After a topic has been completed, students should review the most important points of the new knowledge they acquired

Tip 6: Provide Examples from Your Own Research and Show Your Passion for the Topic

As we noted, theories and experiments in the field of volition and cognitive control are often experienced as abstract, difficult, and remote from real life. It thus matters the more that instructors succeed in motivating students and in instigating their interest by presenting knowledge in an engaging and passionate manner. While the way this is achieved will obviously depend in large part on the personality and teaching style of lecturers, it has proven useful to refer to one's own research and explain why one chose volition and cognitive control as a topic for teaching or as a research focus in one's academic career and which unresolved questions one finds particularly fascinating. Including such a personal perspective is contagious and often enhances students' interest over and above a didactically skillful, but impersonal, exposition of theories and empirical findings.

Teaching and Learning Resources

Recommended Nonfiction Book on Cognitive Control

Badre, D. (2020). *On Task: How Our Brain Gets Things Done.* Princeton, NJ: Princeton University Press.

An excellent nontechnical, up-to-date, and well-written overview of cognitive control research with many examples of its relevance for daily tasks and behaviors and consequences of impaired cognitive control.

Selected Handbooks and Review Articles on Cognitive Control

Egner, T. (2017). *The Wiley handbook of cognitive control*. Wiley Blackwell.

Comprehensive handbook that may serve as the basis for a one- or two-semester course on volition and cognitive control. Contains authoritative reviews on a wide range of topics, including theoretical concepts, neural mechanisms, and computational models of cognitive control, the interaction of cognitive control with other domains of cognitive and emotional functioning, as well as applied themes (e.g., cognitive control in aging, training of cognitive control, cognitive control in brain-injured patients and mental disorders).

Gazzaniga, M., Ivry, R. & Mangun, R. (2018). *Cognitive neuroscience. The biology of the mind (5th. Ed.*). Norton. (Chapter 12: Cognitive Control).

A textbook chapter providing an introductory overview of the cognitive neuroscience of cognitive control.

Diamond, A. (2013). Executive functions. *Annual Review of Psychology, 64*, 135–168.

Review article on executive functions with a focus on the development of cognitive control.

Eppinger, B., Goschke, T., & Musslick, S. (2021). Meta-control: From psychology to computational neuroscience. *Cognitive, Affective, & Behavioral Neuroscience, 21*(3), 447–452.

Introduction to a special issue dedicated to the emerging field of meta-control.

Selected Chapters and Review Articles on Volition and Intentional Action

Haggard, P. (2019). The neurocognitive bases of human volition. *Annual Review of Psychology, 70*, 9–28.

A review of cognitive neuroscience research on volitional action with a focus on the role of conscious intentions in the control of willed action and the feeling of agency.

Goschke, T. (2013). Volition in action: Intentions, control dilemmas and the dynamic regulation of cognitive control In W. Prinz, A. Beisert, & A. Herwig (Eds.), *Action science: Foundations of an emerging discipline* (pp. 409–434). Cambridge, MA: MIT Press.

A theoretical chapter on the role of cognitive control in goal-directed action including a discussion of the concept of control dilemmas.

Handbook and Selected Review Chapters on Volition and Self-Control

Vohs, K. D., & Baumeister, R. F. (Eds.). (2017). *Handbook of Self-Regulation. Research, Theory, and Applications* (3rd ed.). New York, NJ: Guilford Press.

Handbook with authoritative reviews on a wide range of topics related to self-control.

Inzlicht, M., Werner, K. M., Briskin, J. L., & Roberts, B. W. (2021). Integrating Models of Self-Regulation. *Annual Review of Psychology, 72(1)*, 319–345.

An integrative review summarizing research and theories of self-control.

Achtziger, A., & Gollwitzer, P. (2018). Motivation and volition in the course of action. In J. Heckhausen & H. Heckhausen (Eds.), *Motivation and action* (3rd ed., pp. 485–527). Berlin: Springer.

Textbook chapter summarizing research on Gollwitzer and Heckhausen's model of action phases and on implementation intentions as a self-regulatory strategy.

Kuhl, J. (2018). Individual differences in self-regulation. In J. Heckhausen & H. Heckhausen (Eds.), *Motivation and action* (3rd ed., pp. 529–577). Berlin: Springer.

Textbook chapter summarizing research on Kuhl's theory of volition and action control with a focus on individual differences between action- and state-oriented individuals.

Position Paper on the Role of Cognitive Control in Mental Disorders

Goschke, T. (2014). Dysfunctions of decision-making and cognitive control as transdiagnostic mechanisms of mental disorders: advances, gaps, and needs in

current research. International Journal of Methods in *Psychiatric Research, 23(S1)*, 41–57.

Position paper on the role of cognitive control as a transdiagnostic mechanism and vulnerability factors for a range of mental disorders.

Selected Books on the Philosophy and Psychology of Free Will

Kane, R. (2005). *A contemporary introduction to free will*. Oxford: Oxford University Press.

A short and nontechnical introduction to main positions and arguments in the philosophy of free will.

Cross-References

► Psychological Assessment and Testing

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References

Achtziger, A., & Gollwitzer, P. M. (2018). Motivation and volition in the course of action. In J. Heckhausen & H. Heckhausen (Eds.), *Motivation and action* (3rd ed., pp. 485–527). Springer.

Association, A. P. (2020a). APA guidelines for the psychological undergraduate major. Retrieved from https://www.apa.org/ed/precollege/about/undergraduate-major.

Association, A. P. (2020b). Promoting excellence in professional psychology education and training through best practices in defining and measuring competence. Retrieved from https://www.apa.org/ed/graduate/competency.

Badre, D., & Nee, D. E. (2018). Frontal cortex and the hierarchical control of behavior. *Trends in Cognitive Sciences, 22*(2), 170–188. https://doi.org/10.1016/j.tics.2017.11.005

Bargh, J. (1989). Conditional automaticity: Varieties of automatic influences in social perception and cognition. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 3–51). The Guilford Press.

Baumeister, R. F., Tice, D. M., & Vohs, K. D. (2018). The strength model of self-regulation: Conclusions from the second decade of willpower research. *Perspectives on Psychological Science, 13*(2), 141–145. https://doi.org/10.1177/1745691617716946

Berkman, E. T., Falk, E. B., & Lieberman, M. D. (2011). In the trenches of real-world self-control: Neural correlates of breaking the link between craving and smoking. *Psychological Science, 22*(4), 498–506. https://doi.org/10.1177/0956797611400918

Botvinick, M. M., & Cohen, J. D. (2014). The computational and neural basis of cognitive control: Charted territory and new frontiers. *Cognitive Science, 38*(6), 1249–1285. https://doi.org/10.1111/cogs.12126

Botvinick, M. M., Cohen, J. D., & Carter, C. S. (2004). Conflict monitoring and anterior cingulate cortex: An update. *Trends in Cognitive Sciences, 8*(12), 539–546. https://doi.org/10.1016/j.tics.2004.10.003

Braver, T. (Ed.). (2016). *Motivation and cognitive control*. Taylor & Francis.

Cohen, J. D. (2017). Cognitive control Core constructs and current considerations. In T. Egner (Ed.), *Wiley handbook of cognitive control*. Wiley.

Cohen, J. D., Dunbar, K., & McClelland, J. L. (1990). On the control of automatic processes: A parallel distributed processing account of the Stroop effect. *Psychological Review, 97*(3), 332–361. https://doi.org/10.1037/0033-295x.97.3.332

Cools, R. (2019). Chemistry of the adaptive mind: Lessons from dopamine. *Neuron, 104*(1), 113–131. https://doi.org/10.1016/j.neuron.2019.09.035

Diamond, A. (2013). Executive functions. *Annual Review of Psychology, 64*, 135–168. https://doi.org/10.1146/annurev-psych-113011-143750

Duckworth, A. L., Taxer, J. L., Eskreis-Winkler, L., Galla, B. M., & Gross, J. J. (2019). Self-control and academic achievement. In S. T. Fiske (Ed.), *Annual review of psychology* (Vol. 70, pp. 373–399). https://doi.org/10.1146/annurev-psych-010418-103230

Duncan, J. (2010). The multiple-demand (MD) system of the primate brain: Mental programs for intelligent behaviour. *Trends in Cognitive Science, 14*(4), 172–179. https://doi.org/10.1016/j.tics.2010.01.004

Egner, T. (Ed.). (2017). *The Wiley handbook of cognitive control*. Wiley-Blackwell.

Eppinger, B., Goschke, T., & Musslick, S. (2021). Meta-control: From psychology to computational neuroscience. *Cognitive, Affective, & Behavioral Neuroscience, 21*(3), 447–452. https://doi.org/10.3758/s13415-021-00919-4

Friese, M., Loschelder, D. D., Gieseler, K., Frankenbach, J., & Inzlicht, M. (2019). Is ego depletion real? An analysis of arguments. *Personality and Social Psychology Review, 23*(2), 107–131. https://doi.org/10.1177/1088868318762183

Galla, B. M., & Duckworth, A. L. (2015). More than resisting temptation: Beneficial habits mediate the relationship between self-control and positive life outcomes. *Journal of Personality and Social Psychology, 109*(3), 508–525. https://doi.org/10.1037/pspp0000026

Gazzaniga, M. S., Ivry, R. B., & Mangun, G. R. (2018). *Cognitive neuroscience: The biology of the mind* (5th ed.). W. W. Norton.

Glannon, W. (Ed.). (2015). *Free will and the brain: Neuroscientific, philosophical, and legal perspectives*. Cambridge University Press.

Goschke, T. (2003). Voluntary action and cognitive control from a cognitive neuroscience perspective. In S. Maasen, W. Prinz, & G. Roth (Eds.), *Voluntary action: Brains, minds, and sociality* (pp. 49–85). Oxford University Press.

Goschke, T. (2013). Volition in action: Intentions, control dilemmas, and the dynamic regulation of cognitive control. In W. Prinz, M. Beisert, & A. Herwig (Eds.), *Action science: Foundations of an emerging discipline* (pp. 409–434). MIT Press.

Goschke, T. (2014). Dysfunctions of decision-making and cognitive control as transdiagnostic mechanisms of mental disorders: Advances, gaps, and needs in current research. *International Journal of Methods in Psychiatric Research, 23*(S1), 41–57. https://doi.org/10.1002/mpr.1410

Goschke, T., & Bolte, A. (2014). Emotional modulation of control dilemmas: The role of positive affect, reward, and dopamine in cognitive stability and flexibility. *Neuropsychologia, 62*, 403–423. https://doi.org/10.1016/j.neuropsychologia.2014.07.015

Haggard, P. (2008). Human volition: Towards a neuroscience of will. *Nature Reviews: Neuroscience, 9*(12), 934–946. https://doi.org/10.1038/nrn2497

Haggard, P. (2019). The neurocognitive bases of human volition. *Annual Review of Psychology, 70*, 9–28. https://doi.org/10.1146/annurev-psych-010418-103348

Hare, T. A., Camerer, C. F., & Rangel, A. (2009). Self-control in decision-making involves modulation of the vmPFC valuation system. *Science, 324*(5927), 646–648. https://doi.org/10.1126/science.1168450

Hare, T. A., Malmaud, J., & Rangel, A. (2011). Focusing attention on the health aspects of foods changes value signals in vmPFC and improves dietary choice [Research Support, U.S. Gov't, non-P.H.S.]. *Journal of Neuroscience, 31*(30), 11077–11087. https://doi.org/10.1523/JNEUROSCI.6383-10.2011

Harris, A., Hare, T., & Rangel, A. (2013). Temporally dissociable mechanisms of self-control: Early attentional filtering versus late value modulation. *Journal of Neuroscience, 33*(48), 18917–18931. https://doi.org/10.1523/JNEUROSCI.5816-12.2013

Heitmann, J., Bennik, E. C., van Hemel-Ruiter, M. E., & de Jong, P. J. (2018). The effectiveness of attentional bias modification for substance use disorder symptoms in adults: A systematic review. *Systematic Reviews, 7*(1), 160–160. https://doi.org/10.1186/s13643-018-0822-6

Herd, S. A., O'Reilly, R. C., Hazy, T. E., Chatham, C. H., Brant, A. M., & Friedman, N. P. (2014). A neural network model of individual differences in task switching abilities. *Neuropsychologia, 62*, 375–389. https://doi.org/10.1016/j.neuropsychologia.2014.04.014

Hofmann, W., Baumeister, R. F., Förster, G., & Vohs, K. D. (2012). Everyday temptations: An experience sampling study of desire, conflict, and self-control. *Journal of Personality and Social Psychology, 6*, 1318–1335. https://doi.org/10.1037/a0026545

Hofmann, W., Friese, M., & Roefs, A. (2009). Three ways to resist temptation: The independent contributions of executive attention, inhibitory control, and affect regulation to the impulse control of eating behavior. *Journal of Experimental Social Psychology, 45*(2), 431–435. https://doi.org/10.1016/j.jesp.2008.09.013

Hofmann, W., Friese, M., & Strack, F. (2009). Impulse and self-control from a dual-systems perspective. *Perspectives on Psychological Science, 4*(2), 162–176.

Hofmann, W., & Kotabe, H. (2012). A general model of preventive and interventive self-control. *Social and Personality Psychology Compass, 6*(10), 707–722. https://doi.org/10.1111/j.1751-9004.2012.00461.x

Hommel, B. (2019). Binary theorizing does not account for action control. *Frontiers in Psychology, 10*, 2542. https://doi.org/10.3389/fpsyg.2019.02542

Hommel, B., & Wiers, R. W. (2017). Towards a unitary approach to human action control. *Trends in Cognitive Sciences, 21*(12), 940–949. https://doi.org/10.1016/j.tics.2017.09.009

Huettel, S. A., Song, A. W., & McCarthy, G. (2014). *Functional magnetic resonance imaging* (2nd ed.). Sinauer.

Inzlicht, M., Schmeichel, B. J., & Macrae, C. N. (2014). Why self-control seems (but may not be) limited. *Trends in Cognitive Sciences, 18*(3), 127–133. https://doi.org/10.1016/j.tics.2013.12.009

Inzlicht, M., Werner, K. M., Briskin, J. L., & Roberts, B. W. (2020). Integrating models of self-regulation. *Annual Review of Psychology, 72*(1), 319–345.

Job, V., Dweck, C. S., & Walton, G. M. (2010). Ego depletion – Is it all in your head? Implicit theories about willpower affect self-regulation. *Psychological Science, 21*(11), 1686–1693. https://doi.org/10.1177/0956797610384745

Job, V., Friese, M., & Bernecker, K. (2015). Effects of practicing self-control on academic performance. *Motivation Science, 1*(4), 219–232. https://doi.org/10.1037/mot0000024

Johnson, R. E., Lin, S.-H., & Lee, H. W. (2018). Self-control as the fuel for effective self-regulation at work: Antecedents, consequences, and boundary conditions of employee self-control. In A. J. Elliot (Ed.), *Advances in motivation science* (Vol. 5, pp. 87–128). https://doi.org/10.1016/bs.adms.2018.01.004

Kable, J. W. (2014). Valuation, intertemporal choice, and self-control. In P. W. Glimcher & E. Fehr (Eds.), *Neuroeconomics. Decision making and the brain* (2nd ed., pp. 173–192). Academic Press. https://doi.org/10.1016/b978-0-12-416008-8.00010-3

Karbach, J., & Verhaeghen, P. (2014). Making working memory work: A meta-analysis of executive-control and working memory training in older adults. *Psychological Science, 25*(11), 2027–2037. https://doi.org/10.1177/0956797614548725

Karr, J. E., Areshenkoff, C. N., Rast, P., Hofer, S. M., Iverson, G. L., & Garcia-Barrera, M. A. (2018). The unity and diversity of executive functions: A systematic review and re-analysis of latent variable studies. *Psychological Bulletin, 144*(11), 1147–1185. https://doi.org/10.1037/bul0000160

Kassai, R., Futo, J., Demetrovics, Z., & Takacs, Z. K. (2019). A meta-analysis of the experimental evidence on the near- and far-transfer effects among children's executive function skills. *Psychological Bulletin, 145*(2), 165–188. https://doi.org/10.1037/bul0000180

Kober, H., Kross, E. F., Mischel, W., Hart, C. L., & Ochsner, K. N. (2010). Regulation of craving by cognitive strategies in cigarette smokers [Research Support, N.I.H., extramural]. *Drug and Alcohol Dependence, 106*(1), 52–55. https://doi.org/10.1016/j.drugalcdep.2009.07.017

Kotabe, H. P., & Hofmann, W. (2015). On integrating the components of self-control. *Perspectives on Psychological Science, 10*(5), 618–638. https://doi.org/10.1177/1745691615593382

Krönke, K. M., Wolff, M., Mohr, H., Kraplin, A., Smolka, M. N., Buhringer, G., & Goschke, T. (2018). Monitor yourself! Deficient error-related brain activity predicts real-life self-control failures. *Cognitive, Affective, & Behavioral Neuroscience, 18*(4), 622–637. https://doi.org/10.3758/s13415-018-0593-5

Krönke, K. M., Wolff, M., Mohr, H., Kraplin, A., Smolka, M. N., Buhringer, G., & Goschke, T. (2020). Predicting real-life self-control from brain activity encoding the value of anticipated future outcomes. *Psychological Science, 31*(3), 268–279. https://doi.org/10.1177/0956797619896357. Article 0956797619896357.

Kruschwitz, J. D., Ludwig, V. U., Waller, L., List, D., Wisniewski, D., Wolfensteller, U., . . . Walter, H. (2018). Regulating craving by anticipating positive and negative outcomes: A multivariate pattern analysis and network connectivity approach. *Frontiers in Behavioral Neuroscience, 12*, 297. https://doi.org/10.3389/fnbeh.2018.00297, Article 297.

Kuhl, J. (2018). Individual differences in self-regulation. In J. Heckhausen & H. Heckhausen (Eds.), *Motivation and action* (3rd ed., pp. 529–577). Springer.

Kuhl, J., & Goschke, T. (1994). A theory of action control: Mental subsystems, modes of control, and volitional conflict-resolution strategies. In J. Kuhl & J. Beckmann (Eds.), *Volition and personality: Action versus state orientation* (pp. 93–124). Hogrefe.

Libet, B., Gleason, C. A., Wright, E. W., & Pearl, D. K. (1983). Time of conscious intention to act in relation to onset of cerebral activity (readiness-potential). The unconscious initiation of a freely voluntary act. *Brain, 106*(Pt 3), 623–642. https://doi.org/10.1093/brain/106.3.623

Linetzky, M., Pergamin-Hight, L., Pine, D. S., & Bar-Haim, Y. (2015). Quantitative evaluation of the clinical efficacy of attention bias modification treatment for anxiety disorders. *Depression and Anxiety, 32*(6), 383–391. https://doi.org/10.1002/da.22344

Lurquin, J. H., & Miyake, A. (2017). Challenges to ego-depletion research go beyond the replication crisis: A need for tackling the conceptual crisis. *Frontiers in Psychology, 8*, 568. https://www.ncbi.nlm.nih.gov/pubmed/28458647

MacLeod, C., & Clarke, P. J. F. (2015). The attentional bias modification approach to anxiety intervention. *Clinical Psychological Science, 3*(1), 58–78. https://doi.org/10.1177/2167702614560749

Mansouri, F. A., Egner, T., & Buckley, M. J. (2017). Monitoring demands for executive control: Shared functions between human and nonhuman primates. *Trends in Neurosciences, 40*(1), 15–27. https://doi.org/10.1016/j.tins.2016.11.001

McClure, S. M., Laibson, D. I., Loewenstein, G., & Cohen, J. D. (2004). Separate neural systems value immediate and delayed monetary rewards. *Science, 306*(5695), 503–507. https://doi.org/10.1126/science.1100907

Meixner, J. B., Jr. (2015). Applications of neuroscience in criminal law: Legal and methodological issues. *Current Neurology and Neuroscience Reports, 15*(2), 513. https://doi.org/10.1007/s11910-014-0513-1

Melby-Lervag, M., & Hulme, C. (2013). Is working memory training effective? A meta-analytic review. *Developmental Psychology, 49*(2), 270–291. https://doi.org/10.1037/a0028228

Mischel, W., Ebbesen, E. B., & Raskoff Zeiss, A. (1972). Cognitive and attentional mechanisms in delay of gratification. *Journal of Personality and Social Psychology, 21*(2), 204–218. https://doi.org/10.1037/h0032198

Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex 'frontal lobe' tasks: A latent variable analysis [empirical study]. *Cognitive Psychology, 41*(1), 49–100. https://doi.org/10.1006/cogp.1999.0734

O'Reilly, R. C., Munakata, Y., Frank, M. J., Hazy, T. E., & Contributors. (2020). Computational cognitive neuroscience. Wiki Book (4th ed.). https://github.com/CompCogNeuro/ed4.

Ott, T., & Nieder, A. (2019). Dopamine and cognitive control in prefrontal cortex. *Trends in Cognitive Sciences, 23*(3), 213–234. https://doi.org/10.1016/j.tics.2018.12.006

Panadero, E. (2017). A review of self-regulated learning: Six models and four directions for research [review]. *Frontiers in Psychology, 8*(422). https://doi.org/10.3389/fpsyg.2017.00422

Peters, J., & Büchel, C. (2011). The neural mechanisms of inter-temporal decision-making: Understanding variability. *Trends in Cognitive Sciences, 15*(5), 227–239. https://doi.org/10.1016/j.tics.2011.03.002

Posner, M. I., & Snyder, C. R. (1975). Attention and cognitive control. In R. L. Solso (Ed.), *Information processing and cognition* (pp. 55–85). Lawrence Erlbaum.

Purves, D., LaBar, K. S., Platt, M. L., Wolfdorff, M., Caebzoa, R., & Huettel, S. A. (2013). Principles of cognitive neuroscience. In S. Ass (ed.), (2nd ed.).

Reuter-Lorenz, P. A., Festini, S. B., & Jantz, T. K. (2016). Executive functions and neurocognitive aging. In K. W. Schaie & S. L. Willis (Eds.), *Handbook of the psychology of aging* (pp. 245–262). Academic Press. https://www.sciencedirect.com/science/article/pii/B9780124114692000133

Roskies, A. L. (2010). How does neuroscience affect our conception of volition? *Annual Review of Neuroscience, 33*(1), 109–130. https://doi.org/10.1146/annurev-neuro-060909-153151

Roskies, A. L. (2012). How does the neuroscience of decision making bear on our understanding of moral responsibility and free will? *Current Opinion in Neurobiology, 22*(6), 1022–1026. https://doi.org/10.1016/j.conb.2012.05.009

Santens, E., Claes, L., Dierckx, E., & Dom, G. (2020). Effortful control – A transdiagnostic dimension underlying internalizing and externalizing psychopathology. *Neuropsychobiology, 79*(4–5), 255–269. https://doi.org/10.1159/000506134

Saunders, B., Milyavskaya, M., Etz, A., Randles, D., & Inzlicht, M. (2018). Reported self-control is not meaningfully associated with inhibition-related executive function: A Bayesian analysis. *Collabra: Psychology, 4*(1), Article 39. https://doi.org/10.1525/collabra.134

Scionti, N., Cavallero, M., Zogmaister, C., & Marzocchi, G. M. (2020). Is cognitive training effective for improving executive functions in preschoolers? A systematic review and meta-analysis [systematic review]. *Frontiers in Psychology, 10*(2812). https://doi.org/10.3389/fpsyg.2019.02812

Shenhav, A., Botvinick, M. M., & Cohen, J. D. (2013). The expected value of control: An integrative theory of anterior cingulate cortex function. *Neuron, 79*(2), 217–240. https://doi.org/10.1016/j.neuron.2013.07.007

Sinnot-Armstrong, W., & Nadel, L. (Eds.). (2011). *Conscious will and responsibility.* Oxford University Press.

Soon, C. S., He, A. H., Bode, S., & Haynes, J. D. (2013). Predicting free choices for abstract intentions. *Proceedings of the National Academy of Sciences of the United States of America, 110*(15), 6217–6222. https://doi.org/10.1073/pnas.1212218110

Strobach, T., Salminen, T., Karbach, J., & Schubert, T. (2014). Practice-related optimization and transfer of executive functions: A general review and a specific realization of their mechanisms in dual tasks. *Psychological Research, 78*(6), 836–851. https://doi.org/10.1007/s00426-014-0563-7

Studer, B., Koch, C., Knecht, S., & Kalenscher, T. (2019). Conquering the inner couch potato: Precommitment is an effective strategy to enhance motivation for effortful actions. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences, 374*(1766), 20180131. https://doi.org/10.1098/rstb.2018.0131

Stuss, D. T., & Craik, F. I. M. (2019). Alterations in executive functions with aging. In K. M. Heilman & S. E. Nadeau (Eds.), *Cognitive changes and the aging brain* (pp. 168–187). Cambridge University Press. https://doi.org/10.1017/9781108554350.012

Stuss, D. T., & Knight, R. T. (2013). *Handbook of frontal lobe function* (2nd ed.). Oxford University Press.

Thomas, E. L., & Robinson, H. A. (1972). *Improving reading in every class: A sourcebook for teachers*. Houghton Mifflin.

Tsai, N., Eccles, J. S., & Jaeggi, S. M. (2019). Stress and executive control: Mechanisms, moderators, and malleability. *Brain and Cognition, 133*, 54–59. https://doi.org/10.1016/j.bandc.2018.10.004

Verguts, T. (2017). Computational models of cognitive control. In T. Egner (Ed.), *Wiley handbook of cognitive control*. Wiley.

Volkow, N. D., & Baler, R. D. (2015). NOW vs LATER brain circuits: Implications for obesity and addiction. *Trends in Neurosciences, 38*(6), 345–352. https://doi.org/10.1016/j.tins.2015.04.002

Wegner, D. M. (2003). The mind's best trick: How we experience conscious will. *Trends in Cognitive Sciences, 7*(2), 65–69. https://doi.org/10.1016/s1364-6613(03)00002-0

Wolff, M., Krönke, K. M., Venz, J., Kraplin, A., Buhringer, G., Smolka, M. N., & Goschke, T. (2016). Action versus state orientation moderates the impact of executive functioning on real-life self-control. *Journal of Experimental Psychology: General, 145*(12), 1635–1653. https://doi.org/10.1037/xge0000229

Zelazo, P. D. (2020). Executive function and psychopathology: A neurodevelopmental perspective. *Annual Review of Clinical Psychology, 16*, 431–454. https://doi.org/10.1146/annurev-clinpsy-072319-024242

Developmental Psychology

10

Moritz M. Daum and Mirella Manfredi

Contents

M. M. Daum (✉)
Department of Psychology, Developmental Psychology: Infancy and Childhood, University of Zurich, Zurich, Switzerland

Jacobs Center for Productive Youth Development, University of Zurich, Zurich, Switzerland
e-mail: moritz.daum@uzh.ch

M. Manfredi
Department of Psychology, Developmental Psychology: Infancy and Childhood, University of Zurich, Zurich, Switzerland

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Abstract

Developmental Psychology is the scientific study of mind and behavior from the perspective of change across the entire lifespan. In the present chapter, we provide a comprehensive and modern view on current topics particularly relevant when teaching Developmental Psychology. We start with the attempt to derive a contemporary definition of development and Developmental Psychology. Over historical time, perspectives on development changed. These different perspectives were regularly challenged, and we discuss some of the questions of scientific dispute such as the influence of nature and nurture on the development of an individual from a contemporary perspective. The perspectives often resulted in larger theoretical constructs. We will not describe individual theories comprehensively but rather focus on general issues of theoretical approaches and highlight one recent approach, the dynamic systems theories. Theories need to be supported by empirical evidence. Accordingly, we will briefly describe the major research designs used to measure developmental change. We will conclude the chapter with a focus on one topic particularly relevant when teaching Developmental Psychology, the development of communication, and discuss further topics that can potentially be included in a Developmental Psychology curriculum and describe some ideas on how to teach them. In all, we intend to provide a contemporary overview of the scientific study of developmental change.

Keywords

Developmental psychology · Change · Methods · Nature · Nurture · Theories · Questions

Introduction

Developmental Psychology is one of the most diverse fields in Psychology; it covers all aspects of Psychology and adds the aspect of change over the lifespan. This makes the task of giving a concise overview of the topics to teach in Developmental Psychology in one single book chapter not an easy endeavor. Available textbooks usually prioritize a selection of topics or age ranges and never claim to include all possible aspects of development.

The present chapter is not intended to provide an overview of specific topics and aspects of development such as the development of emotions, cognitive skills, or language. Rather, we aim to promote critical thinking and problem-solving among teacher educators, teachers, and/or prospective teachers about current topics in the field. We aim to do so by providing a contemporary view of the science of development more generally. To teach development and Developmental Psychology, it is essential to have profound knowledge about the science of development, about different concepts and models of development, and what the current status of theory-building and methodological approaches is. We will begin with an attempt to define

development and Developmental Psychology and discuss matters of scientific dispute regarding development such as the influence of nature and nurture on the development of an individual. We then briefly focus on theoretical perspectives. We will not comprehensively describe individual theories but rather focus on general issues of development and highlight one contemporary theoretical approach, the dynamic systems theories. In the remainder, we will cover the aspect of how change can be measured and describe currently available research paradigms. The chapter includes one concrete example of development within none particular domain: the development of communication. We conclude the chapter with suggestions on how to teach Developmental Psychology.

Purposes and Rationale of the Curriculum in Developmental Psychology

The present chapter has the following main learning objectives: First, readers should be able to demonstrate appropriate and accurate professional content for teaching Developmental Psychology. Second, readers should think about and revise already existing courses to incorporate current research and/or best practices. Overall, readers should acquire knowledge about scientific disputes and recent trends in Development Psychology. In particular, based on the standards of qualification frameworks (e.g., Standards of Teacher Education), teachers should stimulate students to think critically about the content of Developmental Psychology. In addition, teachers might engage students in active research in the field of Developmental Psychology and suggest they establish connections between newly acquired knowledge and previously acquired contexts and perspectives. Finally, teachers should encourage the students to reflect on their own learning and apply personal life experiences to the knowledge learned in the field of Developmental Psychology.

Core Contents and Topics of the Curriculum in Developmental Psychology

Developmental Psychology: A Definition

Psychology (from Greek *psyche* = breath, spirit, soul and *logos* = science, study, research) is a relatively young scientific discipline. Among the first to define Psychology was James (1890) who defined it as "the science of mental life, both of its phenomena and their conditions." Today, Psychology is usually defined as the science of mind and behavior including their description, explanation, prediction, and intervention of behavior and mental processes (Schacter, Gilbert, Wegner, & Hood, 2011). The subdiscipline *Developmental Psychology* covers all these aspects from the perspective of change across the entire lifespan (e.g., Daum, Greve, Pauen, Schuhrke, & Schwarzer, 2020; Schwarzer & Walper, 2016). The range of topics in Developmental Psychology covers all parts of Psychology in general; it includes

physical growth; cognitive, emotional, and motivational processes; and their neuropsychological foundations. It further includes social processes of normative and non-normative behavior and experience and the effects of education and other forms of intervention on developmental events.

When asking non-experts about when and how individuals develop, the variability of the answers will be large. Development is often described as a series of distinct, qualitative, and irreversible changes (as compared to merely quantitative growth). These changes are described as being directed toward a final state, and each subsequent step is of a higher value than the previous one, and the previous one is a necessary prerequisite for the subsequent one. Developmental changes are closely related to the advancing age, and they are universal, natural, and mostly culture-independent. The question about when development takes place is traditionally seen as predominantly comprising childhood and adolescence.

While all these aspects seem to be intuitively compelling, the question arises of whether they are valid. For example, the search for a universally valid sequence of stages or states is no longer the central motif of today's theoretical and empirical considerations. In contrast, the dominant view of contemporary research is the notion of differential developmental trajectories, which are understood as sustainable, multi-directional changes with age. As a result, modern definitions are less presupposition-rich (and thus at the same time broader and humbler): Developmental Psychology is concerned with *intra-individual changes* in human behavior and experience over the entire lifespan as well as with *inter-individual differences* between these intra-individual changes (e.g., Baltes, 1987). From this perspective, the focus of Developmental Psychology has been expanded from childhood and adolescence to the entire lifespan (although not everybody agrees with this notion; see Bischof, 2020, who defines development "as the structural unfolding of an organic shape"). According to Baltes (1987), development needs to be considered from a broader perspective: It is a process covering the entire lifespan; it consists of a dynamic process that includes gains and losses with gains being more prominent in younger individuals and older individuals having to deal with more losses. Development takes place within a certain context, which can be defined by spatial location (e.g., culture), the available financial and social resources (e.g., the socioeconomic status), and the historical time (for different historical perspectives on development, see the previous contributions by Reinert (1976), Trautner (2003), or Daum and Manfredi (2021)). This modern view comes with several challenges. To shed more light on this question, we will look at past and current matters of controversy about the nature of development and how they have been and are discussed.

Questions of Scientific Dispute and Concepts About Development

Questions about how humans develop have occupied philosophy and science for millennia: What is innate? What is acquired? What is the effect of age on development? Should development be understood as following universal laws or describing individual trajectories? Are development principles domain-general or domain-

specific or cross-cultural or culture-specific? As a result of the abovementioned broader definition of Developmental Psychology, the attempts to answer these questions have slowly moved away from an either-or pattern. Today, it is assumed that development is determined multi-directionally and multi-causally (e.g., Baltes, 1987). To describe and explain developmental processes, it is important not to restrict the perspective to the time that starts with birth, not even to the time that starts with the fertilization of the ovum; some factors influence the development of an individual that often lie before these points in time. Evolutionary processes thus play just as much a role as biological maturation and environmental experiences. At the same time, development may be regarded to not necessarily end with a person's death; an individual can substantially influence further generations through the actions during his or her lifetime. In the following, we focus on three major questions, the influence of age, the influence of biology vs. environment, and the question of whether, when describing development, one should focus on group means or individual data. Other questions are important to discuss as well, to which extent a child is an active shaper of their environment or passively exposed to maturational processes, whether development can be generalized across domains or cultures or not. However, discussing all aspects goes beyond the scope of this chapter, and the reader is referred to other sources.

The Effect of Age and Time on Development

Developmental change is often related to age. Around their first birthday, children start to speak their first words and to make their first independent steps. This age is one of the major milestones and results in the terminological shift of a child from being called "infant" (from Latin *infans* = unable to speak) to "toddler" (that describes the particular type of toddling locomotion, observed at this age). However, this uni-dimensional focus on age has limitations. Age is only one possible factor related to developmental change. It furthermore comes in different units. Usually, developmental change is described as taking place in weeks, months, or years. However, changes occur in the course of days, hours, minutes, or even seconds. One prominent example of short-term but extensive changes is the child's physical adjustment processes from at birth when regular breathing and ventilation of the lungs have their onset, as well as the switch from parallel fetal to postnatal serial cardiac circulation. Next to maturational processes, changes are triggered by significant life events that are not necessarily or not at all related to age. These events can be positive, as the beginning of the first romantic relationship or the birth of a child. The events can also be negative, like the death of a loved one or being confronted with a serious illness or job loss. Finally, development includes the aspect of stabilization, that is, the deliberate control of non-change by maintaining cognitive and motor functions in old age, whereby stabilization at a certain level usually implies changes at other levels at the same time.

Nature vs. Nurture

One of the questions developmental psychologists (and researchers from many other fields) discuss is how much the genes (i.e., *nature*) and the environment (i.e., *nurture*)

contribute to an individual's development, in particular to the plasticity in brain structure and function (Meaney, 2010). The difficulty to answer these questions becomes obvious in the fact that nature and nurture are often regarded as being "in contrast to" each other. Furthermore, it is often expected to know which factor influences an individual's development more strongly, be it in an "either-or" answer or at least in a precise quantification (e.g., in percentages) of the respective influence. The impression that the contribution of nature and nurture can be quantified is often inferred from twin and adoption studies, for example, on intelligence. The results of these studies are usually reported as a quantified correlation between the intelligence of siblings that is stronger for monozygotic (MZ) than dizygotic twins or regular siblings being raised together (e.g., Plomin, DeFries, Craig, & McGuffin, 2003; Plomin & Spinath, 2004). This information is important to understand the interplay between genes and the environment. However, one might be inclined to misinterpret a correlation of $r = 0.86$ (e.g., for MZ twins, Plomin & Spinath, 2004) as a value about the percentage of genetic influence that holds for each individual, which it is not.

This does not mean that there aren't cases that can be quantified, quite the opposite: Eye color and natural hair color are primarily defined by our genes with little to no potential for changes caused by the environment. In contrast, while the ability of humans to speak and process language is an innate feature of the human brain in combination with the human vocal tract, the specific language a person speaks is exclusively defined by the linguistic environment in which this person is born and grows up.

The specific paths from biology to behavior continue to remain an issue for further investigation (Meaney, 2010). Before starting, we need to define two important terms: the *genotype* is the complete heritable genetic identity of an individual, and the *phenotype* is the description of an individual's characteristics, including appearance, behavior, and general disposition. There are several possible ways how genes and environment interact in the development and result in the particular genotype and phenotype of an individual. The interaction can be *passive*, for example, parents provide an environment that correlates with their own predispositions (parents inherit genes and environment); evocative, the child's predispositions evoke certain reactions in others; and *active*, individuals seek out niches that correspond to their predispositions:

1. *Genotype → Genotype:* The most obvious path is that the genotype of parents is combined and transferred to the genotype of their children when the egg is fertilized and genes and chromosomes are inherited by the offspring.
2. *Environment → Phenotype:* It is not only the genotype but also an individual's environment that influences an individual's phenotype. The genotype provides the potential of a phenotype to be expressed, but this potential is influenced by the particular environment a child grows up in.
3. *Phenotype → Environment:* Vice versa, a child's phenotype can likewise influence their environment. Imagine parents having a colicky, that is, a baby who suffers from colics and, as a result, cries a lot. These parents' responses to their

child probably differ from the same parents' responses to non-colicky. They are likely to be more exhausted and will, as a result, be less responsive to the colicky, which might have an impact on his/her attachment pattern and, thus, his/her phenotype.

4. *Genotype → Environment:* The individual genotype influences the individually chosen environment. A child that has a genetic preference for listening to and playing music will prefer a different kind of environment (e.g., taking music lessons, meeting friends with similar interests) than a child with a genetically determined preference for visual arts or doing sports. Accordingly, children seek their niche based on their (genetically determined) interests.
5. *Environment → Phenotype:* Siblings typically grow up in the same family, that is, in a similar environment, and the *shared environmental influences* are sources of behavioral similarity. But siblings are often found to be dissimilar (e.g., Plomin & Spinath, 2004). These differences can – to some extent – be traced back to the *nonshared environmental influences*, the sources of behavioral dissimilarity. For example, parenting practices might differ based on whether a child is the first or the last born; the home environment may change due to the move of a family to a new place at the point in time the second child is born (e.g., Tarantino et al., 2014), resulting in differences between siblings.
6. *Environment → (Epi)genotype:* Finally, environmental influences, such as nutrition, education, and substance use, can influence the function of an individual's genes. Importantly, it is not the genome (i.e., the genetic material of an organism) that is changed, but the epigenome (i.e., a multitude of chemical compounds that "tell the genome what to do"; for further information, see Meaney, 2010).

The Difficulty of Differentiating Between the Influence of Nature and Nurture, an Example

A second aspect of the difficulty to answer the abovementioned question about the individual impact of nature and nurture lies in the scope for interpretation of the data. To explain this, we refer to the story of the three little pigs (adapted from Lindenberger, 2013). In this story (following roughly the rhymes of the US Band Green Jellÿ), the mother of three little pigs had not enough to keep them and sent them out to seek their fortune. The first little pig went off, found a grainfield, and built a house from straw. The second little pig found a forest and built a house from wood. The third pig found a stone quarry and built a house from stones. Then, the big, bad, and hungry wolf appeared at each of the three houses and yelled "Little pig, little pig, let me in!". The little pigs refused, and the wolf started to blow their houses in. He was successful with the houses of straw and wood, but not with the one of stones.

This story can be seen as scientific observation, and the data can be interpreted as evidence for both the influence of nature and nurture on the (un)successful development of the individual pigs. In support of an influence of nature, it provides evidence for genetically based differences in "house-building" intelligence. Only the third little pig has inherited enough intelligence to build a house solid enough to serve as a secure home. In contrast, the same data are evidence in support of an effect

of the environment: Each little pig found – more or less by accident – material that can be used to build a house. And it was only good or bad luck which little pig found which material. If the first little pig would have taken another road, he would have found stones and built a house from them instead of straw and, as a consequence, survived. Accordingly, depending on the perspective, the very same data can serve as evidence for both perspectives.

The question about the influence of nature and nurture is today discussed in a very differentiated way. The adherence to extreme positions is no longer tenable today, nicely framed by Spencer, Thomas, and McClelland (2009): "The nativist-empiricist debate [. . .] continue[s] to distract attention from the reality of developmental systems" (p. 79). These authors suggest using a developmental systems approach and argue that it embraces the concept of epigenesis, that is, the view that development emerges via cascades of interactions across multiple levels of causation, from genes to environments. According to this view, development always takes place as a dynamic interaction of both genes and environment (e.g., Meaney, 2001). We will discuss this in more detail later (section "A Potential Candidate for an Integrative Theory: The Dynamic Systems Theories").

Continuous vs. Non-continuous Development

A second controversially discussed question is whether idea development proceeds as a discontinuous series of distinct and stepwise levels or as smooth and more or less continuous progress. The idea of a discontinuous development has several roots: First are several prominent theoretical approaches such as the genetic epistemology by Piaget (e.g., Piaget, 1954), the theory of psychosocial development by Erikson and Erikson (e.g., Erikson & Erikson, 1998), the theory of stages of moral development by Kohlberg (e.g., Kohlberg, 1973), attachment theory by John Bowlby (e.g., Bowlby, 1999), the theory of human development and education by Havighurst (e.g., Havighurst, 1972), or Sigmund Freud's theory of psychosexual development (e.g., Freud, 1930). Second is the idea of sensitive phases, that is, phases in development of increased plasticity (e.g., Werker & Hensch, 2015) suggest that development seems to proceed in a discontinuous way with phases of developmental accelerations. Third, the way how empirical findings are reported suggests a stage-like development, for example, when children at the age of 12 months do use index finger pointing but not yet at the age of 10 months. Finally, nature provides numerous examples for (seemingly) discontinuous development, be it a caterpillar that pupates and then becomes a butterfly or in the form of *Dicrocoelium dendriticum* (D.D.), a small parasite fluke that lives in ruminant mammals such as cows and sheep and that has a fascinating life cycle including the digestive tract of snails to the submandibular ganglion of ants, to the final host, cows and sheep (who eat the ants), where D.D. then lives out their adult lives inside the animal and the cycle of reproduction starts over again. These examples emphasize relatively long states of (relative) stability rather than the (seemingly) short phases of transition from one state into another and might be interpreted that the development of an individual is as a series of distinct stages where the individual on one stage has little similarities with the same individual on a different stage.

However, the transition from one stadium to the next is by no means an abrupt step, and there are vast examples from nature and cognitive development that suggest that development may likewise follow a continuous trajectory. Like trees grow, vocabulary size, the number of solved mathematical problems, processing speed, and working memory continuously increase across childhood. These are facts that brought different theorists to assume that development seems to follow a rather continuous trajectory (e.g., Munakata, Snyder, & Chatham, 2012).

How can these two opposing viewpoints be brought together? To explain this, we refer to the idea of two different perspectives on development (e.g., Thelen & Smith, 1996), a view-from-above (*macro-view*) and a view-from-below (*micro-view*) on development. In the macro-view, ontogeny is described as a continuous, linear process, displaying regularity, with a clear direction and being irreversible. In contrast, from a micro-view, development appears to be "messy" and depends on the context and situational constraints. This idea has been further developed by Adolph et al. (2008; see, e.g., Fig. 2, p. 530). They measured the development of independent standing on a day-to-day basis which resulted in different developmental patterns: Some infants exhibited an abrupt, irreversible, and stagelike development from independent standing being absent on 1 day to being present the next day. Other infants had more variable developmental trajectories, where independent standing being present or absent oscillated over the course of several days to weeks.

To sum up, continuities and discontinuities seem to exist alongside one another, and their relative salience depends very much on the perspective and each individual's development. Continuous development might be missed or overlooked because phases of relative stability are more salient than the phases of transition. And it is to date not clear whether discontinuities are real or just accelerations in underlying continuous processes (van Geert, 1998).

Nomothetic vs. Idiographic Research Approaches

The third example refers to the question of whether developmental science should search for universal valid laws (i.e., *nomothetic* research; from the Greek "nomos," which means "law," and "thesis" meaning "to build") or focus on individual development (i.e., *idiographic* research; from the Greek "idios" meaning "own" or "private" and "graphos" meaning "drawn" or "written"). Nomothetic theories abstract from phenomena. They represent a widely applied way of thinking in the natural sciences. Usually, the average values of a whole group of participants or population are analyzed to formulate predictions about how people perceive, act, or feel. The strength of nomothetic research lies in the possibility to make at least an estimate for a prediction of behavior, the investigation of larger groups, and the application of objective methods that allow for replication and generalization. Limitations lie in the fact that the predictions only provide a rough estimate and that the group averages may not necessarily apply to the individuals constituting the group. Idiographic research, in contrast, investigates the individual. The idea is that predicting what a particular person will do in a particular situation cannot be based on group averages but needs to take into account the individual more strongly.

To illustrate the importance of disentangling the two, we refer to a (hypothetical) example by Hamaker (2012). It describes the relationship between the speed of typing on a keyboard (number of words per minute) and the percentage of typos made. The intuitive expectation is that faster typing is correlated with an increase in typos. This is true when looking at the intra-individual (idiographic) level. In contrast, when looking at the inter-individual (nomothetic) level, the results counterintuitively suggest that faster typing is related to fewer typos. The reason for this counterintuitive finding is that on a group level, more experienced typers both type faster and make fewer typos. Hamaker (2012) concludes that "qualifying large sample research as nomothetic, and thus – indirectly – as more scientific than other approaches because it is concerned with finding general laws, is erroneous" (p. 44). For this reason, the nomothetic approach has been accused of losing sight of the individual person. But yet, a substantial amount of Developmental Psychology research still applies a nomothetic research approach.

Application in Teaching

Vignette 1: Nature vs. Nurture

Paul comes from a family where his parents, grandparents, siblings, cousins, uncles, and aunts have great talent as musicians. All the members of the larger family play at least one instrument, some of the older family members are professional musicians, and some of the younger members think about doing so. Paul's friend Peter has a rather different family situation than Paul. None of the members of his immediate or extended family has any affiliation with music.

It does not require a great deal of expertise to assume that Paul is significantly more likely to become a professional musician than Peter. The question is whether this means that chances are 100% that Paul will be a musician and love to play an instrument and 0% that Peter will do so? Of course not. However, there are reasons that Paul has a higher genetic predisposition for musical talent as well as an environment that supports and facilitates such talent. Yet, both, one, or neither of them might become a musician.

Vignette 2: Continuous vs. Non-continuous Development

Sarah and Lynn are enthusiastic mountaineers who are standing at the base of the Matterhorn. They plan to go all the way up to the peak of that mountain and are discussing potential strategies on how to manage their forces. Sarah views the climb as a steady path and suggests making a pause every hour. But Lynn focuses more on distinct sections of the climb such as steeper and less steep parts, a plateau, and a small mountain shelter and suggests adjusting the timing of the climb to these stages.

These two views reflect the views of continuous and discontinuous development. The continuity view says that development is a gradual and cumulative process, just like a steady ascent that leads to the top of the mountain. In contrast, the discontinuity view says that development consists of a series of stages that are qualitatively different from each other, just like walking a series of stages, or steps, to get to the

top of that mountain. But in the end, both views describe the same climb to the summit of the Matterhorn.

Theories of Development

From these different questions of scientific dispute and historical contexts, different theoretical views have emerged, given the respective *Zeitgeist* and the available research techniques. These different views have been described at numerous places, and we will only describe them briefly in Table 1 but do not describe them in greater detail at this place.

We will, however, spend some time on the description of an (actually not so) recent theoretical approach that originates from mathematics and the natural sciences and that combines some parts of these previous ones: the *dynamic systems theories* (DSTs, e.g., Thelen & Smith, 2007). DSTs do not adopt an either-or perspective. DSTs try to answer what can be considered the *core question* of all developmental sciences: How can the emergence of order (structure) from a diffuse initial state be explained? Or, as Smith and Thelen (2003) Running Head: Developmental Psychology 17 wrote "How does the human mind, with all its power and imagination, emerge from the human infant, a creature so unformed and helpless?" (p. 343). DSTs have been developed to explain developmental change through processes of self-organization and emergence. DSTs, therefore, aim to include many of the variables influencing development; short- and long-term experiences; changes in cognition, motor behavior, and motivation, as well as in physiology; and context.

A Potential Candidate for an Integrative Theory: The Dynamic Systems Theories

Definitions

We start by defining the basic elements of DSTs. A *system* is a set of distinct elements connected by recursive relationships. A *systems theory* helps to explain what processes cause pattern formation and change in a system of elements and how it is possible for qualitatively new properties to emerge in the process. Central concepts of DSTs are *self-organization* and *emergence*, that is, systems can generate novelty through their own activity. *Self-organization* means that the parts of a system are coordinated without an organizational (executive) entity that provides explicit instructions and that the pattern and the order of occurrence *emerge* from the dynamic interactions of the components of the (complex) system (Thelen & Smith, 2007). Emergence can be observed when an entity has properties not inherent in its single parts but only emerge when these parts interact. Numerous fascinating examples in nature are based on emergence. The flocking of birds can be described by three very simple processes (Reynolds, 1987):

1) Collision avoidance: Individuals should maintain a minimum distance between nearby animals to avoid collisions.

Table 1 Brief descriptions including exemplary theories and main authors of different theoretical perspectives

Theoretical perspective	Main assumptions	Exemplary theories and main authors
Biology	The development in all domains (motor, emotions, cognition, etc.) is rooted in the biologically determined maturation of the body and the brain. Often behavior (e.g., the inborn reflexes) is considered as being adaptive and having a survival value. The grasping reflex is seen as being adaptive because it allows the newborn child to cling to its mother's fur	Maturational theory (Arnold Gesell); ethological theory (Konrad Lorenz)
Learning	Based on the ideas of Aristotle and Locke (among others), development is seen as learning from experiences an individual makes. The learning can occur as a basis of reinforcement, which increases the likelihood of a behavior to be learned or punishment, which reduces this likelihood. The observation that children learn without reinforcement and punishment has led Bandura to the conclusion that children try actively to understand what other people are doing and whether or not to learn from them	Behaviorism (John Watson); classical (Pavlov) and operant (Skinner) conditioning; social cognitive theory (Albert Bandura)
Psychodynamic	Development is mainly determined by conflicts individuals are confronted with during different phases of the lifespan and, in particular, how well individuals solve these conflicts. The nature of these conflicts differs in the theories, Freud emphasizes psychosexual aspects, Erikson and Erikson focus on psychosocial aspects, and Havighurst focuses on developmental tasks in different stages of the lifespan	Psychosexual development (Sigmund Freud); psychosocial development (Erik H and Joan Erikson); developmental tasks (Robert Havighurst)

(continued)

Table 1 (continued)

Theoretical perspective	Main assumptions	Exemplary theories and main authors
Cognitive development	(Cognitive) Development is mainly determined by changes in children's thinking as they grow older. The most prominent candidate is Piaget's theory of genetic epistemology in which he emphasizes changes in children's thinking by a process of adaptation in which new information results in either the adaption of the child's own thinking (accommodation) or the reinterpretation of the information based on existing schemas (assimilation). He describes four distinct phases of development (sensorimotor, preoperational, concrete operational, and formal operational)	Genetic epistemology or constructivism (Jean Piaget)
Moral development	Piaget and after him Kohlberg formulated a stage theory for moral development in which children progress in their moral thinking as a result of their advances in cognitive development	Theories of moral development (Jean Piaget, Lawrence Kohlberg)
Context	Similar to learning theories, contextual theories oppose to some extent the idea of purely maturational processes taking place during development. These theories emphasize socio-cultural context as determining development. This context can refer to culture, to the specific language that is spoken that transfers knowledge in a language-specific way, that differs between different languages	Social constructivism (Lew Vygotsky, Luria), the bioecological model (Urie Bronfenbrenner), shared intentionality (Michael Tomasello), personality influenced by context (Walter Mischel)
Dynamic systems (see section "A Potential Candidate for an Integrative Theory: The Dynamic Systems Theories")	Development is determined by the dynamic interaction between changes in the individual in the particular	See different forms of application of the DST in Developmental Psychology

(continued)

Table 1 (continued)

Theoretical perspective	Main assumptions	Exemplary theories and main authors
	environment. Dynamic system means that a system (e.g., a child growing up in an environment) consists of elements that change over time. Development is a continuous interaction of all the levels of the developing system, from molecules to culture	by Esther Thelen, Linda B. Smith, or Paul van Geert
Information processing	The human cognitive system is compared to a computer with hardware (structure) that includes memory (short-term and long-term), processing units (processing speed), and input and output units and software including strategies and content. Development is determined by changes in information processing by the human cognitive system: the increase in processing speed, working memory capacity, and automated information processing, the use of more efficient strategies, an increase in knowledge content	

2) Velocity matching: Individuals should attempt to match velocity with nearby flockmates.
3) Flock centering: Individuals should attempt to stay close to nearby flockmates. Accordingly, the seemingly complex flocking behavior emerges from the particular (and simple) way individuals interact with each other. There is no innate, pre-specified movement pattern in these individuals, and there is no alpha individual telling the others how to move.

Application of DSTs to Development

The ideas of self-organization and emergence in combination with multi-causality have a long tradition in the natural sciences. Dynamic systems have been formulated as an area of mathematics and physics and in the areas of electrical networks, biological processes, and national economies. And while the idea of DSTs as guiding principles of development seems to be a relatively recent development, first approaches to this line of thinking have already been formulated by researchers such as Waddington, Lewin, or Gesell. These authors have formulated hypotheses

according to which development occurs as a result of the interplay of a multitude of external and internal factors. Only recently, the ideas of the development of mind and behavior based on emergence and self-organization have been taken up more systematically by developmental psychologists who started to interpret salient developmental changes such as the development of walking or the A-not-B-Error from a DST perspective (for overviews, see Thelen & Smith, 2007; van Geert, 2017). Smith and Thelen (2003) conclude that "Developmental change evolves from the real-time activities of the infant" (p. 347). Complex systems self-organize to produce cohesive patterns, and due to the multi-causal nature and different timescales, development becomes highly non-linear and sometimes highly sensitive to initial conditions during particular developmental phases. Smith and Thelen conclude "that small changes in one or more components of the dynamic system can lead to reorganisation and large differences in behaviour" (p. 347).

Application of DSTs to Existing Developmental Theories

The idea of development as a self-organizing process in which novel patterns emerge has not only been applied to individual phenomena but also been related to explain and extend previously formulated broader theoretical considerations. Here, we highlight one prominent example by Thelen and Smith (1996) and van Geert (1994, 2017) who applied DSTs to explain the process of adaptation in Piaget's theory of genetic epistemology (from the Greek *genetikos* = related to the formation; *episteme* = science, knowledge; and *logos* = reason). Piaget considered development to proceed in relatively short periods of transition intermitted by relatively long periods of stability. Van Geert (2017) describes the cognitive structures in these periods of stability as a system of "related, interacting, or interdependent components that, as a consequence of those relationships, form a unified whole" (p. 21). In the course of development, these structures are subject to change. Van Geert defines two distinct forms, *structure-preserving change* and *structure-altering change*. Structure-preserving change is observed when components of the system and their relations are changed but the higher-order structure remains unchanged. Piaget described this process as *assimilation*. Structure-altering change, in contrast, occurs when the current structure (or schema) cannot be applied any longer to a current problem. As a consequence, the schema has to be adjusted, which Piaget referred to as *accommodation*.

Van Geert (1998, 2017) brings together the basic principles of Piaget's theory with DSTs. Both approaches overlap with the notion of a self-organizing system with dynamic transformations, self-maintaining attractor states, resistance to perturbation (assimilation), return to stability after perturbation, and the existence of self-maintaining states over longer periods of time. However, DSTs add one particular explanation for which Piaget struggled, the development of novel (cognitive) structures. DSTs use the concept of emergence in the sense that structure or its components and their relationships "may, under certain conditions, spontaneously result in the arising [i.e., emergence] of novel properties" (van Geert, 2017, p. 22). In contrast to Piaget who describes the developing child as being actively involved in the construction of her/his cognition and behavior, the genesis of cognitive structure

and behavioral patterns is the consequence "of activity patterns governed by deep properties of organisation of the brain-body-world system" (van Geert, 2017, p. 23), with the components interacting on several different timescales (Fischer & van Geert, 2014; van Geert, 1998). To sum up, according to DSTs, the emergence of cognitive structure is not based on some form of pre-existing internal or external construction plan; rather, emergent patterns result spontaneously from simple activity principles in the interacting individuals.

To conclude, DSTs have the potential to explain and integrate several different previously formulated theoretical approaches beyond constructivist approaches such as those formulated by Piaget or Vygotsky. They share with nativist theories the idea of core processing mechanisms; however, they differ in that DSTs do not assume any form of core knowledge or modules. They share with learning theories that information and acquired experience result in a change of existing "schemas." DSTs thus have the potential to bridge the gap between opposing views and allow to move beyond either-or thinking by integrating ideas from different perspectives under the core assumptions of emergence and self-organization.

Application in Teaching

Vignette 3: Different Theories on the Development of Drawing

Max is a 4-year-old boy who is developing his drawing skills. Over the past few weeks, Max's drawing skills have improved significantly. Why? What has brought about this change? Let's try to describe the emergence of Max's drawing skills through the lens of some of the most important theoretical perspectives on development. According to biological theories, the ability to draw is determined by the maturation of certain brain structures responsible for fine motor skills. Differently, learning and contextual theories ascribe the improvement of Max's drawing skills to his experience and practice in this activity and to the reinforcement he received from both his parents and teachers. Finally, according to dynamic systems theories (DSTs), the development of Max's drawing skills reflects the interaction between his developmental changes (i.e., cognition, motor, motivation) in the particular environment he grows up in. Although the first two approaches make important contributions in explaining the emergence of a specific skill, they only focus on only one single aspect of development. In contrast, DSTs provide an integrated view of development, by trying to combine different perspectives.

Vignette 4: Dynamic Systems Theories vs. Piaget's Theory of Genetic Epistemology

Jeff and Kate are two passionate young chefs who just opened their own restaurants in Manhattan. Both are very creative and meticulous in the preparation of their dishes, but they follow different paths and procedures to create new culinary specialties. Jeff likes to creatively combine products and ingredients that are already available in his kitchen, while Kate, in addition to combining the ingredients she already owns, sometimes generates a new product (i.e., spices, cheeses) that she will use for her dishes.

These two culinary techniques reflect the DSTs and Piaget's theory on development. Piaget's theory describes development as the consequence of activity patterns characterized by deep properties of organization of the brain and body system, like a well-equipped kitchen that already has all its ingredients and products to create unique delicacies. In contrast, according to DSTs, a cognitive structure and patterns may result in the emergence of novel properties, just as a dish created from new ingredients.

Research Methods

In the previous sections, human development was discussed from a theoretical and historical perspective. However, to validate or refute theoretical considerations, empirical data is essential. In the following, we will discuss different approaches to how developmental change can be assessed. We start with the differentiation between two main categories, quantitative and qualitative methods, and then move to different designs to assess developmental change.

Qualitative and Quantitative Research Methods

In general, two main research directions are applied, described as qualitative and quantitative research methods (Przyborski & Wohlrab-Sahr, 2013). *Qualitative research* approaches aim to reconstruct phenomena, to generate hypotheses and theories. The methods are often not standardized, exploratory with open questions such as "What kind of practices and values are predominant in different cultures? Are there common practices between cultures and what do they mean?". Typical data collection methods are naturalistic observations, group discussions, or narrative interviews.

The major goal of *quantitative research* approaches is to make phenomena measurable, to test hypotheses and theories empirically using rigorous statistical analyses. Typical testing situations are highly standardized to reduce the amount of noise in the data and the potential for confounding factors as much as possible. Typical questions include "Are certain cultural values present in a group of people?" or "Do persons who have a strong expression of the cultural value x also have a strong expression of y?". Typical methods of data collection include standardized questionnaires, experiments, and systematic interventions. The two approaches are not as clear-cut as often assumed. For this reason, it has been suggested to distinguish between standardized and reconstructive methods or between hypothesis-testing and theory-building studies.

Research Designs

The discovery that infants have visual preferences for certain patterns (e.g., faces) over others (e.g., monochrome areas; Fantz, 1963) has provided looking time as a powerful measure to assess infants' perception and cognition. More recent technical advances in the application of eye tracking, encephalography (EEG), functional near-infrared spectroscopy (fNIRS), functional magnetic resonance imaging (fMRI), magnetoencephalography (MEG), and other neurophysiological techniques to developmental populations have provided a large variety of measurement

techniques that can be applied to assess the development of mind and behavior even in very young children.

Whichever technique is used, developmental researchers additionally need to consider how perception, cognition, and behavior change over time. Basically, there are two approaches to this question. Either, change is inferred (not measured!) from differences between the assessment of the behavior of different age groups (*cross-sectional assessment*). Or, change is measured by following the same groups across a certain amount of time (*longitudinal assessment*). Depending on the exact application of longitudinal research designs, for example, concerning the density of the measurement points, longitudinal designs can further be differentiated in sequential or microgenetic designs (Shaffer & Kipp, 2010).

Cross-Sectional Research Designs

In cross-sectional designs, different people from different age groups are studied at the same point in time. This approach allows us to identify age-related differences (but not changes). The possibility to collect data from different age groups in a short period of time is an advantage of the cross-sectional design. However, it also comes with limitations. Most importantly, participants in each age group are from different cohorts. This can cause so-called cohort effects: any difference between the age groups might be due to the different age or may reflect individual differences that characterize the members of different cohorts. Another limitation is that because each person is tested only at one point in time, it does not provide information about individual development and the respective (in)stability of individual development.

Longitudinal Research Designs

Already Vygotsky (1978) raised the concern that a cross-sectional approach primarily focuses on age-dependent and stable endpoints in development. Similarly, Adolph et al. (2008) stated that this kind of research has resulted in "a gallery of before and after snapshots, studio portraits of newborns, and fossilised milestones" (p. 527). With these static developmental pictures, little can be learned about developmental processes. This shortcoming is compensated for by longitudinal research paradigms. In a longitudinal design, the same cohort of participants is studied repeatedly over a certain period of time. Longitudinal designs allow the investigation of the change and stability of one specific aspect across time.

The advantages of longitudinal designs lie in the possibility to compare the developmental trajectories of different children and that actual development is measured and not only age differences. Disadvantages are that due to the repeated measurement and potentially resulting training effects, the study material is limited and longitudinal research takes time and requires (often substantially) more resources than cross-sectional research. The sample underlies selection effects in the sense that participants drop out for several reasons (relocation, limited desire to continue participating).

Sequential Research Designs

Sequential research designs (e.g., Schaie, 2015) combine the features of the two previously discussed designs, implying that participants from different age groups

are studied repeatedly over a period of months/years. This allows to make both longitudinal and cross-sectional comparisons within and between cohorts and to control for cohort effects. In general, sequential designs are more efficient than standard longitudinal designs; however, they are even more expensive and time-consuming.

Microgenetic Research Designs

One major shortcoming of most longitudinal studies is that it often remains unknown what happens between the measurement points. According to Adolph et al. (2008), "sampling rates typically used by developmental researchers may be inadequate to accurately depict patterns of variability and the shape of developmental change" (p. 527). That is, when the sampling rate is chosen too low, it is not possible to say anything about the shape of a developmental trajectory, for example, whether it reflects a continuous or discontinuous transformation.

Microgenetic research paradigms are a potential tool to overcome this shortcoming. This method assesses developmental change in short-term intervals such as weeks or even days. Microgenetic assessments are defined by several key features (e.g., Siegler, 2016), for example, the observation needs to span the complete period in which a developmental change of a particular skill is expected to occur. Further, the frequency of the measurements during this period is high, optimally day-to-day observations either in the lab or at home. Microgenetic research paradigms have shed light on children's motor development (Adolph et al., 2008), strategies for solving problems (Siegler & Svetina, 2002), arithmetic skills (Siegler & Jenkins, 2014), memory (Coyle & Bjorklund, 1997), and language skills (Gershkoff-Stowe & Smith, 1997). A microgenetic research design is a powerful tool to document development and to infer the processes that give rise to change. At the same time, it requires a great effort from both scientific staff and participating parents; it is costly and time-consuming. The high measurement frequency often results in the measurement period being limited in time, reduced to days or a few weeks. In addition, in a microgenetic study, children's behavior change is stimulated to occur and, therefore, may not reflect what children would normally encounter in a real situation.

Summary

The big challenge in developmental research is to measure change and not only age differences. The description of the most commonly used paradigms suggests that there is no silver bullet that can be applied and researchers have to choose from the available options the technique and the design that is most suitable to address the formulated research question, given the available resources.

Application in Teaching

Vignette 5: Qualitative and Quantitative Research Methods

Lisa and Anne are two developmental psychologists who are planning to test altruistic behavior in children of primary school. They apply two different research strategies. Anne starts to schedule interviews with parents and teachers and to

conduct structured observations of children's behavior at school. Lisa prepares standardized questionnaires and one computer experiment for her study in which she presents invented situations of different children who show different levels of helping behavior. While the children observe these situations, Anne measures their looking behavior and skin conductance as two dependent variables.

This example describes the two research approaches discussed at the beginning of this section: Anne applies a qualitative research approach, while Lisa applies a quantitative approach. The results of Anna and Lisa's studies will highlight different aspects of the same complex phenomenon. The combination of these methodological approaches provides important and complementary insights into the development of altruistic behavior.

Vignette 6: Longitudinal and Cross-sectional Research Designs

Alexander and Edward are two school psychologists who want to analyze the development of language in a group of elementary school children. Alexander chooses to analyze the development of the same group of children over time, while Edward prefers to test the language abilities of children of different ages and grades. Therefore, Alexander will test the development of language by employing a longitudinal design, whereas Edward will investigate the same phenomenon adopting a cross-sectional design. Over the years, Alexander, although he has undoubtedly gone through several dropouts, has gained important insights into the actual language development of individual children in an elementary school. On the other hand, Edward, albeit comparing children from different cohorts, was able to compare language development in children of different ages in a short period of time.

Exemplary Domain: Communication Development

Human infants are born with a predisposition to interact with other people. Infants notice contingencies between their own actions and the environment from the first weeks of life. Around the age of 3 months, infants interpret intentional actions as goal-directed.

The Saliency of Faces

One of the first visual stimuli a child is likely to see after birth is the face of the mother, the father, a midwife, or a pediatrician. Human faces and the look of the eyes are important sources of information in connection with an interaction with a social partner. From facial features, information can be extracted about the direction of attention (e.g., where someone is looking) and about their emotional state (e.g., whether someone is sad or happy). This information allows conclusions to be drawn about what someone is about to do (Baron-Cohen, 1995). Children have no prenatal experience of perceiving faces, but they show a preference for faces from birth (e.g., Valenza, Simion, Cassia, & Umilta, 1996). Even more, newborns prefer faces that look directly at them to faces that avert their gaze (Farroni, Massaccesi, Pividori, & Johnson, 2004), and they prefer faces with eyes open to faces with eyes closed

(Batki, Baron-Cohen, Wheelwright, Connellan, & Ahluwalia, 2000). This face preference suggests that children distinguish from birth between a social agent and a non-social physical object and respond to whether the face-bearing social agent wants to interact with them and whether to expect something interesting to learn from this person.

Infants are not only sensitive to the configuration of a face at birth; they rapidly develop a preference for certain faces thereafter. After only a few hours, infants prefer to look at the face of their mother to that of another woman (Bushneil, Sai, & Mullin, 1989). This preference increases in the first days of life with the length of time infants have seen their mother's face (Walton, Bower, & Bower, 1992).

Early Forms of Communication

Gaze Following

To communicate with and learn from others, other aspects than just the perception of faces are required. The direction of a person's gaze, for example, says something about what or where they are currently focusing their attention and who or what they might interact with next. The place a person looks marks the focus of their interest and their possible next action step. A shift of attention as a consequence of an observed gaze shift is shown by children as early as 3 to 6 months of age (Hood, Willen, & Driver, 1998). When children of this age see a face that suddenly directs their gaze to the left or right, they look more quickly at a subsequently appearing object if it appears in a position that is congruent with the direction of gaze than if it appears in an incongruent position. Even newborns show this shift of attention; however, they also need information on the movement of the eyes. They show the congruency effect only when the shift of gaze is observable (Farroni et al., 2004), while older children also shift their attention when observing a static image of a face with gaze directed to the side (Hood et al., 1998). Gaze following also depends on the context; toddlers between 12 and 18 months were more likely to follow a gaze shift when the observed agent had her eyes open compared to closed (Brooks & Meltzoff, 2002).

Joint Attention

Gaze following and pointing are crucial elements in understanding social behavior and are an early form of *joint attention*. Joint attention is characterized by the coordination of attention with another person regarding objects and events (Mundy & Newell, 2007). The development of joint attention is fundamental to the development of social and cognitive competencies and linguistic abilities. The frequency with which infants engage in joint attention is positively correlated with the development of their linguistic skills (Mundy et al., 2007), and joint attention influences information processing in 9-month-old infants (Striano, Chen, Cleveland, & Bradshaw, 2006).

Two types of joint attention are evident in infancy (Mundy & Newell, 2007): responding joint attention (RJA) and initiating joint attention (IJA). RJA refers to the infants' following of others' gaze and gestures; IJA involves infants' use of gestures

and eye contact to direct others' attention to an object, event, or themselves. It is considered an involuntary and early system that develops in the first months of life. IJA "involves infants' use of gestures and eye contact to direct others' attention to objects, to events, and to themselves" (Mundy & Newell, 2007, p. 269). The function of IJA is to show or spontaneously seek to share interests or pleasurable experiences with others.

Development of Communication

Human communication is multimodal and involves verbal and nonverbal forms of information transmission. Infants start to communicate long before they speak their first words. By the end of the first year, children develop a gestural communication system that allows them to successfully interact with their caregivers (Bruner, 1983). Yet, along the course of the development, gestures and speech become closely connected for realizing effective and mature communication (McNeill, 1992).

In the next section, we will describe significant acquisitions that typically characterize the development of communication in early childhood. According to the interactionist theory, communication develops in the context of social interactions during which children try to interact with their social partners (Bohannon & Bonvillian, 1997; Callanan & Sabbagh, 2004). In this context, communication skills are considered as the result of a complex interaction between biological maturation, cognitive development, and dynamic linguistic environment.

In the past years, psycholinguists noticed that communication strategies can promote and improve language learning. For example, it has been observed that before the acquisition of productive language skills, infants recognize regularities of language and conversational turn-taking by playing reversible roles with their social partners (Bruner, 1983). Specifically, by 9 months of age, infants understand the alternation rules of social games, and if this regular alternation is interrupted, they might try to re-establish the alternation of turn-taking (Ross & Lollis, 1987).

Moreover, different research showed that caregivers often communicate with children using infant-directed speech (IDS, Kuhl, 2004), a speech mode that is typically characterized by exaggerated pitch (Cooper & Aslin, 1990), expanded intonation (Fernald & Simon, 1984), higher variable speech rate and rhythm (Lee et al., 2014; Leong et al., 2017), and lexical and syntactic modifications (Soderstrom, 2007). In particular, the intonation is modulated to communicate different messages to the infants (Katz, Cohn, & Moore, 1996). For example, to recapture the infant's attention, parents use it to increase the intonation, while to reassure or comfort the infant, they usually adopt a falling intonation. Previous evidence revealed that 2- to 6-month-old infants react with vocalizations characterized by an intonation similar to that produced by their parents (Masataka, 1992).

As the child's language improves, parents' infant-directed speech becomes longer and more complex. They start to respond to the child's incorrect speech by providing a correct and extended version of the child's statement (i.e., expansion). During the prelinguistic phase of development (from birth to 10–13 months of life), infants show clear sensitivity and responsivity to language. For example, while hearing speech, newborns usually open their eyes, look at the speaker, and by 2 months of

age begin to use vocalization to communicate their needs (Rheingold & Adams, 1980; Rosenthal, 1982). By 4 to 6 months of age, infants start to babble by combining consonant and vowel sounds, and toward the end of the first year, children start to adjust their babbling to the tonal features of the language surrounding them (Blake & Boysson-Bardies, 1992; Davis & MacNeilage, 2000).

Toward the end of the first year of life, preverbal infants begin to use nonverbal communication such as gestures to interact with their social partners (Acredolo & Goodwyn, 1990). In particular, around 12 months of age, children usually show two types of preverbal gestures: "protoimperative" pointing and "protodeclarative" pointing. Protoimperative pointing is used to obtain an object (Baron-Cohen, 1989) and does not require a comprehension of others' mental states. On the other hand, protodeclarative pointing is used to direct the attention of another person toward something of interest to the infant. The use of protodeclarative pointing implies that the infant is aware of another person's mental state and, thus, could be considered an early indicator of the "theory of mind" (Baron-Cohen, 1989).

Even when children acquire advanced linguistic skills, they continue to use gestures to accompany speech or substitute missing words (Goldin-Meadow, 2000). Around 2 years, children acquire several pragmatic abilities that make them sensitive to other social features. The achievement of these pragmatic skills has a significant impact on efficient communication. For example, around 2 years of age, children learn to appropriately use vocal turn-taking and begin to show awareness about their partners' knowledge when they choose to discuss a specific topic. Moreover, children start to use some social communication norms, such as polite words when making requests (Baroni & Axia, 1989; Garton & Pratt, 1990). During the preschool period, children develop several conversational skills that help them to communicate more successfully. For example, at around 3 years of age, they begin to understand that the real meaning of an utterance may not always correspond to the literal meaning of the words (i.e., illocutionary intent). By age 6 to 7, children's communication and sociolinguistic skills enable them to adapt their speech to the needs of their listeners.

In conclusion, communicative development can be used as an example for the dynamics of development as proposed by dynamic systems theories because it is the result of a complex interaction between biological maturation and a highly dynamic social environment, which is constantly influenced by the child's interactions with their social partners (McKee & McDaniel, 2004; Tomasello, 1995).

Application in Teaching

Vignette 7: The Emergence of Joint Attention

Emily, a 5-month-old infant, has an older brother, Jack, who is 2 years old. Emily's dad loves to spend time on the mat with his little girl. However, during their interactions, he is often distracted by Jack, who loves to climb all over the place looking for new adventures. Emily's dad, therefore, while interacting with her, often turns his gaze toward Jack, and Emily will begin to observe her brother, following her father's gaze. When Emily turns 11 months, Jack's activities become of common

interest for Emily and her dad. Indeed, Emily is now the one to call her father's attention (using pointing and eye contact) toward her brother's activities and to respond in turn with smiles and vocalizations when her father calls her attention to Jack.

This example well describes the emergence of social behavior. Emily learned to shift her attention as a consequence of her dad's gaze shift. Moreover, over the months, she showed an early form of *joint attention* behavior by both following her dad's gaze and directing his attention to her brother.

Vignette 8: The Development of Communication and Social Interaction

Peter is a very talkative and communicative 7-year-old who loves to tell jokes and chat with his parents and friends. How has he developed his social and communication skills? Peter's parents are very social people, who establish new friendships very easily. In addition, Peter's parents communicated with their child during all stages of his development, naturally adapting the form of communication to Peter's current communicative skills. For example, when Peter was a newborn, his mother communicated with him by using the so-called infant-directed speech to which Peter responded with vocalizations and body movements. With the passing of the months, the communication between Peter and his parents became progressively richer. Peter appreciated the first illustrated animal books that his parents used to name each animal by reproducing the verse (i.e., onomatopoeic words). At about 18 months, he began to name the animals in his books, by saying the onomatopoeic words corresponding to each animal. As the months went by, Peter's social and communication skills became more and more refined, thanks also to the continuous feedback and reinforcement he received from his parents. For example, around the age of 3 to 4, Peter began to learn to wait his turn to speak and that it was important to use polite words when making requests.

From this description, it is possible to infer that the development of social and communication skills derives from interaction with the environment, constantly influenced and stimulated by social interactions whose nature and type change over time.

Teaching, Learning, and Assessment in Developmental Psychology: Approaches and Strategies

We close this chapter with a brief and exemplary overview of how Developmental Psychology can be taught in class, what the important topics are that we think can be covered in a curriculum, how age groups are categorized across the entire lifespan, and what forms of teaching can be applied. Section (1) includes *relevant topics* which a Developmental Psychology syllabus can choose from, (2) describes how *age groups* are categorized across the lifespan, and (3) describes how the *topics can be taught in a class*, for example, by providing applied classroom demonstrations.

Relevant Topics

The potential content of the curriculum is rich because Developmental Psychology covers all aspects of Psychology with a particular emphasis on change over (particular phases of) the lifespan. When we start teaching Developmental Psychology in a new class, one of the first aspects to cover is to discuss the "big questions" of Developmental Psychology. Ultimately, all studies and theories are directed toward answering these big questions, although very specific aspects of development are examined during the course. In Table 2, we describe a selection of potential topics including some major keywords for each topic. The selection is by far not complete and rather represents a guiding proposal than a complete overview. To teach individual topics, the reader is referred to textbooks such as mentioned in the section Selected References.

Age Groups

As said before, Developmental Psychology covers all the aspects mentioned in Table 2 from the perspective of change across the entire lifespan (e.g., Daum et al., 2020; Schwarzer & Walper, 2016). Because body, mind, and behavior are subject to substantial changes over the lifespan, it is not always appropriate or even possible to compare the competencies across different age groups. Here, in line with previous thoughts, we suggest using the following broad categorization to differentiate between different phases of the lifespan: prenatal (before birth), neonatal or newborn period (up to 3 months after birth), infancy (Although often used in the literature, we suggest to refrain from the use of the term "preverbal infants." The word "infant" comes from Latin "infans" meaning "unable to speak." Accordingly, "preverbal infants" is a pleonasm.) (up to 1 year), early childhood (comprising toddlerhood (The term toddler comes from the "toddeling" gait of young children, the typical staggering and wobbling and yet unstable way of independent walking that is first observed around the child's first birthday.), 1–3 years, and preschoolers, 3–5 years), later childhood/school-aged children (6–10 years), adolescence, (early, 11–14 years; late, 15–17 years), young adulthood (18–29 years; this also includes the potential phase of emerging adulthood (e.g., Arnett, 2007)), middle adulthood (30–64 years), early older adulthood (65–84 years), and late older adulthood (85 years and older). Please note that these phases are not set in stone and that depending on competencies and inter-individual variability, the boundaries of these phases can be dynamic.

Suggestions on How to Teach Topics of Developmental Psychology

It is not our goal to provide a comprehensive list and description of specific teaching formats for particular topics of Developmental Psychology. This is covered by collections and textbooks that present different formats and empirical findings on

Table 2 Suggestions for topics to teach in Developmental Psychology and most important keywords

Topic	Major keywords
Basic foundations	
What is (child) development	Historical foundations: Questions of dispute; practical implications; societal relevance
Theories of development	Nature vs. nurture; active vs. passive child; nativism; behaviorism; core knowledge; constructivism; information processing; socio-cultural theories; dynamic systems; domain-specific vs. domain-general theories
Research designs to measure development	Cross-sectional; longitudinal; sequential cohort design; microgenetic
Basic functions	
Brain development	Brain maturation; brain plasticity; specialization of different brain areas and functions; critical/sensitive periods; development of neurons; neurotransmitters
Biology and behavior	Genes and environment and their interaction; differentiation of cells and structures; behavioral genetics; heritability; epigenetics; twin studies
Body growth	Anatomical development before and after birth; growth spurts; timing of growth
Motor development	Prenatal movements; reflexes and their function and plasticity; reaching and grasping; coordination of changing bodies; perception and action; locomotion; navigating in the environment
Perception	Sensation vs. perception vs. cognition; higher senses (vision, hearing); lower senses (taste, smell, touch, pain); object perception; face perception; depth perception; categorical perception; intermodal perception; multisensory integration
Cognition	Working memory; short-term memory; long-term memory; attention; information processing; executive functions (planning, shifting, and inhibition); cognitive flexibility
Knowledge about concepts	Artifacts; living entities; causality; objects, space, time, and numbers; play (pretend, sociodramatic)
Language	Preverbal and verbal communication; nonverbal communication; language acquisition; language spurt; multilingualism; gestures; use and understanding of symbols; infant-directed speech; sign language
Intelligence	Concepts of intelligence; measuring intelligence; IQ scores; predictive validity; heredity; genes X environment
School-related competencies	Reading; writing; mathematics; individual and collaborative learning; influence of teachers, parents, SES; use of gestures in teaching
Emotions	Primary emotions (anger, disgust, fear, happiness, sadness, and surprise); secondary emotions; self-related emotions; emotion expression; emotion understanding; emotion regulation; temperament; stress
Social cognition	Intersubjectivity; joint attention (joint action, following attention, directing attention); imitation; understanding intentions; theory of mind

(continued)

Table 2 (continued)

Topic	Major keywords
Self	Self-concept; mirror self-recognition; contingency detection; identity; self-esteem
Sex/gender differences	Biological, social, motivational, cognitive, and cultural influences; body image; gender identity; gender stability and flexibility
Moral development	Theories of moral development; prosocial behavior; antisocial behavior; moral judgment; aggression; altruism
Influences of context	
Attachment	Attachment theory; strange situation test; secure and insecure attachment; attachment network; cultural variations
Family relations	Parenting; parenting styles; parent-child interactions; family structures; family dynamics; socioeconomic context
Peer relations	Friendships; peer interactions; status in peer groups; bullying

how the design effective teaching (e.g., Buskist & Benassi, 2011; Chalmers & Fuller, 2012, Schneider & Mustafić, 2015). Our goal is to provide some applied examples about how the findings can be implemented in everyday teaching and how critical thinking can be fostered among students (and teachers; see Dunn, Halonen, & Smith, 2008, for a more in-depth discussion on teaching critical thinking).

Similar to other areas in Psychology, applied examples of the different topics can be found everywhere (see Vignette 2: Continuous vs. Non-continuous Development). The Ph.D. supervisor of one of the authors often suggested that research ideas are virtually lying on the street (Wilkening; 2002, personal communication). The vignettes attached to the individual sections are some (out of an infinite number of) examples of how a particular topic can be introduced in class. Some of them are particularly suitable for the format of a debate where two groups prepare the pros and cons of a respective point of view which are then discussed in a plenary discussion. Others are more suitable for thinking about different aspects of development. Contemporary textbooks provide many more examples for vignettes (see section Textbooks in the section "Teaching, Learning, and Assessment Resources") for some examples of suitable textbooks.

Examples for Applied Teaching Techniques

One of the most important issues when teaching Developmental Psychology is the aspect of how development can be measured (see section "Research Methods"). This aspect can easily be addressed in an applied way in class. Change not only occurs in periods of months and years, but more short-term changes and fluctuations such as heart rate or respiratory frequency can be made visible with the students. A short exemplary intervention study would include the measurement of a physical aspect such as heart rate and a cognitive aspect such as mathematical abilities in two groups of children at two measurement points. The members of an intervention and a control group are tested before and after running around the building for 10 min. Their performance will be compared to a control group of students who read a short story

for the same duration of 10 min. With such a procedure, the effects of an intervention (physical activity) on both physical and cognitive (or emotional, etc.) performance can be made visible, and the effects of moderating factors such as sex, age, fitness, and math grades can be discussed and included in the analyses.

More systematically, students might be guided to work on a small research project in which they need to identify a theoretically grounded research question, formulate hypotheses, operationalize the research question, run a short experiment, analyze the data, and relate the results to the previously formed hypotheses. For the derivation of a *theoretical basis*, one promising approach is "theory mapping" (e.g., Gray, 2017). Theory mapping involves drawing out links between constructs using different elements such as associations, moderations, and fundamental elements. It can be used to develop a simple theoretical background from which a well-justified research question can be derived. *Assessing* development requires the application of sophisticated research technologies and differentiated material. It often requires extensive offline coding from previously recorded looks toward a monitor or the measurement of gaze behavior using eye-tracking technology. However, there are several easy-to-apply paper-pencil tests such as the Stroop Colour and Word Test (e.g., Stroop, 1935), the Grass/Snow Task (Carlson & Moses, 2001), or a Backward Digit Span Task (Davis & Pratt, 1995). Further, children's behavior can be assessed via structured observations on playgrounds or in childcare institutions. In this setting, research topics can include the use of pretend play (as an indicator for the social-cognitive development), the number of conflicts with peers (as an indicator for their pro- and antisocial behavior), and the number of utterances made in a period of, for example, 5 min (as an indicator of their language status). The data is then compared between the same child across different situations (to assess the intra-individual variability), between different children of the same age (to assess inter-individual variability), and between children of different age groups (to assess the effect of age and the accompanying age-related differences). These different types of approaches provide a set of tools with which Developmental Psychology can be experienced by students first-hand by systematically looking at how similar and how different children of different age groups are.

The final example highlights how students can experience directly how a particular competence such as language is acquired (http://www.devpsy.org ©). This can be achieved by employing a game in which students learn to acquire language solely through the ability to produce phonemes: the instructor will provide the students with shapes in different colors and sizes and a list of phonemes that they will have to associate to a specific characteristic (e.g., color, shape). The students will work in small groups. In each group, one student will produce a picture with the shapes, and he/she will use only phonemes to describe the picture to the other students who have the task of creating the same picture, but without seeing it. This game gives students an active role in their learning of how skills develop.

Challenges and Lessons Learned

To conclude, we aimed to provide a comprehensive and contemporary view on current topics particularly relevant when teaching Developmental Psychology. The chapter by no means intended to cover all aspects of Developmental Psychology. Even Developmental Psychology textbooks do not manage to do so. But we highlight some of the major questions and challenges discussed in the field. This includes statements such as (1) development is not just the maturation of the body and the brain; (2) development does not occur in a stepwise fashion; rather, (3) development occurs as an interaction between biological and environmental processes; (4) group means are not necessarily reflecting the development of an individuum; and (5) a growing child is constantly and dynamically changing and so is the content of the topic Developmental Psychology. With this, we hope to enrich the portfolio of Developmental Psychology teachers with information about the origins and future directions of Developmental Psychology with the ultimate goal to foster critical thinking about the development of individuals across the entire lifespan.

Teaching, Learning, and Assessment Resources

For recommendations and advice, please see the section above entitled "Suggestions on How to Teach Topics of Developmental Psychology."

Textbooks

Siegler, R. S., Saffran, J. R., Eisenberg, N., Gershoff, E. T., & Leaper, C. (2019). *How children develop* (6th ed.). Worth Pub.

Keil, F. (2013). *Developmental psychology: The growth of mind and behavior: international student edition*. W. W. Norton & Company.

Kail, R. V. (2015). *Children and their development* (Global ed.). Pearson Education Limited.

Tomasello, M. (2019). *Becoming human: A theory of ontogeny.* Harvard University Press.

German: Schneider, W., & Lindenberger, U. (2018). *Entwicklungspsychologie: Mit Online-Material* (Originalausgabe, 8., vollständig überarbeitete). Beltz.

Theories

van Geert, P. L. C. (1994). *Dynamic systems of development: Change between complexity and chaos* (pp. xii, 300). Harvester Wheatsheaf.

Specific Topics

Meaney, M. J. (2010). Epigenetics and the biological definition of gene × environment interactions. *Child Development, 81*(1), 41–79. https://doi.org/10.1111/j.1467-8624.2009.01381.x

Cross-References

- ▶ Basic Principles and Procedures for Effective Teaching in Psychology
- ▶ Developmental Psychology: Moving Beyond the East–West Divide
- ▶ Psychology in Social Science and Education
- ▶ Teaching the Foundations of Psychological Science

References

Acredolo, L. P., & Goodwyn, S. W. (1990). Sign language among hearing infants: The spontaneous development of symbolic gestures. *Springer Series in Language and Communication*, 68–78. https://doi.org/10.1007/978-3-642-74859-2_7

Adolph, K. E., Young, J. W., Robinson, S. R., & Gill-Alvarez, F. (2008). What is the shape of developmental change? *Psychological Review, 115*(3), 527–543. https://doi.org/10.1037/0033-295x.115.3.527

Arnett, J. J. (2007). Emerging adulthood: What is it, and what is it good for? *Child Development Perspectives, 1*(2), 68–73. https://doi.org/10.1111/j.1750-8606.2007.00016.x

Baltes, P. B. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology, 23*(5), 611–626. https://doi.org/10.1037/0012-1649.23.5.611

Baron-Cohen, S. (1989). Perceptual role taking and protodeclarative pointing in autism. *British Journal of Developmental Psychology, 7*(2), 113–127. https://doi.org/10.1111/j.2044-835x.1989.tb00793.x

Baron-Cohen, S. (1995). *Mindblindness: An essay on autism and theory of mind*. Cambridge, MH: MIT Press.

Baroni, M. R., & Axia, G. (1989). Children's meta-pragmatic abilities and the identification of polite and impolite requests. *First Language, 9*(27), 285–297. https://doi.org/10.1177/014272378900902703

Batki, A., Baron-Cohen, S., Wheelwright, S., Connellan, J., & Ahluwalia, J. (2000). Is there an innate gaze module? Evidence from human neonates. *Infant Behavior & Development, 23*(2), 223–229.

Bischof, N. (2020). Life Span an der Lahn. *Psychologische Rundschau, 71*(1), 36–38.

Blake, J., & Boysson-Bardies, B. D. (1992). Patterns in babbling: A cross-linguistic study. *Journal of Child Language, 19*(1), 51–74. https://doi.org/10.1017/s0305000900013623

Bohannon, J. H., & Bonvillian, J. D. (1997). Theoretical approaches to language acquisition. *The Development of Language, 4*, 259–316.

Bowlby, J. (1999). *Attachment and loss: Vol. 1. Attachment* (2nd ed.). Basic Books.

Brooks, R., & Meltzoff, A. N. (2002). The importance of eyes: How infants interpret adult looking behavior. *Developmental Psychology, 38*(6), 958–966. https://doi.org/10.1037/0012-1649.38.6.958

Bruner, J. S. (1983). Play, thought, and language. *Peabody Journal of Education, 60*(3), 60–69. https://doi.org/10.1080/01619568309538407

Bushneil, I. W. R., Sai, F., & Mullin, J. T. (1989). Neonatal recognition of the mother's face. *British Journal of Developmental Psychology, 7*(1), 3–15. https://doi.org/10.1111/j.2044-835X.1989.tb00784.x

Buskist, W. F., & Benassi, V. A. (Eds.). (2011). *Effective college and university teaching: Strategies and tactics for the new professoriate* (1st ed.). SAGE.

Callanan, M. A., & Sabbagh, M. A. (2004). Multiple labels for objects in conversations with young children: Parents' language and children's developing expectations about word meanings. *Developmental Psychology, 40*(5), 746–763. https://doi.org/10.1037/0012-1649.40.5.746

Carlson, S. M., & Moses, L. J. (2001). Individual differences in inhibitory control and children's theory of mind. *Child Development, 72*(4), 1032–1053. https://doi.org/10.1111/1467-8624.00333

Chalmers, D., & Fuller, R. (2012). *Teaching for learning at university.* Routledge.

Cooper, R. P., & Aslin, R. N. (1990). Preference for infant-directed speech in the first month after birth. *Child Development, 61*(5), 1584–1595. https://doi.org/10.1111/j.1467-8624.1990.tb02885.x

Coyle, T. R., & Bjorklund, D. F. (1997). Age differences in, and consequences of, multiple and variable-strategy use on a multitrial sort-recall task. *Developmental Psychology, 33*(2), 372–380. https://doi.org/10.1037/0012-1649.33.2.372

Daum, M. M., Greve, W., Pauen, S., Schuhrke, B., & Schwarzer, G. (2020). Positionspapier der Fachgruppe Entwicklungspsychologie: Versuch einer Standortbestimmung. *Psychologische Rundschau, 71*(1), 15–23. https://doi.org/10.1026/0033-3042/a000465

Daum, M. M., & Manfredi, M. (2021). The history of developmental psychology. *PsyArXiv*. https://doi.org/10.31234/osf.io/s2ckp

Davis, B. L., & MacNeilage, P. F. (2000). An embodiment perspective on the acquisition of speech perception. *Phonetica, 57*(2–4), 229–241. https://doi.org/10.1159/000028476

Davis, H. L., & Pratt, C. (1995). The development of children's theory of mind: The working memory explanation. *Australian Journal of Psychology, 47*(1), 25–31. https://doi.org/10.1080/00049539508258765

Dunn, D., Halonen, J. S., & Smith, R. A. (2008). *Teaching critical thinking in psychology a handbook of best practices*. Wiley-Blackwell.

Erikson, E. H., & Erikson, J. M. (1998). *The life cycle completed*. W. W. Norton & Company.

Fantz, R. L. (1963). Pattern vision in newborn infants. *Science, 140*(3564), 296–297. https://doi.org/10.1126/science.140.3564.296

Farroni, T., Massaccesi, S., Pividori, D., & Johnson, M. H. (2004). Gaze following in newborns. *Infancy, 5*, 39–60.

Fernald, A., & Simon, T. (1984). Expanded intonation contours in mothers' speech to newborns. *Developmental Psychology, 20*(1), 104–113. https://doi.org/10.1037/0012-1649.20.1.104

Fischer, K. W., & van Geert, P. L. C. (2014). Dynamic development of brain and behavior. In *Handbook of developmental systems theory and methodology* (pp. 287–315). The Guilford Press.

Freud, S. (1930). *Three contributions to the theory of sex: Authorized transl. By AA Brill. With introduction by James J. Putnam, and AA Brill*. Nervous and Mental Disease Publishing Company.

Garton, A. F., & Pratt, C. (1990). Children's pragmatic judgements of direct and indirect requests. *First Language, 10*(28), 51–59. https://doi.org/10.1177/014272379001002804

Gershkoff-Stowe, L., & Smith, L. B. (1997). A curvilinear trend in naming errors as a function of early vocabulary growth. *Cognitive Psychology, 34*(1), 37–71. https://doi.org/10.1006/cogp.1997.0664

Goldin-Meadow, S. (2000). Beyond words: The importance of gesture to researchers and learners. *Child Development, 71*(1), 231–239. https://doi.org/10.1111/1467-8624.00138

Gray, K. (2017). How to map theory: Reliable methods are fruitless without rigorous theory. *Perspectives on Psychological Science.* https://doi.org/10.1177/1745691617691949

Hamaker, E. L. (2012). Why researchers should think "within-person": A paradigmatic rationale. In M. R. Mehl & T. S. Connor (Eds.), *Handbook of research methods for studying daily life* (pp. 43–61). Guilford.

Havighurst, R. J. (1972). *Developmental tasks and education* (3rd ed.). New York: David McKay Company.

Hood, B. M., Willen, J. D., & Driver, J. (1998). Adult's eyes trigger shifts of visual attention in human infants. *Psychological Science, 9*(2), 131–134. https://doi.org/10.1111/1467-9280.00024

James, W. (1890). *The principles of psychology.* Holt.

Katz, G. S., Cohn, J. F., & Moore, C. A. (1996). A combination of vocal f0 dynamic and summary features discriminates between three pragmatic categories of infant-directed speech. *Child Development, 67*(1), 205. https://doi.org/10.2307/1131696

Kohlberg, L. (1973). *Moral development*. McGraw-Hill Films.

Kuhl, P. K. (2004). Early language acquisition: Cracking the speech code. *Nature Reviews Neuroscience, 5*(11), 831–843. https://doi.org/10.1038/nrn1533

Lee, C. S., Kitamura, C., Burnham, D., & McAngus Todd, N. P. (2014). On the rhythm of infant-versus adultdirected speech in Australian English. *The Journal of the Acoustical Society of America, 136*(1), 357–365.

Leong, V., Kalashnikova, M., Burnham, D., & Goswami, U. (2017). The temporal modulation structure of infantdirected speech. *Open Mind, 1*(2), 78–90.

Lindenberger, U. (2013, September 10). Lifespan psychology: Challenges for the future. *21. Tagung Fachgruppe Entwicklungspsychologie*. Tagung der Fachgruppe Entwicklungspsychologie der DGPs, Saarbrücken.

Masataka, N. (1992). Pitch characteristics of Japanese maternal speech to infants. *Journal of Child Language, 19*(2), 213–223. https://doi.org/10.1017/s0305000900011399

McKee, C., & McDaniel, D. (2004). Multiple influences on children's language performance. *Journal of Child Language, 31*(2), 489–492. https://doi.org/10.1017/s0305000904006130

McNeill, D. (1992). *Hand and mind: What gestures reveal about thought*. University of Chicago Press.

Meaney, M. J. (2001). Nature, nurture, and the disunity of knowledge. *Annals of the New York Academy of Sciences, 935*(1), 50–61. https://doi.org/10.1111/j.1749-6632.2001.tb03470.x

Meaney, M. J. (2010). Epigenetics and the biological definition of gene × environment interactions. *Child Development, 81*(1), 41–79. https://doi.org/10.1111/j.1467-8624.2009.01381.x

Munakata, Y., Snyder, H. R., & Chatham, C. H. (2012). Developing cognitive control: Three key transitions. *Current Directions in Psychological Science, 21*(2), 71–77. https://doi.org/10.1177/0963721412436807

Mundy, P., Block, J., Delgado, C., Pomares, Y., Van Hecke, A. V., & Parlade, M. V. (2007). Individual differences and the development of joint attention in infancy. *Child Development, 78*(3), 938–954. https://doi.org/10.1111/j.1467-8624.2007.01042.x

Mundy, P., & Newell, L. (2007). Attention, joint attention, and social cognition. *Current Directions in Psychological Science, 16*(5), 269–274. https://doi.org/10.1111/j.1467-8721.2007.00518.x

Piaget, J. (1954). *The construction of reality in the child*. Basic Books.

Plomin, R., DeFries, J. C., Craig, I. W., & McGuffin, P. (2003). Behavioral genetics. In R. Plomin, J. C. DeFries, I. W. Craig, & P. McGuffin (Eds.), *Behavioral genetics in the postgenomic era* (pp. 3–16). American Psychological Association.

Plomin, R., & Spinath, F. M. (2004). Intelligence: Genetics, genes, and genomics. *Journal of Personality and Social Psychology, 86*(1), 112–129. https://doi.org/10.1037/0022-3514.86.1.112

Przyborski, A., & Wohlrab-Sahr, M. (2013). *Qualitative Sozialforschung: Ein Arbeitsbuch*. Walter de Gruyter.

Reinert, G. (1976). *Grundzüge einer Geschichte der Human-Entwicklungspsychologie*. Univ., Fachbereich I, Psychologie.

Reynolds, C. W. (1987). Flocks, herds and schools: A distributed behavioral model. *ACM SIGGRAPH Computer Graphics, 21*(4), 25–34. https://doi.org/10.1145/37402.37406

Rheingold, H. L., & Adams, J. L. (1980). The significance of speech to newborns. *Developmental Psychology, 16*(5), 397–403. https://doi.org/10.1037/0012-1649.16.5.397

Rosenthal, M. (1982). Vocal dialogues in the neonatal period. *Developmental Psychology, 18*(1), 17–21. https://doi.org/10.1037/0012-1649.18.1.17

Ross, H. S., & Lollis, S. P. (1987). Communication within infant social games. *Developmental Psychology, 23*(2), 241–248. https://doi.org/10.1037/0012-1649.23.2.241

Schacter, D., Gilbert, D., Wegner, D., & Hood, B. M. (2011). *Psychology: European edition*. Macmillan International Higher Education.

Schaie, K. W. (2015). Cohort sequential designs (convergence analysis). In R. L. Cautin & S. O. Lilienfeld (Eds.), *The encyclopedia of clinical psychology* (pp. 1–6). American Cancer Society. https://doi.org/10.1002/9781118625392.wbecp098

Schneider, M., & Mustafić, M. (2015). *Gute Hochschullehre: Eine evidenzbasierte Orientierungshilfe: Wie man Vorlesungen, Seminare und Projekte effektiv gestaltet*. Springer-Verlag.

Schwarzer, G., & Walper, S. (2016). Entwicklungspsychologie. In *Dorsch Lexikon der Psychologie*. Verlag Hans Huber. https://m.portal.hogrefe.com/dorsch/gebiet/entwicklungspsychologie/.

Shaffer, D. R., & Kipp, K. (2010). *Developmental psychology: Childhood and adolescence* (8th ed.). Wadsworth/Cengage Learning. http://thuvienso.vanlanguni.edu.vn/handle/Vanlang_TV/11689

Siegler, R. S. (2016). Continuity and change in the field of cognitive development and in the perspectives of one cognitive developmentalist. *Child Development Perspectives, 10*(2), 128–133. https://srcd.onlinelibrary.wiley.com/doi/abs/10.1111/cdep.12173. https://doi.org/10.1111/cdep.12173

Siegler, R. S., & Jenkins, E. A. (2014). *How children discover new strategies*. Psychology Press.

Siegler, R. S., & Svetina, M. (2002). A microgenetic/cross-sectional study of matrix completion: Comparing short-term and long-term change. *Child Development, 73*(3), 793–809. https://doi.org/10.1111/1467-8624.00439

Smith, L. B., & Thelen, E. (2003). Development as a dynamic system. *Trends in Cognitive Sciences, 7*(8), 343–348. https://doi.org/10.1016/S1364-6613(03)00156-6

Soderstrom, M. (2007). Beyond babytalk: Re-evaluating the nature and content of speech input to preverbal infants. *Developmental Review, 27*(4), 501–532. https://doi.org/10.1016/j.dr.2007.06.002

Spencer, J. P., Thomas, S. C., & McClelland, J. L. (2009). *Toward a unified theory of development: Connectionism and dynamic systems theory re-considered*. Oxford University Press.

Striano, T., Chen, X., Cleveland, A., & Bradshaw, S. (2006). Joint attention social cues influence infant learning. *European Journal of Developmental Psychology, 3*(3), 289–299. https://doi.org/10.1080/17405620600879779

Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology, 18*, 643–662.

Tarantino, N., Tully, E. C., Garcia, S. E., South, S., Iacono, W. G., & McGue, M. (2014). Genetic and environmental influences on affiliation with deviant peers during adolescence and early adulthood. *Developmental Psychology, 50*(3), 663–673. https://doi.org/10.1037/a0034345

Thelen, E., & Smith, L. B. (1996). *A dynamic systems approach to the development of cognition and action*. MIT Press.

Thelen, E., & Smith, L. B. (2007). Dynamic systems theories. In *Handbook of child psychology*. American Cancer Society. https://doi.org/10.1002/9780470147658.chpsy0106

Tomasello, M. (1995). Joint attention as social cognition. In C. Moore & P. J. Dunham (Eds.), *Joint attention: Its origins and role in development* (pp. 103–130). Lawrence Erlbaum Associates.

Trautner, H. M. (2003). *Allgemeine Entwicklungspsychologie*. Kohlhammer Verlag.

Valenza, E., Simion, F., Cassia, V. M., & Umilta, C. (1996). Face preference at birth. *Journal of Experimental Psychology-Human Perception and Performance, 22*(4), 892–903.

van Geert, P. L. C. (1994). *Dynamic systems of development: Change between complexity and chaos* (p. xii, 300). Harvester Wheatsheaf.

van Geert, P. L. C. (1998). A dynamic systems model of basic developmental mechanisms: Piaget, Vygotsky, and beyond. *Psychological Review, 105*(4), 634–677. https://doi.org/10.1037/0033-295X.105.4.634-677

van Geert, P. L. C. (2017). Constructivist theories. In B. Hopkins, E. Geangu, & S. Linkenauger (Eds.), *The Cambridge encyclopedia of child development* (2nd ed., pp. 19–34). Cambridge University Press. https://doi.org/10.1017/9781316216491.005

Vygotsky, L. S. (1978). *Mind and society: The development of higher mental processes*. Harvard University Press.

Walton, G. E., Bower, N. J. A., & Bower, T. G. R. (1992). Recognition of familiar faces by newborns. *Infant Behavior & Development, 15*(2), 269–265. https://doi.org/10.1016/0163-6383(92)80027-R

Werker, J. F., & Hensch, T. K. (2015). Critical periods in speech perception: New directions. *Annual Review of Psychology, 66*(1), 173–196. https://doi.org/10.1146/annurev-psych-010814-015104

Developmental Psychology: Moving Beyond the East–West Divide

11

Nandita Chaudhary, Mila Tuli, and Ayesha Raees

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N. Chaudhary (✉)
Department of Human Development and Childhood Studies, Lady Irwin College, University of Delhi, Delhi, India

M. Tuli · A. Raees
Department of Human Development and Childhood Studies, Institute of Home Economics, University of Delhi, Delhi, India

J. Zumbach et al. (eds.), *International Handbook of Psychology Learning and Teaching*, Springer International Handbooks of Education,
https://doi.org/10.1007/978-3-030-28745-0_14

Abstract

Developmental Psychology is the science of human growth and development across the life span. Drawing from its parent discipline, Psychology's developmental subdiscipline has continued with a focus on Western, industrialized, and educated populations while describing behavior. By eliminating cultural contexts from its discourse, the discipline of Psychology has largely ignored the majority world in constructing the notion of childhood and later development. Standards and norms are mostly based on these assumptions. This chapter outlines some shortcomings of mainstream Psychology and the impact this has had in creating a unidimensional, narrow, and skewed understanding of human development and behavior. These criticisms are not new. Yet the refusal to recognize the obvious continues to plague the discipline. By choosing to align with the "scientific" methods of experimentation and lab-based study developed by the physical sciences, by emphasizing standards and norms of human behavior, by insisting on Western/European/American interpretations of behavior, Psychology has created a hegemonic discipline that still continues to use the "one (costly) glove fits all" premise. Using research examples from Asia (specifically India) and Africa, the chapter systematically demonstrates how well-established tools, techniques, systems, and theoretical binaries are inadequate to explain the diversity of human existence. Some instances of traditional, context-specific ideas and wisdom have been shared to emphasize the need to recognize and hear multiple voices. Using the cultural understanding of childhood as the focus, the association between science and culture has also been examined. Furthermore, the chapter introduces the student of Psychology to the idea of globally valid and sustainable ideas to respond to the changing needs and situation of a new world order.

Keywords

Developmental psychology · Culture · Context · Methods · Childhood · Learning · Language

Introduction

Developmental psychology is the scientific study of growth, continuity, and changes in a developing organism. It includes the exploration of different dimensions of human behavior and psyche including physical, cognitive, language, social, and emotional aspects across the life span. These domains relate to the specific tradition of mainstream Psychology, the configuration of which can be remarkably different in different traditions, although guided by similar preoccupations of understanding

human behavior and thought. Historically, the "objects of interest" for psychologists are constructed and can be vastly different based on problems, assumptions, and categories that cannot be reduced to specifics. Psychological categories are not "exempt from the flux of history" (Danziger, 1997, p. 12).

Some important developmental concerns relate to the contributions of nature and nurture and biological predispositions and the environment; descriptions of changes and continuity and the nature of transformations, and their stage-like quality. The primary objectives of the science are to be able to describe, understand, explain, and predict human behavior and to consolidate findings from research to expand and refine our theoretical understanding of life, from childhood to maturity and old age. In fulfilling these tasks, Developmental Psychology has accomplished a great deal. We now know a lot more about children's developing minds and activities, what they think about the world around them, their social relationships, and their fears. Yet, these descriptions have been collected from the study of a relatively small number of people and there has been a failure to adequately represent diversity, both by minimizing the study of contexts (Kagan, 2012), conceptual and practical debates (Burman, 1994/2017), and samples used for research (Henrich, Heine, & Norenzayan, 2010). A thorough examination of research studies over the years demonstrates a WEIRD bias in sampling (Western, Educated, Industrialized, Rich and Democratic societies) mostly easily accessible groups like University students. Despite intense criticisms and extensive debates there remains a persistent sampling bias in developmental research based on methodological (also see ▶ Chap, 18, "The Methodology Cycle as the Basis for Knowledge," by Valsiner and Branco, this volume) and theoretical preferences (Nielsen, Haun, Kärtner, & Legere, 2017).

The subject of Psychology can be reverse constructed through several channels, by looking at University curricula, research topics, contents of books, but we can also look another way, at public imagination. What do lay people understand as Psychology? Psychology in this space is understood as a body of work based largely on theories and experimentation related to self-knowledge, intimate relations, well-being, and therapy. A quick look at public libraries or bookstores will provide an easy access to this understanding. Yet, even in academic circles, higher education, and research laboratories, these domains are popular. In this sense, Psychology has failed to address worldwide concerns, and remains driven by a relatively narrow range of assumptions about human behavior that persist as epistemological errors caused by historical amnesia (▶ Chap. 46, "Epistemology of Psychology," by Jovanović, this volume).

In this chapter, we will reflect on several of these issues drawing from scholarly writing and social debates about content and processes and provide some alternative perspectives about the future of Psychology with social justice, sustainability, and inclusion.

Theoretical Perspectives and a Brief History

For the social sciences, context is constitutive. After all, it is our own selves and our connections to circumstances that we attempt to study. The person and environment are in constant dialogue and any attempt to separate these processes is artificial

and incomplete. In the case of Psychology, phenomena are subjective, ephemeral, and even elusive, making access a constant challenge. Sensitivity to context, time, and person adds to the complexity of investigating phenomena that makes the template of the natural sciences, physics in particular, an inappropriate model for Psychology. This emphasis on observations, measurement, and objectivity resulted in significant gaps in the pursuit of our understanding of psychological phenomena. Despite the long-standing history of work on qualitative methodologies, the valuable contributions made to the field of psychology have not had the kind of impact on the discipline as in other social sciences (▶ Chap. 19, "Qualitative Methodology," by Mey, this volume). The acceptance of qualitative research in psychology has had limited expression, in the use of interviews and qualitative content analysis, and the mixed-methods paradigm (Demuth & Mey, 2015).

In an attempt to explain psychological phenomena, theories developed in limited contexts were adopted as universal principles, guidelines, and norms for behavior and development. Not unlike the blind men and their individual ideas of an elephant's form in a well-known tale (see notes below), the study of Psychology has been fragmented and incomplete, but sometimes also erroneous (▶ Chap. 46, "Epistemology of Psychology," by Jovanović, this volume). Psychology has remained rather uncomfortable with "culture" and a common strategy has been to ignore context and treat real-life circumstances as "noise" or distraction. In this tradition, the laboratory is promoted as a "pure setting," but for us context-dependent humans, this (the lab) is also an environment, with its own peculiar properties that impinge upon our responses. Despite this awkwardness, Psychology requires to be committed to the study of phenomena in context, but it need not be bound by context either. In practical applications, there is no denying that Psychology has failed to find relevance in several parts of the world, but because of that disconnect, we will argue that mainstream Psychology has, in fact, seriously failed even the "West."

It is believed that history is written by the victors, and this may also be true of mainstream Psychology, although there are significant challenges to the dominant position promoted in journal articles (Kagan, 2012). The uneven political landscape of the nineteenth century clearly defined what would be taught as Psychology. This period experienced the surge of modernism, the industrial revolution, and the clear separation of State and Religion. Also, many ideological facets lingered, the pursuit of science and philosophy became subjects of academic study. It was not inconsequential that Physics (rather than Biology) was the chosen ideal for a science to develop further. The prevailing pragmatism in the USA resulted in a preference for the study of laboratory-based, measurable phenomena. As experimentation in Behaviorism flourished, the project of explaining differences between groups and individuals became assumed to be a consequence of different experiences, with little regard to the context in which things were happening. Or to the inherent limitations of the tools that were used to measure these differences. Across the Atlantic, European scholars were more concerned with the mind than with behavior, guided by the writings of theorists like Freud and Piaget. The failure to explain the expanse of human behavioral phenomena then led to the cognitive revolution in the 1980s, eagerly exploiting machines to measure biological processes and brain activity to

explain hard-to-understand phenomena, giving the impression of purifying scientific procedures. Brain circuits became seen as underlying reasons for behavior in all domains of activity. The main problem with these studies was the assumption that experimental conditions would seamlessly transfer to real-life settings, when a person was alone or in a strange place, or at a festive occasion. This was and continues to be a serious problem with outcomes of the neurosciences.

It is important to table that these criticisms of psychology are not new. As early as 1965, scholars were aware of the problems related to isolating individuals in a lab and conducting experiments. Yet the distance achieved by the discipline have been so dramatic that this trend has continued unabated, and little has changed in the last five decades (Kagan, 2012).

A History of "Western Psychology"

In ancient Greek and Roman culture, nativists like Plato (427–347 BCE) proposed several key ideas that helped lay the foundation of Western philosophy and scholarship. The idea that knowledge is inborn and that children are endowed with knowledge required for functioning can be traced back to Plato, whereas empiricists like Aristotle believed that knowledge is acquired through sensory experiences. During the Medieval period, around the fifteenth century in European society, records display that children were seen as miniature adults and even dressed like them, but were also considered to be fragile and in need of protection. The notion of the original sin prevailed and children were believed to be in need of correction by society. It was during the Renaissance period (1300–1600 A.D.) that society became responsible for caring and protecting children. Play activities were considered to be essential for growth and development of children. Following that, the Reformation period (1500 A.D.) was a time when the emphasis was placed on imparting education to children and that is when child rearing was taken seriously. Descartes (1596–1650 A.D.) presented a dualistic model, which focused on our shared biological development with other species. The only thing that differed was the mind, which consisted of ideas about self, time, motion, etc., which could not be derived from experience. Around the same period, Locke compared children's mind to a blank slate (Tabula Rasa) and believed that all the knowledge emerged from experience. During the eighteenth-century AD, Rousseau considered innate biological processes to be motivating factors behind development. Further, it was believed that human development unfolds naturally along the pathways set by nature with the support of society. This was followed by the work of several scholars whose work contributed to the study of human development, notable among them being Darwin in the nineteenth Century, who believed that organisms evolve by the process of natural selection and the competition for survival helps them in evolving into more mature and efficient forms. The role of nature or nurture in development of children has been a critical topic for scientists and philosophers regarding the development of children and the influence of social factors.

Following these early developments, the first Psychology experiments were set up by Wundt in Leipzig in Germany where the academic discipline was founded and expanded, gradually moving to different parts of the world. From these early ideas, theories of behaviorism, humanism, social learning theory, psychoanalysis, psychosocial development, cognitive development, and scores of others emerged, creating a robust range of writing and scholarship around the changes and continuities in children's growth from conception to maturity and into adulthood (see Baldwin, 1967; Maier, 1988; for overview).

Some Examples of Alternative Perspectives

Owing to the wide range of scholarship in Europe and America, the discipline of Developmental Psychology advanced into a thriving field of study and the practical applications of theory and research in everyday life began to gain importance through applications in child care and development, education, therapy, and other related fields. Psychological assessments became a popular field related to measurement and assessments of developmental norms and standards with practical relevance in clinical and classroom practice. Despite these advancements, an important domain that remained relatively unexplored was the significance and meaning of cultural context and social diversity in the intersection between a child and its environment. Furthermore, child development also became distant from other related fields of study like anthropology, medicine, sociology, social work, economics, history, literature, and others. We will not dwell on intersectionality in this chapter because that requires separate attention, but we will take up the issue of culture and diversity.

In a review of global perspectives on childhood and human development, Pence (2011) questions the dependence of terms like standards and norms in development as narrowly sourced and defined. For instance, "there is a virtual absence of African-led contributions to research on early childhood care and development" in international interventions (p. 112). This holds true for South-East Asia, the Far East, and the Southern America. In fact, wherever ideology and practice in the care of children departs from Eurocentric notions of childhood, standards and norms are imposed in the attempt to correct local views about children. "Why is mainstream psychology hegemonic?" Bhatia (2018) asks, arguing that because it attempts to speak for everyone, subordinates others, and is used for the purpose of marginalizing other explanation systems through power structures that obscure and silence other voices. An alternative psychology is needed that which "goes beyond the mechanistic, universalizing, essentializing, and ethnocentric dimensions that make the hegemony of Euro-American psychological science" (Bhatia, 2018, p. 13).

In an effort to conceptualize the emerging field of Indian Psychology, it is possible to view this as a significant scholarship that has potential contribution to the main field a school of thought primarily rooted in the diverse Indian philosophical systems with universal appeal. Particular emphasis is available regarding the vast expanse of the human consciousness from transcendental, dynamic experiential

perspectives. The increasing popularity of the practice of yoga and mindfulness have gained widespread appeal across the world, and we believe there is a lot to be gained from including these in academic study (Rao, & Paranjpe, 2008; Paranjpe, 2021). The inclusive, first-person positions of everyday human phenomena and their practical applications are significant for Psychological theory and practice to notice and learn from (Bhawuk, Srinivas, Dalal, & Misra, 2010). Several important sources about Indian views on issues like justice, intergroup relations, intelligence, gender, activism, and spirituality are available in volumes like New Directions in Indian Psychology by Dalal and Misra (2002).

Examples from India

Let us take some examples from Indian traditions about development and personhood that stands in contradiction to mainstream notions in Psychology.

Childhood and the Care of Children

In Indian thought, for example, birth and childhood are believed to represent a paradoxical, insoluble reality of life and the child is assumed to be a link between generations, which guaranteed continuity. Children are viewed as close to divinity, with male and female offspring holding different spiritual significance in family life. The male child has different responsibilities for family continuity, especially among agricultural communities, whereas the female child will have the potential for its expansion as she grows older. For this reason, some ritual practices among upper caste Hindus (for instance) are defined for male children and their learning like the *Yagnopavita* (sacred thread ceremony) from where the phase of learning and formation is initiated. Principles of *dharma*, *karma*, and reincarnation are underlying beliefs of the Hindu population, but social practices in children's care are more often shared between families of a region than not. Multiple caregiving in large households in the company of several children, siblings and cousins, is the predominant style of child care. The separation of children from family occupations is not common, and incidental learning through observation and apprenticeship is frequent, especially in traditional occupations. Regional differences are often far more significant than religious ones, since child care is seen as adaptive to ecological contexts. Furthermore, changes occurring due to education, mobility, urbanization, technological advancement, and global influences are undeniable. Childhood in the major cities of India has begun to look very different from its rural and tribal versions.

Notwithstanding ethnic, religious, and cultural diversity, children have a special status in family life and their arrival is celebrated as a symbol of renewal and continuity of the life cycle of the family (Saraswathi, 2017). With some exceptions of matriarchal groups, families in the region are predominantly patriarchal, with agriculture and related careers as a major occupation in rural areas, although changes in technological development and industrial advancement has resulted in many

significant changes in the economic and social profile of people, including within country migration, as mentioned before.

Generally, children are not separated from the family, growing up in close connection with siblings, cousins, uncles, aunts, and grandparents. There are some important differences between rural and urban family life on account of occupational and other demands; but the joint household and close associations within the kin network sustain. Furthermore, it remains popular to address outside the family relationships (neighbors, friends, colleagues) with kin terminology (fictive kinship) demonstrating the sustained importance of the family in defining social relationships and interpersonal dynamics (Chaudhary, 2004). Cultural context is the center of activities related to bringing up a child. Children are guided toward keen attention to person, place, and time in their actions and the demands for social appropriateness are guided by context-sensitivity rather than uniform standards. Thus, from a very early age, children growing up in Indian homes learn to regulate their conduct, in speech, stance, and self-presentation (Saraswathi, 2017).

The Ashrama Theory

Roles and relationships within the family are largely gender-specific but fungible within that paradigm. In keeping with this ideology, children are socialized to perform their respective roles in the society and not particularly for their individual development. "Otherness" is a key component of people's self-construction as is evident in conversations and narratives about the self. Childhood and adult life are characterized by continuity and it is neither common nor advisable to separate children from their kin network. Children are traditionally believed to "grow" by themselves as well as by inputs from the family and the culture in which they lived, the emphasis being on socially appropriate conduct in socialization. Some important features of family and community life shared in the majority world that have been marginalized and even pathologized by the standard notion of childhood include the ideology of a stage-like sequence of developmental tasks through life, multiple generation households and the daily presence of the elderly, the prevalence of multiple carers and siblings. The belief in reincarnation in Hinduism, Buddhism, and Jainism is a fundamental departure from the Western notion of the life cycle, since a single life is seen as transitory in the journey of a person's Aatman, sometimes translated as soul. Similarly the principles of dharma (righteousness) and Karma (actions and their consequences) are also fundamental principles of life's journey. It is very hard to capture these constructs without going into details, but these are mentioned here so as not to silence their local significance in ideology and action.

The Ashrama theory (Table 1) is a belief in a sequence of developmental tasks for each stage of life. Sometimes compared with Erikson's theory of psychosocial development on account of similarities of stage and life span, the Ashrama theory proposes that an individual has certain age- and stage-related responsibilities that contribute toward the social significance of his or her life. Speaking of similarities

Table 1 Stages in Ashrama dharma. (Source: https://iskconeducationalservices.org/HoH/practice/dharma/the-four-ashrams/)

Age	Stage	Tasks
Under 2 years of age		No moral codes defined
Childhood to 24 years	Bhrahmacharya	Student life
25 – 48 years	Grihastha	Householder, occupied with work and family life
49 – 72 years	Vanaprastha	Retirement
Beyond 73 years	Sanyasa	Renunciation

between these two approaches (Erikson's theory and Ashrama theory), Kakar (1996) writes that despite some similarities, it is important to table the fact that the first three stages of Erikson's theory are not addressed in the conceptualization of the Ashramas that deal more with the social aspects of a person's engagement with the world and himself. Yet, the visualization of the life span as a sequence of progressive stages with a spectrum of experiences that will make an impact on forthcoming experiences within a range of possibilities is a similar approach between the two positions, Erikson's theory and Ashrama dharma. As a former student of Erikson, Kakar has written widely about similar issues in the study of spirituality and selfhood.

The Indian Sense of Self

Hindu philosophy has an ancient tradition of spiritual discourse about self-knowledge within the religious tradition. The Vedas, of which the Upanishads are a part, have extensive debates about the nature of the self and self-knowledge and core aspects of Hindu philosophy. Although there has been a recent inclusion of some aspects of these traditions in the syllabus of Indian Psychology, mostly these texts have been avoided because of the conflicts between science and religious thinking, whether from Hinduism, Buddhism, Islam, or Jainism, or any other of the pluralistic traditions that flourish in India. Gaining wisdom about the nature of the self and its relationship with the outside world is the primary objective of these texts and including their study is an important way of understanding the background of cultural practices in the region. The pursuit of Yoga, for instance (not to be

confused with Yoga as physical exercise), is a practice in self-knowledge and mind-body union through concentration and control.

Although ancient texts are not universally known or followed, there are several ripples of this ancient tradition on prevailing notions of self and social relations: socially oriented notions of self and the importance of "otherness," encouragement of cooperation and interdependence as a virtue, discouragement of preoccupations with the self, connectedness with ancestors and large kinship networks, higher fertility rates and the primacy of the family and community over the individual. Roland (1988) refers to this predilection as "familism" to contrast it with the ideology of "individualism," remarking that it was not just anyone, but others in the family toward whom a person is expected to have close representations in one's sense of self (Chaudhary, 2012). Furthermore, and the continuity of household activities and spaces including co-sleeping of adults and children reinforces connectedness with others. Several important scholarly articles have argued against the limited interpretations of the individualism-collectivism paradigm to understand the Indian Psyche (Chaudhary, 2004; Sinha, & Tripathi, 1994). Several publications have also looked into the matter of India's spiritual traditions to examine the influence of that in self-configuration (Paranjpe, 2002; Rao, Paranjpe, & Dalal, 2008).

Learning Differently

The construct of intelligence in academic Psychology has been guided primarily by measurability and standardized testing. In a detailed analysis of people's lay understanding of intelligence, Dalal and Misra (2002) found that elements of social wisdom and relational acuity are especially valuable for the shared sense of who an intelligent person is. These elements do not get adequate attention in conventional views that have tended to remain loyal to the standard purpose and outcomes of intelligence testing (Sternberg, 2019). In the domain of learning some noteworthy features are: distributed and shared learning in informal settings, apprenticeship and incidental learning, rote memorization, and an oral orientation to literature.

Knowledge or truth (according to Hinduism, Buddhism, and Jainism) has three dimensions (*Tirupati*):

- The knower (pramAtr),
- The knowable (prameya) and
- The process by which we learn (pramAna), of which there are six types:
  - Pratyaksh – Sensation
  - Anuman – Presumption
  - Upaman – Analogy
  - Anuplabdhi – Awareness of absence
  - Arthapatti – Contradiction (with what is already known)
  - Shabd – Words

In this scheme of learning and knowledge, some noteworthy aspects are the importance given to wisdom as well as orality (Jha, 2008). Another interesting aspect is learning the significance of something or someone from appreciating its absence. This is only one of the many traditions of learning described in the Nyaya tradition of Hindu thought (Rao, Paranjpe & Dalal, 2008).

Emotional Landscapes

Another important point of departure from Developmental Psychology's global version is the ways in which emotions, emotional expression, and management is constructed. One important feature is the importance given to context in the significance and assessment of the positive or negative function of emotional expression. Furthermore, there is a separate discussion about the underlying emotion and its outward expression apart from the larger variety of emotions conceptualized. The study of emotions as per the Natyashastra is the Rasa theory (Pandit, 2011). The realization of Rasa is the result of the union of *Sthaibhavas* (underlying emotions, 49 in number, 9 stable ones), *Vibhavas* (situations), *Anubhavas* (experiences), and *Vyabhikaribhavas* (mental states). There is a distinction between real-life experience and artistic or theatrical expressions in dance and song. Here is an overview of the vocabulary of emotions:

- Emotions: Nine stable (49 in all) – *Sthaibhavas*: Love, Humor, Sorrow, Anger, Enthusiasm, Fear, Disgust, Wonder, and Passiveness
- Situations (*Vhibhavas*) facilitate emergence of sthaibhavas
- Experience (*Anubhava*): Experience of or effect of the emotion on a person
- Mental States (*Vyabhikaribhavas*) like anxiety, depression, despair, determination

As can be understood, this formulation of emotions departs from the visualization of six basic emotions and their development.

The Social Construction of Gender

As a predominantly agricultural society, India's communities are also patriarchal, although several pockets of matriarchal networks have also thrived: the Khasi and Garo tribes in the North-Eastern State of Meghalaya, the Nairs and Ezhavas from Kerala in the South, and the Bant and Billavas in Karnataka State. By and large the large contingent of tribal groups in different parts of India, despite the increasing impact of incursion from urban culture, retains cultural practices unique to their group. There are over 500 tribal groups in India and their community organization, beliefs, and cultural practices are distinct from the mainstream ethnic groups.

Although social dynamics among majority communities are guided by age and gender the ways in which gender is understood is somewhat distinct from global culture (Pandey, 2002).

Contemporary Perspectives

Despite long-standing and favorable traditions of a nurturing context in the company of multiple caregivers, children in India are the most vulnerable under conditions of poverty and disadvantage, natural and man-made disasters. This reality has several historical and ecological antecedents, but the crisis of poverty is undeniable, as we scan reports and witness children on our streets. In this regard, any discussion of childhood in India cannot escape the attention from governmental services, nongovernmental organizations, multinational companies, and international donor agencies. The contemporary understanding of childhood still bears the traces of the colonial past that the region has shared, and children continue to be seriously affected. Issues of child health, education, children at work, street children, and child trafficking are some crucial concerns that need to be addressed.

The importance of understanding childhood in its context has taken a backseat due to the extra attention that was put on quantifying the results of studies done on poverty and related problems, in order to come to a definite conclusion and the ease of generalizability, and there is need for finding local solutions to these issues, for as long as even one child goes hungry, or fails to receive medical attention when needed, is a failure of a nation to fulfill its responsibilities toward children. The intense importance of a family in a child's life is sometimes seen as a reason for the State's negligence in providing services, as is seen in the case of disability studies (Sharma, 2011).

The significance of looking at alternate perspectives of childhood for social, political, environmental, economic, and cultural expansion is undeniable. But the consistent and deliberate biases in the issues addressed by Psychology in general and Developmental Psychology in particular, which have tended to remain wedded to small populations and limited ideologies, has had several consequences for theoretical advances and practical outcomes in Psychology.

Global Consequences of Local Psychology

Let us examine some of the substantive consequences that the above bias in sampling of the populations on which Psychology and its Developmental domain is based for which there is sufficient evidence for debate.

"Humpty Dumpty Had a Great Fall": The Fragmented Individual

The embryonic field of Psychology has been characterized as "pretentious and blinkered," Hampden-Turner claims (1982, p. 11), and there is an urgent need for it to be put back together like the shattered Humpty Dumpty. The psyche is broken up into domains of affect, cognition, learning, sensation, perception, and the like, which have become scattered across numerous books and journals, and a

consolidated view of a person is hard to construct. Furthermore, hyphenated expressions like psycho-somatic, psycho-biological have added to this disconnect (Laing, 1965). Especially in therapy, these fractures result in obscuring the access to and addressing of the difficulties faced by individuals. The tripartite division of physical, cognitive, and emotional is another instance of fractures created by the separation of domains and specialization. Added to the separation of mind and body, between the psychological and physical, a separation that prevented advanced understanding of both the body and the mind (Van Kolk, 2000), domains became fields in themselves and dedicated journals rarely address common problems. As the domains and distributions became smaller and more distant, the conceptualization of the whole individual and the connection with the context was obscured.

These domains that we have been treating as essential features of the human condition are conventions, emerging from a specific tradition of psychological study, and far from universal (Danziger, 1997). In fact, the reification of these constructs has created an illusion of their existence as identifiable features. As Cole (1996) remarks about the invisibility of one's own culture as a way of life, perhaps psychologists too were blind to their own cultural roots!

Methodological "Purity" and an Indifference to Context

Driven by the inspiration to emulate the physical sciences (physics in particular) and a parallel discomfort with context, psychological investigations have tended to favor laboratory experiments, structured observations, and measurement. Research in the quantitative tradition is placed at a higher status, and although it may have been initially proposed as "the Second Psychology" by the founders of the subject (Wundt in particular), other methods became subordinated. Wundt's recommendations for systematic experimentation were adopted, but the importance of self-examination and introspection as legitimate techniques also became ignored along the journey of Psychology from Europe to America, as was his extensive work on *Volkerpsychologie*, or Folk Psychology, regarding human beings' participation in culture (see Valsiner, 2004).

Although the qualitative tradition from other fields and mixed methods has gained in significance, the superiority of quantification and "objectivity" remains undefeated. This has had many consequences on the content of psychological research and its "weirdness" (Chaudhary & Sriram, 2020). The conditions demanded of standardized techniques are often far too expensive and inconvenient to be replicated in other countries, even if the tasks may be fully applicable, which is not often the case. Thus, the bulk of research retains its "purity" by undermining other forms of enquiry, thereby perpetuating the myth of measurability of psychological phenomena and their independence of context (Kagan, 2012). Valsiner (2014) has argued extensively about the need to bring data and phenomena closer together in order to better grasp psychological reality.

The Embryonic Fallacy, Intersubjectivity and Interobjectivity

The myth of the independent individual is a strong feature of Psychology, resulting in a preference for intramental phenomena. The greater attention to issues of individual, inside-the-head phenomena has had several consequences. This is also related to the assumption that whatever transpires in a human life is an outcome of a single lifetime, and has little to do with social circumstances and cultural setting. Moghaddam writes that this is a major blind-spot in psychological theorizing, identifying the embryonic fallacy as the (false) assumption that everything that happens to us as individuals is the consequence of a single individual's lifetime. This approach tends to mute intersubjectivity, the relationships between people and its co-dependence upon interobjectivity, or the ways in which social relationships are structured by collective culture. Another significant and related issue is the phenomenon of treating all human conduct as emerging from thought.

Psychologization and Biologization

Psychologism literally means "to make something psychological," and psychologization implies the deliberate or otherwise transformation of social, political, or moral issues into psychological factors like well-being or self-processes. The unprecedented growth of Psychology in the twentieth century is an important reason for this phenomenon (Madsen, & Brinkmann, 2010) that has captured our imagination and sustained specific forms of psychological theory and practice, especially psychoanalysis, within which powerful myths about the human condition are proposed. We remain seduced by our own sense of self-importance and must heed the warning to seriously consider alternative versions.

Burman, (1994/2017) argues that psychologization is a persistent problem despite the many changes in the world order in recent decades. Although global relations, immigration, and environmental crises have heightened, and neoliberalism has impacted how we understand childhood in the contemporary, technologically connected world, we persist in attributing performance and participation of individuals and groups primarily to psychological factors, and everyone lands up becoming a psychologist (de Vos, 2008).

Another important phenomenon is the biologization of conduct, and the renewed importance of the neurosciences in explaining behavioral outcomes. Madsen and Brinkmann (2010) argue that attributions to neural activity has in fact thrived on the foundation laid by psychologization, that origins of our world lay in the understanding of the mind as separated from and superior to the rest of the body as well as social reality. Bruer (2001) argues that "the purported new breakthroughs were in fact 'old' neuroscience. These results have been carefully selected, oversimplified, and overgeneralized and then woven into an argument to support U.S. legislation to fund programmes. Neuroscience and the brain have a strong hold on the popular imagination. Once claims that the first three years of life were critical for brain development appeared on the covers of Newsweek and Time magazines, upper middle-class

parents world-wide became students of the new brain science and consumers of brain-based products like Baby Einstein, My Baby Can Read, and Mozart CDs" (Bruer, 2001, p. 21). Most importantly, the myth has its origin in policy and advocacy circles, not in the scientific community. Neuroscience was chosen as the scientific vehicle for public relations campaign to promote early childhood programs more for rhetorical, than scientific reasons. When questioned, "Based on neuroscience what can you tell parents about choosing a preschool for their children?" he answered, "Based on neuroscience, absolutely nothing" (Bruer, 2001, p,1). Regardless, the trend has persisted. In fact, the use of the neurosciences argument can be explained as a sort of hyper-generalization in the theater of research (Valsiner, 2019), a sort of exaggerated posturing to impress consumers, influence policy, and silence dissent. The strategy has been widely successful. The notion of neuroliberalism is invoked here as the rise of the use of research in the behavioral sciences in governance and assumptions of economic progress under neoliberalism. Children's minds become positioned as baby brains and our worlds are captured by ideas of personal progress as a consequence. With the entry of behavioral economics there has been a further escalation of the use of research in the drafting of public policy worldwide (see de Vos, 2016).

Pathologizing of "Others"

Another negative outcome of a unitary view of childhood development is pathologizing of the "other." Consequences can be seen in various fields of application, from assessments, therapy, intervention, and education, with adverse positioning of people belonging to other cultures. In the case of child care, for instance, recent immigrants to a State where Child Protection policies are firmly in place in fact stand at a serious risk of losing custody of their children for practicing their own cultural ways of bringing up their offspring. There is a serious need for a global debate on this issue where a clear mandate for the separation of unfamiliar practices must be considered from the position of cultural norms of place of origin. Unless such a review is completed, Child Protection Services can in fact land up perpetuating the very damage to children and families that they are working so hard to prevent.

Cultural practices in children's care, may not be "universal" for the majority world, but they are significant in their prevalence. Yet, Developmental Psychology has systematically treated these conditions as outside of the norm while conducting assessments of development (individual testing), laboratory studies (absence of individualized spaces), measurement (unfamiliarity with quantification, dyadic discourse (as opposed to multilogues, see Chaudhary, 2012), mind-body continuity, and the differential view of the psyche, to name a few. Consequences for schooling have been dealt in a later section, but the judgments placed on child-care practices of immigrants that come under the scanner of Child Protection Services and intervention programs developed in wealthy nations as applicable to other cultures especially the poor are all direct outcomes of the dominance of this singular view of

development. Yet again, for the purpose of social justice and global understanding, this limited stance needs to change, and we have to adopt a more expansive view of the world of childhood by reexamining the key messages of Developmental Psychology in the name of social justice and representation of the world's people. Another important reason for this call for change is sustainability and ecological wisdom. The ways in which children are brought up in the West is unsustainable for the world on account of the disproportionately high investment. Keeping these as golden standards for care is uneconomical apart from being unethical and unscientific.

The Family Unit and the Life Cycle of the Family

The question of who looks after children is a critical one, as we raised earlier. Since the "family" is defined as a unit that has children, and not just couples living together (Van Ever, 1992, from Burman, 1994/2017), makes the caregiving role a key to the definition of a family. Yet, this view of a couple with children as a family with its own dateline of the "family life cycle" is again a singular one, and it excludes all other forms of family, extended and joint. This has serious consequences for policy and practice, since key members are left outside the unit within which the mother and, now more recently as a token, fathers have also been included. Ignoring the importance of other family members has had important consequences. In fact, what is most alarming is the outcomes of the breakup of the family, where single parenthood has become a frequent outcome for children growing up in the West. In contrast, when we look elsewhere, divorced, separated, or widowed individuals in other cultures can almost always depend upon the kin network for support with children and household responsibilities. It is rare to see a single parent on their own, caring for young children, even if the assistance maybe periodic.

In fact, if we search for a more appropriate metaphor for the family life cycle as imagined in Developmental Psychology, one could better represent it as a Family merry-go-round, in which infancy, old-age, ill-health, dependence, youthfulness, and household responsibility are ongoing themes. The advantage of this system is in fact its circularity and the opportunities it provides for experiences one would miss otherwise. For instance, it is rare for a young person to grow up into adulthood without experiencing the birth and development of someone else's infant. The first child you hold and care for, even sporadically, is not your own. This is true for both men and women. Furthermore, one encounters the condition of growing older well before your own parents reach their end, thereby providing important practice for tasks of nurturing older people as you grow. It must be noted that this is not an attempt to romanticize large kin networks and family settings, since these are also scenes for conflict and disagreement, but merely to state facts about the different view of family life, one that is completely outside of the paradigm of Developmental Psychology, despite the fact that more people live in multiple member households

than otherwise. This is another consequence of Psychology's WEIRDness. Yet, we continue to visualize the family timetable as a cycle, which must complete one phase before the other one can be manifested! This weirdness also has several consequences that are not favorable. For instance, because large families are usually associated in wealthy nations with migration and poverty, results of research are uncritically applied to families in other parts of the world where such family systems may be the norm and not the exception! The shrinking model of the family has been idealized with several important negative outcomes for the study of childhood and the fragility of relationships where legal support and State services for single and out-of-wedlock parents may be more an issue of economics rather than social practice. In fact, if we look carefully, where State support for children is strong, couples do not even feel the need to be married perhaps because they don't believe they need any social support outside of the State. In such circumstance, domestic violence and child abuse can be an isolated and thus, more exaggerated experience for the child.

Burman writes:

> While the 'environment' for children's development has often been treated as synonymous with the mother. . . the family as the context for child rearing is central to social policy and welfare provision and is also the site for heated debate about social relations and social change. The significance of these national and international social policy debates – in particular at the level of specific national policies – and the ways they enter into developmental research is the topic of this chapter. State and family interact in complex ways. And when the idealized notion of the family is minimized, several consequences occur as we have discussed. It isolates significant others, and piles on complete responsibility with parents. And if the parents find they are unable to get along, it is usually one parent, or two conflicted individuals who care for children (Burman, 1994/2017, p. xxi).

Constricted Collectivism and Other Dualisms

Creating polar oppositions in human phenomena has resulted in limiting our vocabulary for a more favorable and valid discourse. Instances of constructions like interdependent-independent, collectivist-individualist, foreclose the possibility of unity and mutuality, which is in fact the ways in which phenomena play out. The myth of collectivism, for instance, once applied to a people predisposes similarity between very different ideologies that may be clubbed under the same label. Collectivism as a socialist ideology is dramatically different from the familism and interconnectedness of Indians in several domains and not in others. Dualisms created this false sense of simplistic imagination about people and suppresses both within group differences and between group similarities. It is a discourse in which the autonomous dimensions of the Indian Psyche and the family orientation of the American are not only minimized, they are ignored! One consequence of this has been the easy assumptions of Indians being a friendly, welcoming people for all others, whereas the reality is very far removed from this.

The Lonely Mother and Her Precariously "Attached" Infant

The nuclear family model and the central role of the mother has resulted in a persistent burden of holding mothers responsible for the primary care as well as outcomes of childhood. This feminization of development has been intensely criticized in the work of Burman (1994/2017). She argues that despite the shift in the inclusion of fathers, the ways in which fatherhood is constructed still perpetuates the myth of a primary caregiver within the same old paradigm of the nuclear family. There is little or no space for the inclusion of grandparents as primary carers despite that fact that a significant number of the world's children grow up in the care of extended kin along with mothers. The consideration of fathers, grandparents, and siblings is constrained by the format of the nuclear family, where the attachment to and love for a single carer is key to a child's development, and others can sometimes step in. These positions have significant consequences for policy and it remains to be seen how the view of the family is going to respond to the increasing difficulties with single parent families in some parts of the world. In fact, single parent families are far greater consequences of the transformations in selfhood and neoliberalism than we realize. And in fact, research has repeatedly pointed to the fact that far more danger of outcome is placed on the child if he or she is growing in a single parent household than in large families.

Language Shrinkage: Idealizing Monolingualism and Word Count

Research on language is one of the most vibrant and dynamic areas in Developmental Psychology. Yet the norms and standards of language usage have been based primarily on the premise of single language users. For many of the world's children, linguistic diversity and multilingualism are the norm, and quantitative measures of vocabulary keep in sharp focus the noun (versus verbs) and expression (versus comprehension), single language competence (versus multiple languages), literacy (versus language use) as important assumptions. Mostly, imagine pre-literate persons is outside the frame of this model, which considers parents or children who have not had or do not have access to schooling or literacy as disadvantaged in the same way as school drop-outs are. There is no denying the consequences of the lack of literacy in the contemporary world, but such an approach tends to assume that people are also lagging intellectually. In fact, this is a gross injustice, a serious one since the first failure to reach schooling to the people is a failure of the State and not the person, and to that we pile on another injustice, that of treating people as if they have been incapable of learning.

Further, apart from language differences, there are certain patterns in discourse that characterize a people. For instance, the immense complexity of kin terminology in all Indian language that mark every nuance of age, gender, and distance in the kin network is something children develop and gain expertise in at very early ages. They are experts in person deixis and, in fact, the play with kin terminology is a fascinating area of study (Chaudhary, 2012). Furthermore, there is the predominance of oral modes of learning rather than written, and narrating stories usually by older family

members (rather than a parent reading to the child at night-time) is a common practice. Treating reading (from books at night) as the gold standard for literacy training tends to ignore family dynamics, multiple roles, and responsibilities and cultural traditions. The collective narration of folk tales and mythological stories is a strong tradition that is tending to be replaced by the "literate" inputs that parents feel compelled to perform. Besides, there is a much greater focus on "following instructions" and comprehension, rather than on articulation which many children will hesitate to do before a stranger, a teacher, or a researcher. School curricula tend to mimic these patterns of language use that silence local linguistic practices and local languages, one important reason for children's poor performances.

Psychology of language needs review and revision to include other paradigms of language-reality representation. This form of language use tends to separate the child from the context and assume that the child's language use is an isolated intramental act. This could not be farther from the truth as anthropological linguists have informed us. As Rogoff (1993) reminds us, participation rather than transmission is a much more favorable way of understanding learning, whether it is between individuals or groups. The notion of "subtractive education" refers to curriculum policies, processes, or practices that remove students' culture or language from classroom contexts as a resource for learning or as a source of personal affirmation. Subtractive education assumes that students' academic successes depend on the degree to which they give up their own cultures or linguistic practices or traditions to assimilate into mainstream culture, a process often referred to as "Americanization" in the USA (Valenzuela, 1999). These are just a few examples of how local ideas became global and are then imposed onto the local in psychology.

Let's take a look at the "word-gap" phenomenon that has come under heavy criticism by linguistic anthropologists because it promotes a very specific version of language use, where the motivation to market a software developed for use is not an insignificant player in the promotion of the links of word count with development. But the point that this research fails to acknowledge is precisely the existing differences between the cultures "express and understand language use." The indicators of command over language varies across language communities. Whereas some societies focus more on advancement of vocabulary, others treat comprehension as an indicator of maturity. Such differences place children who grow up among different language practices at an automatic disadvantage.

The association between mothers who don't talk to their children as being distant or uncaring or inadequate mothers is another fallout of this principle of word gap that depends exclusively on dyadic and expressive language use and book reading cultures.

Learning As Schooling

The wider issue of how children learn has become conflated with schooling, with the reduced importance of forms of learning outside of the classroom. The fact that the classroom as the setting is understood almost universally draws from the European

idea of a group of children of similar ages being seated together in a confined space, being taught by teachers. The dominance of school in contemporary society has resulted in this being among the two most important institutions in children's lives. Yet there are consequences of this. For those children who do not have access to school, of which there are large numbers in the global south, who do not attend school not because they are unwilling to attend school but because they don't have access to schools, are unfortunately clubbed with children who voluntarily drop out of school. This is a problem because it carries assumptions that have long-term consequences for the ways in which these children and families are categorized. Another consequence is the underestimation of the importance of incidental informal learning outside the classroom, which has a very important role in life lessons, cooperated or distributed learning that happens among children in mixed groups where teaching younger ones, learning to care for them, and complementarily respecting older children and learning from them builds strong social bonds. School as an institution underestimates these forms of family and community learning and social relationships, sometimes even treating them as barriers to classroom learning. The 'single adult many children' model of the classroom is a primary and often exclusive template for schools, at the cost of a wide range of informal opportunities from which children learn that could effortlessly and with little cost be incorporated into schooling or treated as complementary to school learning. Within the deficit paradigm of school–community relationships, it is quite commonplace to treat the child either as a blank slate, or as someone who has to be cleaned up in preparation for school. This is a position that, at the outset, creates an antagonism not only between home and school, but also between the child and school. Young children find it very hard to understand this antagonism, and the outcomes can push a child to school refusal or if she/he is successful at schooling, a rejection of home. Between these two extreme possibilities, children live through this difficulty in comprehending why such an opposition is present in the first place (Chaudhary, & Pillai, 2014).

The East–West Divide and the Failure to Understand Mutuality

Valsiner (2020) writes that:

> It has been customary to present the Eastern and Western views on the human beings as two discrete and mutually competitive perspectives. I think this starting point is unproductive from the outset. Instead, we are better off starting from an axiomatic stance where the basic assumption is that of universal unity of the human psyche, with versions in different societies that on their external specifications seem mutually irreconcilable. (p.7)

While endorsing the "unproductive" nature of this divide, we will argue further that this opposition has failed to recognize the great deal of scholarship even from the West, in Psychology and other human sciences, which favorably addresses

cultural context as well as the blind followership of borrowed ideas in other cultures, especially in the advancement of neuroliberalism, the practical application of borrowed ideas in policy and interventions. We propose that it is timely now to dissolve these categories and address issues of disembodiment, entrenchment, and disconnectedness (both intrapsychic and interpersonal) as the key elements of mainstream Psychology that need to be addressed and abandoned. Vision 2020 (taking from the symbol of perfect eyesight, 20/20) for the discipline needs to have a more global approach that is inclusive, plural, and draws from mutuality rather than singularity. This is the only way forward for a sustainable, socially just future, free of the problems of Psychology's ghosts (Kagan, 2012).

Suppressing Dialogues Between Global-Local and Science-Culture

Assuming that global is scientific and local as cultural has created other fractures in the system, ignoring both "global culture" and local science' (see Table 2). The association of reason with (global) science and (local) culture with its opposite has been unfortunate for fully grasping people's relationship with social, psychological, environmental, and other phenomena. It is also a principle on which colonialism was falsely justified for centuries. Let us make an attempt to examine these associations. For the sake of discussion, if we separate local and global as well as science and culture, we can visualize the matrix thus:

In common discussions, we sometimes fail to recognize two of the above dimensions, mostly assuming automatically that culture is local and science is global. Local Science and Global Culture have received relatively little attention in comparison. Although it may be seen as a perpetuation of the artificial separation between culture and science, acknowledging local science may in fact be an important interim step to the advancement of knowledge with a dialogical perspective.

There is a subtle but significant shift in recent times between the cultural notions of childhood as understood by communities and the task of national development. Whereas the latter is linked primarily to social history and ethnic membership, national development aims toward understanding children as future citizens. The dialogue between these two positions is important to reflect on.

Table 2 Dialogue between culture and science

	SCIENCE	**CULTURE**
LOCAL	LOCAL SCIENCE	LOCAL CULTURE
GLOBAL	GLOBAL SCIENCE	GLOBAL CULTURE

Culture and Communities: Childhood As a Project

The project of building a universalized notion of childhood that is a recommended experience for all nations, and within nations all people, relates to the task of developing intervention programs for the welfare of children everywhere.

"Development in the human form is an epigenetic process of the emergence of more complex structures in which each new level of organization is associated with a new relevant context and a new form of mediation between the individual and at least one other human being" (Cole, 2002, p. 316).

The variations in culture are not sudden changes that happen in and around us, these are adaptive processes that take place gradually and are passed down from one generation to other. The capacity of the human mind to create different forms of culture is what makes human mind distinct (Chaudhary, 2017). The erosion of traditional cultures and ways of life has become a growing concern in the face of modernity and a number of social and economic challenges facing our societies. In areas characterized by strong oral traditions and unique characteristics largely shaped by their cultural behaviors, such as storytelling, music, and mechanisms of social integration, this is particularly disturbing. Aspects of traditional culture deserve more attention in the current environment of change and cultural loss in understanding the change in contemporary community and positive development.

The different strategies that have been prescribed in these scriptures have been lost in the modernization of education. After the British arrived, the conventional education system in India suffered damage. The schooling system became crippled with the advent of Western missionaries who scattered throughout the country and Western schooling became a way of educating the supposedly uncivilized children of the country. This change had a long-standing effect on the way of imparting education as well as the values being reinforced, which had an impact on the relationship between school and the community. Indigenous systems of education were a norm before the entry of the British. Temples and mosques were places where education was imparted to the elementary school children, but primarily to young boys. Elementary education was practical in nature whereas higher education was literary. With the introduction of missionaries, Western education became a norm. Other groups also started following the same pathway where children from other minority communities (ethnic and religious) received education. The complexity caused by extremely diverse ecological, social, and financial backgrounds makes the schooling system to be complex, which makes it even more difficult to make any generalizations about the Indian system of education. The lack of connection between the local environment of children and the lessons taught in the classroom could be summed up in this statement "In creating a sanitary idea of citizenship, modern education has amputated our primordial affinity with the world around us" (Viswanathan, 2016, p.10).

Skutnabb-Kangas (2009) highlighted that the linguistic genocide evident in the tribal education in India may lead to psychological hurdles and learning difficulties. Panda (2004) who conducted her study among Saora tribals concluded that any learning cannot be studied after separating it from its cultural context. Kumar (2014)

did a study on the Musahar (pig rearing) community, which according to the legend used to be rat-eaters. The children from these communities were considered to be impure and hence faced discrimination against them, which indirectly affected their learning and development. Similar to this, children with special needs also face discrimination at the hands of peers and sometimes school authorities when they are provided with facilities needed by them which have an impact on their psyche and well-being.

Children when admitted to schools have ascribed to a developing cultural identity, which may be different for different children coming to the same school. The schooling system uses a uniform code to be followed by all children, which may or may not be in consonance with the existing cultural identity of children.

Research Limitations

We now provide selected examples of research studies that present support for our claims. Research studies done on Japanese children reported a 1 year delay in acquisition of theory of mind as compared to children from the West, which could be attributed to the fact that in Asian cultures, an action is evaluated with reference to context. The concept of eCOM (entering the Community of Minds) was proposed by Nelson et al. (2003) over the concept of ToM (theory-of-mind). Personal narratives and stories are important features of CoM, which represents the social-cultural world in which the child lives. In another study by Correa-Chavez and Rogoff (2005), children of indigenous mothers with low schooling were attentive to activities but asked fewer questions as compared to children of highly educated Euro-American mothers who focused their attention on one activity at a time. The "cognitive disadvantage" hypothesis fails in case of children engaged in informal trading. These children may fail at math problems in school but they could easily be seen solving the same math problems in their day-to-day lives. The difference is doing it in the head and doing it on paper.

The difference in chronological age and educational age misguides the study of cognitive outcomes in children. It is believed that more than the chronological age, the educational age can provide the extent of learning more accurately. Most Western studies have catered to the connection between the chronological age and schooling, which may not present a clear idea of the learning outcomes. Children face a lot of informal cognitive problems in their day-to-day lives, which are put forward to them in school much later, so to relate schooling with higher cognitive functioning is an unhealthy comparison. A large part of children in developing countries like India are from rural areas with access to basic primary education or sometimes not even that. The development of these children and those coming from the urban areas may be at the same level but the ways to measure them and the research methods applied to study them need to be context-specific in order to present a clearer picture. Generalizations in such diverse locales would be unfair and hence there is a need to learn, absorb, and reflect on childhoods in different contexts to be able to compare it with the West and observe the qualitative changes that exist in different domains,

communities, and cultures. To understand the same, this quote illustrates the above mentioned: "drawing on analyses of the 1989 United Nations Convention on the Rights of the Child, conceptual limitations of a shift from generalization to naturalization are identified. These culminate in a globalization of childhood that is particularly evident in models of psychological development. The article outlines how the assumptions about the separation of individual and society, and development from culture, play a key role in this process. At the level of practice, therefore, the article argues for the need to maintain a critical vigilance on the adequacy of the conceptual resources that inform policy and programmes for children" (Burman, 1996, p.45).

As cited in Chaudhary (2017), the changes to a newborn's care in today's world were explained in the statement ahead.

> "But the care of the newborn baby should not be limited to preserving it from death, to isolating it from infection, as is done today in the more modern clinics where the nurses who approach it cover their faces with bandages so that the microbes from their breath should not reach it. There are the problems of the psychic care of the child-from the very moment of birth-and those of measures to facilitate his adjustment to the world. To this end, experiments have still to be made in clinics, and propaganda is required in families in order that the attitude towards the newly born should be changed." (Montessori, 1966/2013, p.19)

Montessori (1966) expressed concerns over protection and overprotection of children. Scientific approaches to care need to be balanced and the natural exploration of natural phenomena should be the path to be followed in order to let children explore maximum potential. Global patterns are increasingly defining how children should be cared for and how they should develop. There is a huge difference between Western and Asian parenting and care practices for example, co-sleeping (primary caretaker and children) in Asian cultures is believed to foster attachment between the mother and the child whereas in Western countries, it may be seen as abuse. Another example could be feeding with the hands, which may be interpreted as force-feeding in the West whereas in Asian cultures it is a sign of feeding with love and affection. Such contrasting caring beliefs are bound to create confusion and term one culture to be better at caring than the other, which should not be the case. There is no right way to care for children. Cultural practices adapted to the specific ecological, social, and geographical context may reveal developmental pathways, which are culturally appropriate and help in unfolding development along the natural lines. Eagleton (2000) stated that access to reality of an area could be gained through the culture of that particular area. Planning for childhood should be revisited in order to check the reality and relevance of the practices, at the same time retaining the practices that stand the test of time (Chaudhary, 2017).

A review of three studies done by Chaudhary and Pillai (2014) on Indian children in rural and urban settings regarding their methodological choices provides evidence of the importance of context and shared understanding gained by participating in cultural events. Differences in moral reasoning can be expected based on those different values that have greater acceptance. According to them, an individual is a person with a separate set of intramental activity, which results in an internal reality.

Children could be studied where they are not separated from their dynamic social networks or where they are separated from the social settings. In a longitudinal, ethnographic study on mealtimes by Ishiguro (2016), conducted on a Japanese child from 9 to 78 months of age, portrayed how children perceive about their culture and communities. The findings of this study showed that children learn about their communities' beliefs in a complex interplay when physical conditions are constrained by environmental arrangements and when the child is cared for by the partner on whom he/she is dependent for care, at the same time understanding himself as a separate entity.

Cultural specificity needs to be a fundamental concern in conducting research with children from diverse backgrounds. In other words, a range of standards have to be put in place rather than just one to assess development in different cultural groups. The tests should be such which facilitate thinking and problem solving. Test questions should help in understanding the context and the concept. In order to facilitate the process of investigation, one might carefully choose the way in which the questions are asked. Baer (1970) states that by proper sequencing of events, the process of development can be revealed. Sequence plays an important role in eliciting appropriate responses. Quantitative methods have usually been seen as the reserve of those interested in the "positivist identification" of facts. Whereas qualitative techniques focus on the "interpretive paradigm" and the social construction of meaning (Tulloch, 2000). This does not mean that they are mutually exclusive, or that they cannot be used in conjunction. Tulloch (2000) suggests that social research constructed by combining techniques can provide a basis on which to challenge generalizable adult assumptions. Qualitative or quantitative data is a representation of the findings; the findings are not inherently qualitative or quantitative in nature. Essentially the basic difference between representation being data presented in numeric and data presented in texts, observations, or narratives. The mixed methods approach is useful to understand child development in a particular context where quantitative approach can be applied to study prevalence while qualitative approach can be applied to study meaning (Weisner, 2002). Conventional psychological research considers the individual as a separate entity to be studied irrespective of the context, which proves to be a superficial way of looking at things. For research to be inclusive, individual agency is to be explored by situating the self in research encounters that mobilize subjective but also intersubjective processes (Chaudhary & Pillai, 2014). Cultural psychology is not a single subdiscipline, but a family of approaches (► Chap. 24, "Cultural Psychology," by Tateo, Marsico, and Valsiner, this volume) that provide an effective and productive approach for the future of psychology on account of the fundamental commitment to cultural context and multidisciplinarity.

Summing Up

In this chapter, we made an attempt to expand the perspective to include the understanding of development from other traditions, hoping that this will help in reexamining some of the basic assumptions of Developmental Psychology and the

understanding of the human life span. In this regard, the place of cultural psychology, with the emphasis on meaning-making, human agency, cultural context, and systemic approach to human, cultural phenomena (see ▶ Chap. 24, "Cultural Psychology," by Tateo, Marsico, & Valsiner, this volume) is of critical importance. As the world becomes more connected than ever before, as populations are on the move more than ever before, and as our world's resources are becoming depleted by the expansion of globalization, neocolonial and neoliberal policies, and privatization, it is no longer possible to ignore sustainability and ecological validity of our ideas. As academics also, we will do well to look around to different ways of living, as people engage with their physical and social environments in different, often more sustainable ways and means. Our world is calling for a new world-order, and academic Psychology is being called out to respond.

References

Erikson, E. H., & Erikson, J. M. (1998). *The life cycle completed*. New York, NY: Norton.

Baer, D. (1970). An age-irrelevant concept of development. *Merrill-Palmer Quarterly, 16*, 238–245.

Baldwin, A. L. (1967). *Theories of child development*. New York, NY: Wiley.

Bhatia, S. (2018). *Decolonizing psychology: Globalization, social justice and youth identities*. New York, NY: Oxford University Press.

Bhawuk, D. P. S., Srinivas, E. S., Dalal, A. K., & Misra, G. (2010). The core and context of Indian Psychology. *Psychology and Developing Societies, 22*(1), 121–155.

Bruer, J. T. (2001). *The myth of the first three years: A new understanding of early brain development and lifelong learning*. New York, NY: The Free Press.

Burman, E. (1994/2017). *Deconstructing developmental psychology* (3rd ed.). New York, NY: Routledge.

Burman, E. (1996). Local, Global or Globalized? Child Development and International Child Rights Legislation. *Childhood, 3*(1), 45–66.

Chaudhary, N., & Sriram, S. (2020). Psychology in the "Backyards of the world": Experiences from India. *Journal of Cross-Cultural Psychology*. https://doi.org/10.1177/0022022119896652

Chaudhary, N. (2004). *Listening to culture. New Delhi: Constructing reality from everyday talk*. New Delhi, Delhi: Sage.

Chaudhary, N. (2012). Negotiating with autonomy and relatedness: Dialogical processes in everyday lives of Indians. In H. J. M. Hermans & T. Gieser (Eds.), *Handbook of dialogical self theory* (pp. 169–184). Cambridge, UK: Cambridge University Press.

Chaudhary, N. (2017). Childhood, culture and social science: What we have gained and may be in the process of losing. In T. S. Saraswathi, A. Madan, & S. Menon (Eds.), *Childhoods in India: Traditions, trends and transformations*. New Delhi, Delhi: Routledge.

Chaudhary, N., & Pillai, P. (2014). Research and the Young Child in India: Shifting from Alienation to Adaptability Using an Expanded Framework. *European Journal of Psychology of Education., 31*(1), 29–42.

Cole, M. (1996). *Cultural psychology: A once and future discipline*. Cambridge, MA: Harvard University Press.

Cole, M. (2002). Culture and development. In H. Keller, Y. H. Poortinga & A. Schölmerich, *Between culture and biology: Perspectives on ontogenetic development*. (pp. 303–319). Cambridge: Cambridge University Press.

Correa-Chavez, M., & Rogoff, B. (2005). Cultural research has transformed our ideas of cognitive development. *International Journal of Behavioral Development, 29*(3), 7–10.

Dalal, A. K., & Misra, G. (2002). Social Psychology in India: Evolution and emerging trends. In A. K. Dalal & G. Misra (Eds.), *New directions in Indian Psychology, Vol. 1* (pp. 19–52). New Delhi, Delhi: Sage.

Danziger, K. (1997). *Naming the mind: How Psychology found its language.* New Delhi, Delhi: Sage Publications. Retrieved from http://kurtdanziger.com/Naming%20the%20Mind.pdf

Demuth, C., & Mey, G. (2015). Qualitative methodology in developmental psychology. In J. D. Wright (Ed.), *International encyclopedia of social and behavioral sciences* (Vol. 19, 2nd ed., pp. 668–675). Oxford, UK: Elsevier.

De Vos, J. (2008). From Panopticon to Pan-psychologisation. *International Journal of Zizek Studies, 2*(1), 1–20. https://journals.sagepub.com/doi/10.1177/097133360902200105

De Vos, J. (2016). The metamorphoses of the brain and its discontents.

Eagleton, T. (2000). *The idea of culture*. Oxford, UK: Blackwell.

Hampden-Turner, C. (1982). *Maps of the Mind*. New York, NY: Macmillian.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world. *Behavioural and Brain Sciences, 33*(2-3), 61-83. https://doi.org/https://doi.org/10.1017/S0140525X0999152X

Ishiguro, H. (2016). How a young child learns how to take part in mealtimes in a Japanese day-care center: A longitudinal case study. *European Journal of Psychology of Education., 31*(1), 13–27.

Jha, V. N. (2008). (Chapter 13): The Nyāya-Vaiśeṣika theory of perceiving the world of our experience. In I. R. Rao, A. C. Paranjpe, & A. K. Dalal (Eds.), *Handbook of Indian Psychology*. New Delhi, Delhi: Cambridge University Press.

Kagan, J. (2012). *Psychology's ghosts: The crisis in the profession and the way back*. New Haven, CT: Yale University Press.

Kakar, S. (1996). *The Indian psyche*. New Delhi, Delhi: Viking.

Kumar, S. (2014). Inclusive classroom and social diversity in India: Myths and challenges. *Journal of Indian Research, 2*(1), 126–140.

Laing, R. D. (1965). *The divided self: An existential study in sanity and madness*. London, UK: Penguin.

Madsen, O. J., & Brinkmann, S. (2010). The disappearance of Psychologisation. *Annual Review of Critical Psychology, 8*, 179–199.

Maier, H. W. (1988). *Three theories of development* (3rd ed.). New York, NY: University Press of America.

Montessori, M. (1966). *The secret of childhood* (M. Joseph Costelloe, Trans.). New York: Ballantine Books. (Original work published in 1936).

Nelson, K., Skwerer, P. D., Goldman, S., Henseler, S., Presler, N., & Walkenfeld, F. (2003). Entering a Community of Minds: An Experiential Approach to 'Theory of Mind'. *Human Development, 46*, 24–46. https://doi.org/10.1159/000067779

Nielsen, M., Haun, D., Kärtner, J., & Legere, C. H. (2017). The persistent sampling bias in developmental psychology: A call to action. *Journal of Experimental Child Psychology, 162*, 31–38. https://doi.org/10.1016/j.jecp.2017.04.017

Panda, M. (2004). Culture and mathematics: Case study of Saora in Orissa. In K. Chanana (Ed.), *Transformative links between higher education and basic education: Mapping the field*. New Delhi, Delhi: Sage.

Pandey, J. (2002). *Psychology in India revisited, Vol. 2*. New Delhi, Delhi: Sage.

Pandit, S. A. (2011). The concept of "Rasa" in Indian Psychology. *Journal of Psychological Research, 6*(1), 139–157.

Paranjpe, A. C. (2021). Situating systems of psychology within the traditional Indian and modern Western knowledge systems. In G. Misra, N. Sanyal, & S. De (Eds.), *Psychology in modern India: Historical, methodological and future perspectives* (pp. 487–502). Singapore, Singapore: Springer.

Paranjpe, A. C. (2002). *Self and identity in modern Psychology and Indian thought*. Boston, MA: Springer.

Pence, A. (2011). Early childhood care and development research in Africa: Historical, conceptual, and structural challenges. *Child Development Perspectives, 5*(2), 112–118.

Rao, R., & Paranjpe, A. C. (2008). (Chapter 11): Yoga Psychology. In R. Rao, A. C. Paranjpe, & A. K. Dalal (Eds.), *Handbook of Indian Psychology*. New Delhi, Delhi: Cambridge University Press.

Rao, R., Paranjpe, A. C., & Dalal, A. K. (2008). *Handbook of Indian Psychology*. New Delhi, Delhi: Cambridge University Press.

Roland, A. (1988). *In search for self in India and Japan: Towards a cross-Cultural psychology*. Princeton: Princeton University Press.

Rogoff, B. (1993). Children's guided participation and participatory appropriation in sociocultural activity. In R. Woxniak & K. Fischer (Eds.), *Development in context: Acting and thinking in specific environments* (pp. 121–153). Hillsdale, NJ: Erlbaum.

Saraswathi, T. S. (2017). Preface. In T. S. Saraswathi, A. Madan, & S. Menon (Eds.), *Childhoods in India: Traditions, trends and transformations* (pp. xviii–xxii). New Delhi, Delhi: Routledge.

Sharma, N. (2011). *Understanding adolescence*. New Delhi, Delhi: National Book Trust.

Sinha, D., & Tripathi, R. C. (1994). Individualism in a collectivist culture: A case of coexistence of opposites. In U. Kim, H. C. Triandis, C. Kagitcibasi, S. C. Choi, & G. Yoon (Eds.), *Individualism and collectivism: Theory, method, and applications* (pp. 123–136). Thousand Oaks, CA: SAGE.

Skutnab-Kangas, T. (2009). The role of mother tongues in the Indigenous, tribal, minority and minoritized children- what can be done to avoid crimes against humanity? In P. W. Orelus (Ed.), *Affirming language diversity in schools and society. Beyond linguistic apartheid*. New York/London: Routledge.

Sternberg, R. (2019). *Time Bomb: How the Western Conception of Intelligence is Taking Down Humanity*. SRCD Keynote, Baltimore, 22nd March, 2019, SRCD.

Tulloch, M. (2000). The meaning of age difference in fear of crime: Combining qualitative and quantitative approaches. *British Journal of Criminology, 40*, 451–467.

Valenzuela, A. (1999). *Subtractive schooling: U.S.-Mexican youth and the politics of caring*. Albany, NY: State University of New York.

Valsiner, J. (2020). Where Occidental Science Went Wrong: Failing to See Systemic Unity in Diversity. *Psychology and Developing Societies, 32*(1), 7–14. https://doi.org/10.1177/0971333620903880

Valsiner, J. (2019). Hypergeneralisation by the human mind: The role of sign hierarchies. In *First presented at 4th Hans Kilian Preis Lecture Bochum, April 28, 2017*. Giessen: Psychosozial Verlag.

Valsiner, J. (2014). The need for cultural psychology: Methodology in a new key. *Culture and Psychology, 20*(1), 3–20. https://doi.org/10.1177/1354067X13515941

Valsiner, J. (2004). *Culture in minds and societies; Foundations for Cultural Psychology*. New Delhi, Delhi: Sage.

Van der Kolk, B. (2000). Post-traumatic stress disorder and the nature of trauma. *Dialogues in Clinical Neuroscience, 2*(1), 7–22.

Viswanathan, S. (2016). *Confessions of a bird-man*. The Hindu, December 1, 2016. https://www.thehindu.com/opinion/op-ed/Confessions-of-a-bird-man/article16731708.ece

Weisner, T. S. (2002). Ecocultural understanding of children's developmental pathways. *Human Development, 45*(4), 275–281.

Teaching Physiological Psychology

12

Using News and Social Media to Engage Students in Active Learning

Jane A. Foster

Contents

Abstract

Physiological psychology in North America is an undergraduate course that introduces students to the neurobiology that controls behavior. It complements other psychology courses and includes key concepts and content related to the structure and function of the nervous system. To engage students, instructors can utilize interactive teaching strategies and styles and can consider integrating technology into their course design and organization. This chapter provides an overview of undergraduate *physiological psychology* and provides teaching strat-

J. A. Foster (✉)
Department of Psychiatry and Behavioural Neurosciences, McMaster University, Hamilton, ON, Canada
e-mail: jfoster@mcmaster.ca

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egies and assessment tools based on the integration of news media and use of the social media platform, Twitter, in the classroom. Several resources are provided.

Keywords

Brain and behavior · Twitter · Social media · Science in the news

Introduction

Physiological psychology courses in North America provide an opportunity for students to gain an understanding of the biological basis of brain function and behavior. In general, undergraduate courses in *physiological psychology* are offered in second or third year of university study and require prior completion of an introductory psychology course. Additional upper-level courses that consider subtopics of physiological psychology are often offered as electives in many undergraduate programs. Course titles vary across programs and may include *biological psychology, behavioral neuroscience, and foundations of brain and behavior,* among others. Their common foundation lies in providing an opportunity for students to advance their knowledge of the dynamic interaction between physiology and psychology.

From a historical perspective, the First International Congress of Physiological Psychology was held in Paris, France, in 1889, with the aim of separating psychology from philosophy (Sabourin & Cooper, 2014). Development of the topic of physiological psychology in the late nineteenth and early twentieth century occurred at a time when scientists were advancing theories to understand the relationship between the brain and behavior (Milner & White, 1987). Advances in neurology and anatomy provided a road map to how sensory and motor systems were organized in the brain and provided the neurobiological framework that contributed to the development of the field (Milner & White, 1987). In addition, biomedical research activities aimed at generating physiological explanations for diseases of the nervous system also provided evidence that behavior was associated with particular brain regions. From there, the concept that these associations were applicable to normal behavior developed more and more throughout the twentieth century (Milner & White, 1987).

Over time, research studies related to physiological psychology advanced our knowledge through the simultaneous consideration of both the brain and behavior and, as such, courses on this topic include an in-depth analysis of neurobiological systems and how these systems influence behavior. A recent trend in university teaching in North America has been to integrate technology into course design for the purpose of enhancing student engagement and improving teaching and learning. Accordingly, this chapter will not only provide an overview of physiological psychology, but will also suggest some innovative and engaging ways to integrate technology such as news media and social media into course content and consider its potential use as a learning assessment tool.

Purposes and Rationale of the Curriculum in Physiological Psychology

The curriculum in *physiological psychology* is a core feature of undergraduate psychology course work in North America. It links psychology and neuroscience while providing a comprehensive introduction to the neurobiological systems that influence behavior. The American Psychological Association guidelines for undergraduate psychology provide the framework for core teaching and learning objectives in psychology courses in general (American Psychiatric Association, 2013). Based on these guidelines, students completing an undergraduate course in physiological psychology should:

1. Demonstrate fundamental knowledge and understanding of the content and concepts of physiological psychology and be able to describe how neurobiological systems contribute to normal behavior and to diseases of the nervous system.
2. Develop skills related to critical thinking and scientific inquiry including an ability to read scientific literature in an evaluative manner.
3. Become familiar with ethical and socially responsible standards in psychological studies and to develop professional skills by participating and contributing to a positive learning experience for themselves and their peers.
4. Develop skills related to communicating about science and scientific findings.
5. Develop an understanding for the use of technology in learning and actively use these tools to engage in learning physiological psychology content from a variety of information sources.

Core Contents and Topics of Physiological Psychology

Physiological psychology provides an overview of the neurobiological basis of behavior. It is recommended that instructors provide a general overview of what is physiological psychology and provide several examples of current research findings in the area, and why the study of physiological psychology is important to understanding animal and human behavior. A foundational topic that should be covered prior to other system-level topics is the structure and function of the nervous system. This topic would include the cellular and anatomical organization of the nervous system, concepts related to neuronal signaling, and would highlight brain regions and circuits that are important to behavior. Additional topics include neuroanatomy, sensory and motor systems, learning, memory, and cognition, sleep, stress systems, emotion, and psychological disorders. An emphasis on linking the course content to current areas of research and to recent publications in the literature will increase student engagement and promote class discussion. It is likely that a degree of overlap in course content will exist between a course in physiological psychology and other courses such as psychopharmacology, perception, and abnormal psychology, among others. The basic principles of nervous system function provide key information that students can apply to other courses.

Approaches and Strategies for Teaching and Assessment in Physiological Psychology

Despite the many advances in teaching strategies in the past decade, including flipped classrooms, problem-based learning, peer mentoring, and the like, the predominant method of teaching in undergraduate psychology is a combination of textbook readings and traditional lectures. Traditional lectures are effective in providing foundational information on a topic, and this is true for *physiological psychology.* In addition, there are well-written and well-organized textbooks on the topics that provide a comprehensive overview of the course content described above. It is recommended that instructors include a textbook as a key resource for *physiological psychology* as this is a comprehensive and convenient resource for students. Similarly, the use of traditional lectures to deliver key course content is valuable. However, it is recommended that instructors consider a variety of teaching styles and levels of engagement to improve the learning experience for the student (▶ Chaps. 54, "Assessment of Learning in Psychology," ▶ 58, "Learning and Instruction in Higher Education Classrooms," ▶ 31, "Teaching Psychopharmacology for Undergraduates," and ▶ 8, "Topics, Methods, and Research-Based Strategies for Teaching Cognition"). Different levels of engagement including interactive engagement, constructive engagement, active engagement, and passive engagement can be considered in course organization and in the delivery of course material (for more information see ▶ Chap. 58, "Learning and Instruction in Higher Education Classrooms," by Schwartz and Bartel, in this handbook). Further, teaching styles that demonstrate the instructor's enthusiasm and knowledge of the topic contribute to an outstanding lecture. That enthusiasm and knowledge can be communicated by using personal examples, focusing on one key research group that contributed to a research area, telling the story of how a recent research topic or a specific research finding developed over time, describing the challenges that occurred in certain areas of the field, and how new approaches may have helped overcome those challenges. If there is a key discovery or key person who provided foundational work in an area, it can be interesting to examine former trainees of that lab, their contributions, and where they have gone and what they have done to continue to work in that field or in other areas. The use of short YouTube videos or references to podcasts by researchers in the field can have a great impact on student interest and enthusiasm, which may lead to better learning in the long run. If your institution provides opportunities for undergraduate research projects, arranging for students to collaborate with local research teams to provide these opportunities in parallel with course work can also benefit student learning (Lloyd, Shanks, & Lopatto, 2019).

Integrating Technology into the Physiological Psychology Course

As numerous online resources including those found in news media, social media, podcasts, YouTube videos, university and government websites, scientific organizations, and many more are accessible to all, integration of these resources inside and

outside the classroom has the potential to enhance students' learning opportunities. As described below, arranging for students to explore these online resources can be a useful endeavor, but some resources may be more useful than others.

For example, a recent analysis of the use of web-based resources for delivery of educational materials to medical students in the clinical phase of their studies suggests that podcasts, case studies, and subject-specific apps are suitable but social media such as Twitter and Facebook were less so (Vogelsang, Rockenbauch, Wrigge, Heinke, & Hempel, 2018). Interestingly, the perception and use of social media differs to some extent between educators and their students (El Bialy & Jalali, 2015). This discrepancy highlights the need for educators to engage with students and listen to their perspectives and their feedback. Certainly, the reliability of the resource is a key consideration for instructors. In addition, exploring these resources and integrating them from an instructional perspective can be time consuming and this may limit uptake for undergraduate psychology courses. Multimedia classrooms provide an alternative to using online resources for integrating technology into the course's content delivery system. Such classrooms offer the possibility of including interactive questions using student response systems ("clickers") as well as the use of animations to deliver content (Stoloff, 1995). The availability of interactive classrooms varies at different institutions, of course, but instructors who do not have access to them can consider some of the suggestions provided in this chapter and tailor them to their own teaching situation.

Using Science in the News to Engage Students in the Classroom

There are several reasons to highlight science-based news in classroom lectures and discussions in a physiological psychology course. First, the general public and media outlets are interested in science. Indeed, news outlets typically serve as the first line of communication between the public and the results of scientists' research. Understanding how science is communicated to the public, the various forums involved, the quality of the communication, and the topics that warrant attention is an important component of an undergraduate science education. Second, focusing on science news can help students understand the public importance of key topics in the course, to excite them about recent research findings that are directly related to the course content, and to engage in active learning as they explore news media reports on the topic. Third, well-written news articles can help students to decipher complicated research papers and to identify its key points. Fourth, encouraging students to evaluate the quality, accuracy, and source of science news provides a framework to discuss and consider the key features and aspects of research findings that come from scientific work. Fifth, applying active learning methods to science in the news can open useful classroom dialogues support homework assignments that prompt students to think more deeply about science communication. Sixth, drawing students' attention to science writers' use of terminology that provides laypersons with an understandable overview can provide useful examples for undergraduate students to follow in learning how to communicate with others about topics in physiological

psychology. Finally, as described below, combining the use of science in the news with the introduction of social media apps such as Twitter can provide an alternative tool for assessing students' class participation.

One particularly useful way to integrate science news into your course design is to assign students to find recent news articles that are related to physiological psychology. They can do so as in-class activity, a discussion board activity, or as part of some other kind of writing or research assignment. The best approach for your particular course will depend on the scheduled length of class time and the number of students enrolled. With small classes, it is easy to assign students to make short classroom presentations, whereas in larger classes, peer-driven discussion boards may be a scalable way to include students' findings about science in the news. Providing students with the proper framework for finding and considering the available news articles is an important instructional step to ensure that students are prepared and will get the most value out of this exercise. Table 1 outlines the information you can provide to students in order for them to get them started with a science in the news exercise.

As an in-class activity, completing a science in the news exercise can contribute to class participation credit or could be graded as a stand alone presentation. Depending on the number of students and the time available, students can work individually or in small groups to prepare 5- to 10-min classroom presentations. The content of the presentations ought to highlight the key findings that were included in a news story related to physiological psychology. The topics selected can be matched to course content or can be broader in nature, in which case, students have the opportunity to explore topics in which they are particularly interested, but that may not be directly covered in lecture or in other aspects of the course. A possible format for these classroom presentations would include a maximum number of slides (3–5 recommended) and focus on: (1) What is the primary scientific finding in the news article? (2) How does it relate to physiological psychology? (3) Why did it warrant attention in the news? and (4) How accurate was the information provided?

Using Twitter in Support of a Course in Physiological Psychology

As you probably know, Twitter is a social media platform used extensively for communication among scientists, educators, and media, not to mention the general public. Users can share links to news articles, research papers, photos, websites, videos, and include a message or "tweet" of up to 280 characters. There are many good reasons to consider using Twitter as a social media platform in support of teaching physiological psychology, and in general. First, it is an open platform such that all tweets are accessible by all users. Second, academic researchers are active on twitter, so by following other researchers in physiological psychology, it is easy to share recent findings and to keep up to date on literature in the area. Further, as an active user, you can build your network and connect with individuals with similar interests outside your local environment. In addition to scientists, many journals, science organizations, and media are active on Twitter, meaning that both teachers

Table 1 Strategies for finding science in the news

Finding news items
Google News www.google.com Science news for students www.sciencenewsforstuents.org Social media Twitter, Facebook, Instagram – Twitter is an excellent source for scientific news Linked In News posts by academic and business individuals highlight important news and the attention it is getting
Determining the news story relevance
Consider the source: The more reliable the source, the better the information - Major news outlets: Radio, newspapers, magazines. - Scientific journal websites: Often feature research published in their journals. - University websites: Often feature media articles by the university's public relations office coming from their researchers. Take a look to see if multiple sources cover the same research or news; often a story put out by a university or journal website is picked up and shared by other media outlets Evaluate the content - General information or specific details related to the topic. - Is there a link to a recent publication? - Are experts on the topic quoted in the article? - What is the quality and accuracy of the information provided? - Is it clear why this finding warrants media attention?.
Who is the target audience?
- General public. - Scientists and researchers. - Health care practitioners. - Other stakeholders.
Identify the primary literature related to the news
PubMed - PubMed is an online database search engine which comprises more than 28 million citations for biomedical literature from MEDLINE, life science journals, and online books. It is a major literature tool used in the research world. - Online access to PubMed is available through the following website: https://www.ncbi.nlm.nih.gov/pubmed/ Google scholar - *Google scholar* provides a simple way to broadly search for *scholarly* literature. From one place, you can search across many disciplines and sources: Articles, theses, books, abstracts, and court opinions from academic publishers, professional societies, online repositories, universities, and other web sites. - Online access to Google scholar is available through the following website: https://scholar.google.ca/

and students can have access to engaging and interesting course-related information. Third, there is no cost to create a Twitter account and there are no fees associated with its use. Each user is identified by a unique handle, for example, mine is @jfosterlab, and my undergraduate physiological psychology course is @htsci4BB3. Fourth, topics of interest can be highlighted by users in their tweets

through the use of hashtags, for example, #phsyiologicalpsychology. Hastags are useful to gather topic-related tweets on relevant topics or ongoing events. Often, organizers of conferences provide attendees with a hashtag for the event so that attendees tweet activities in real time as an event is taking place. Accessing related content by hashtag is easy; when you click on the hashtag in a Twitter post and it takes you to the other posts with the same hashtag.

If you are not yet on twitter, it is easy to get started. The online Twitter guide (https://help.twitter.com/en/twitter-guide) provides step by step instructions to set up your account and profile, as well as tips for getting the most out of using the app. You can stay up to date with topics you are interested in, learn about what other people are talking about, and join in the conversation with people from all areas of the world.

Twitter as a Tool for Sharing Course Content

The fact that Twitter users can share links to other Internet sites or resources provides opportunities to use it not only to provide educational content to a group of students, but also to the public and other interested parties. In a recently published example, Twitter was used to disseminate surgical videos. Links to YouTube videos were embedded in the tweets, allowing users from 28 countries and six continents to have access to this educational material (Cassidy et al., 2020). Further, the producers of the videos were able to monitor the activity of all the users who were connected to their tweets by taking advantage of Twitter analytics. Using this analytical tool provided by Twitter, it is possible to monitor the level of engagement with a tweet, a hashtag, or with a particular account in general (see analytics.twitter.com). Twitter analytics measure the number of times a post is viewed (referred to as "impressions"), the number of times a user interacted with the tweet by clicking a link (referred to as "engagements"), the number of times a post was "liked," or the number of times the tweet was shared (referred to as a "retweet"). In addition, users can select to follow others who share their interests. Based on who you follow and what tweets you like, when you open the app, Twitter algorithms tailor the content that appears on your twitter feed to match your prior activity.

Twitter in the Classroom

The use of twitter in the classroom has expanded in the past decade. Early adopters of twitter in the classroom used live tweets by faculty or teaching assistants during lectures to increase engagement with the course across enrolled students and the larger university community. A concern related to live tweeting is the quality of the information disseminated. Thus educational researchers have suggested strategies to increase content quality through presenter-initiated approaches, such as having the speakers or instructors provide students or teaching assistants with the key take-

home points so as to improve the accuracy of the tweets (Tomlinson et al., 2017). To date there has been very little research in this area, and so far, much of it is related to medical education (Feito & Brown, 2018).

Research demonstrating the benefits of using Twitter and other social media to enhance student engagement is emerging (Chawinga, 2017), and there are many blogs, websites, and educational resources available that provide ideas and options for Twitter-based classroom activities (e.g., https://wabisabilearning.com/blogs/technology-integration/18-twitter-based-classroom-activities). Not all of these ideas and options are appropriate for an undergraduate course in physiological psychology, however, the suggestions may provide ideas that can be tailored for that course and other psychology courses.

Using Twitter as an Alternative to Traditional Class Participation

For several years, I have integrated Twitter participation as one of the methods by which students can get class participation credit. In the courses with a biological framework, it is possible to combine the above-noted science in the news activities with Twitter participation. To start, create a Twitter account and profile for your physiological psychology course and generate a couple key hashtags to share with students. Each student would also need to create a Twitter account and profile. The goal of the exercise is for you, your teaching assistant (if you have one), and your students to (1) "tweet" key news articles linked to physiological psychology and (2) "tweet" the research evidence that supports the news article (see Fig. 1).

Here are some instructions and examples of news articles and related scientific papers, as well as formatting of tweets as part of a class participation exercise.

Each tweet ought to tag the course twitter account (e.g., @hthsci4BB3), and refer to the hashtags that you have created. Inclusion of these two identifiers makes it easier for you to track the Twitter activity in the course. Assessing participation through Twitter can be accomplished by following the Twitter activity of student users directly in Twitter, or as described above, using Twitter analytics. Users can also have access to their own Twitter activity and the Twitter activity of a hashtag, and can generate a report of this activity. You can thus ask your students to submit a Twitter analytical report for their activity related to the physiological psychology course. The standard formatting and accessible nature of Twitter analytics makes participation easy to track and easy to grade.

Challenges Faced and Lessons Learned

For more than 15 years, I have integrated science in the news into course design including lecture material, student presentations, and written assignments. Feedback from students has been positive and many have expressed appreciation for the

Fig. 1 Twitter participation on topics related to physiological psychology

opportunity to explore topics not directly covered in the course content but related to course topics. Over the past 3 years, I have found using Twitter in the classroom to be successful in providing an active learning option for students. Participating in Twitter activities is one option available to students to earn participation credit and more than 90% of them choose it. I like that option, too, because measuring participation via Twitter is easy to translate into a grade using a simple rubric of 1 grade or 1.5 points per tweet.

One of the challenges associated with using Twitter or other social media activity as part of determining course credit is that a small subset of students do not use these media, but this can be managed by providing other avenues for class participation. Generally, students find participating in twitter as an easy and enjoyable way to earn participation credit, and it is more popular than the option of making short presentations. Still, in one second-year class with over 100 students, the science in the news article assignment was very successful and all students participated, either individually or in groups to present key findings in the news and on related topics. Several times over the years, I have changed the format for integrating news media and social media in my classrooms, but always in response to helpful feedback and suggestions from the students.

Teaching, Learning, and Assessment Resources for Physiological Psychology

My teaching philosophy is simple – be creative, enthusiastic, energetic, present the most up-to-date science, and keep the students involved. To increase the overall effectiveness of my teaching, I try to provide a positive learning environment and use a variety of pedagogical skills and techniques. In addition, I believe that teachers of any course in psychology should engage in professional development activities including teaching attending teaching conferences, workshops, and courses (online or in person) that can expand their knowledge of teaching styles and new teaching techniques. The information and ideas gained can help any teacher to improve teaching effectiveness and move beyond the traditional lecture approach to undergraduate teaching.

Recommended Resources:

1. **Effective Teaching Strategies** (https://www2.le.ac.uk/offices/lli/developing-learning-and-teaching/enhance/strategies). Several universities have teaching resources for professional development and to assist educators. It is often difficult to find a good overview of the current and best teaching strategies. This website at the University of Leicester Learning Institute provides an updated list and description and is a great place to find new ideas.
2. **Linked In Learning** (www.linkedin.com): This online resource requires membership but offers extensive resources for professional development. Some universities provide access for their faculty.
3. **Brainfacts.org** (https://www.sfn.org/outreach/brainfactsorg):
   Often students in physiological psychology do not have a strong biological or neuroscience background. Providing online resources that can help them understand some of the concepts and content related to basic neuroscience and behavior. The Society for Neuroscience provides outreach to the public, including the brainfacts.org website, which offers simple explanations of key concepts about brain function. It provides summaries of research discoveries and information on many diseases and disorders that effect the brain.
4. **Ted Talks (**https://www.psychreg.org/ted-talks-psychology/):
   Ted talks are a fabulous way of gaining insight into a topic and hearing it from an expert on the topic. This site provides links to great TED talks on psychology. These may be of interest to educators and may also be useful to integrate into lectures.
5. **University of Waterloo Centre for Teaching Excellence** (https://uwaterloo.ca/centre-for-teaching-excellence/teaching-resources/teaching-tips/alternatives-lecturing/active-learning/varying-your-teaching-activities).
   This center offers numerous resources for teachers, including teaching tips and links to many resources that can help in course organization, teaching strategies, and professional development.

References

American Psychiatric Association. (2013). APA guidelines for the undergraduate psychology major: Version 2.0., Retrieved from http://www.apa.org/ed/precollege/undergrad/index.aspx.

Cassidy, D. J., Mullen, J. T., Gee, D. W., Joshi, A. R. T., Klingensmith, M. E., Petrusa, E., & Phitayakorn, R. (2020). #SurgEdVidz: Using social media to create a supplemental video-based surgery didactic curriculum. *The Journal of Surgical Research, 256*, 680–686. https://doi.org/10.1016/j.jss.2020.04.004.

Chawinga, W. D. (2017). Taking social media to a university classrom: Teaching and learning using twitter and blogs. *International Journal of Educational Technology in Higher Education, 14*, 3. https://doi.org/10.1186/s41239-017-0041-6.

El Bialy, S., & Jalali, A. (2015). Go where the students are: A comparison of the use of social networking sites between medical students and medical educators. *JMIR Med Educ, 1*(2), e7. https://doi.org/10.2196/mededu.4908.

Feito, Y., & Brown, C. (2018). A practical approach to incorporating twitter in a college course. *Advances in Physiology Education, 42*(1), 152–158. https://doi.org/10.1152/advan.00166.2017.

Lloyd, S. A., Shanks, R. A., & Lopatto, D. (2019). Perceived student benefits of an undergraduate phsyiological psychology laboratory course. *Teaching of Pscyhology, 46*, 215–222.

Milner, P. M., & White, N. M. (1987). What is physiological psychology? *Psychobiology, 15*, 2–6.

Sabourin, M., & Cooper, S. (2014). The first international congress of physiological psychology (Paris, august 1889): The birth of the International Union of Psychological Science. *International Journal of Psychology, 49*(3), 222–232. https://doi.org/10.1002/ijop.12071.

Stoloff, M. (1995). Teaching physiological psychology in a multimedia classroom. *Teaching of Pscyhology, 22*, 138–141.

Tomlinson, S., Haas, M., Skaugset, L. M., Cico, S. J., Wolff, M., Santen, S., . . . Huang, R. (2017). Using twitter to increase content dissemination and control educational content with presenter initiated and generated live educational tweets (PIGLETs). *Medical Teacher, 39*(7), 768–772. https://doi.org/10.1080/0142159X.2017.1317727.

Vogelsang, M., Rockenbauch, K., Wrigge, H., Heinke, W., & Hempel, G. (2018). Medical education for "generation Z": Everything online?! - an analysis of internet-based media use by teachers in medicine. *GMS Journal for Medical Education, 35*(2), Doc21. https://doi.org/10.3205/zma001168.

Teaching Social Psychology Effectively

13

A Practical Guide

Scott Plous, David G. Myers, Mary E. Kite, and Dana S. Dunn

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S. Plous (✉)
Wesleyan University, Middletown, CT, USA
e-mail: splous@wesleyan.edu

D. G. Myers
Hope College, Holland, MI, USA

M. E. Kite
Ball State University, Muncie, IN, USA

D. S. Dunn
Moravian University, Bethlehem, PA, USA

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https://doi.org/10.1007/978-3-030-28745-0_16

Abstract

Social psychology is the scientific study of how people think about, influence, and relate to one another – a subfield of psychology that began more than a century ago with experiments on social facilitation and social loafing. In the aftermath of World War II, social psychology subsequently broadened to tackle pressing social issues such as prejudice, genocide, obedience to authority, and school desegregation. In this chapter, we provide a practical guide on how to teach social psychology to undergraduate students, including "action teaching" – a relatively new educational approach in which students take action on social issues as part of the learning process. After discussing the curricular goals of social psychology, the chapter outlines six core ideas that emerge from research and theories in social psychology. Next, it describes several teaching, learning, and assessment strategies, beginning with "backward course design" (a design method in which instructors first identify learning objectives and then work backward to create course content, learning activities, and student assessments to achieve the objectives). The chapter also offers advice on how to address some of the most common challenges and questions that social psychology teachers face: *(1) What if class members vary widely in psychology training? (2) Do the results of social psychology research generalize? (3) Are social psychology findings replicable? (4) How should research ethics be discussed? (5) What's the best way to teach about difficult or controversial topics? (6) How can social psychology be taught effectively online?* Finally, the chapter ends with an annotated list of published and online resources related to teaching, learning, and assessment, all of which should be useful to both new and veteran social psychology instructors.

Keywords

Social psychology · Teaching · Action teaching · Online · MOOC · Undergraduate · Assessment

Introduction

We humans are social animals. Our ancestors hunted, gathered, and found protection in groups. As their descendants, our lives are connected by a web of invisible threads. Social psychology explores these connections as it illuminates our beliefs and our attitudes, our conformity and our individuality, and our capacity to help and love one another and to dislike or harm others.

Social Psychology's Focus

Reduced to its essence, social psychology is *the scientific study of how we think about, influence, and relate to one another:*

- *Social thinking* – Social psychologists observe and experiment with how we view ourselves and others, both consciously and unconsciously (implicitly). How do we explain people's behavior? How do we assess and explain our own behavior?
- *Social influence* – Social psychologists study both the subtle social forces that induce conformity, persuasion, and group behavior and the counterforces that lead us to assert our uniqueness, resist indoctrination, and sway our groups. They also explore the cultural roots of social behavior.
- *Social relations* – Social psychologists plumb the depths of our helping or hurting others. Why do we like or love some people and dislike or distrust others? What explains our individual prejudices and systemic racism? What kindles social conflict, and how can we transform closed fists into open arms?

Moreover, social psychologists shine the light of these concepts on everyday life. Thus, we have a social psychology of health and well-being, of courtroom justice, and of behaviors that enable a sustainable future.

Social Psychology's History

Although humans have been social throughout recorded history, sociality is on the rise, as the Google Ngram in Fig. 1 suggests. In today's world of unprecedented population density and ever-increasing connectedness, our species has devised social media, social security, social services, social work, and, yes, social psychology.

The earliest experiments in social psychology explored *social facilitation* – as in Norman Triplett's (1898) finding that people exert more energy when performing tasks such as bike riding in the presence of others – and of *social loafing*, as in Maximilien Ringelmann's (1913) studies of people's expending less effort in a tug of war when their own contributions were not identifiable.

But as Thomas Pettigrew (in press) notes, it was World War II and its aftermath that led to social psychology's emergence as a robust discipline. European social psychologists Kurt Koffka, Wolfgang Köhler, Max Wertheimer, and – most notably – Kurt Lewin immigrated to the United States and leavened the academic loaf. Social psychologists at Yale University and elsewhere studied soldier morale and mass persuasion. Interdisciplinary institutes were founded to conduct social research and national surveys. Gordon Allport's (1954) classic volume, *The Nature of Prejudice*, became, in its 1958 abridged version, a best-selling contribution to public understanding. In 1954, reports Pettigrew, social psychologists Kenneth Clark, Isidor Chein, and Stuart Cook "supplied the major scientific support" for the US Supreme Court's landmark school desegregation decision.

During the latter half of the twentieth century, the "cognitive revolution" prioritized studies of social thinking, including automatic processing that fuels our stereotypes and drives our behavior. Simultaneously, European social psychology made the discipline's focus less individualistic by emphasizing the importance of

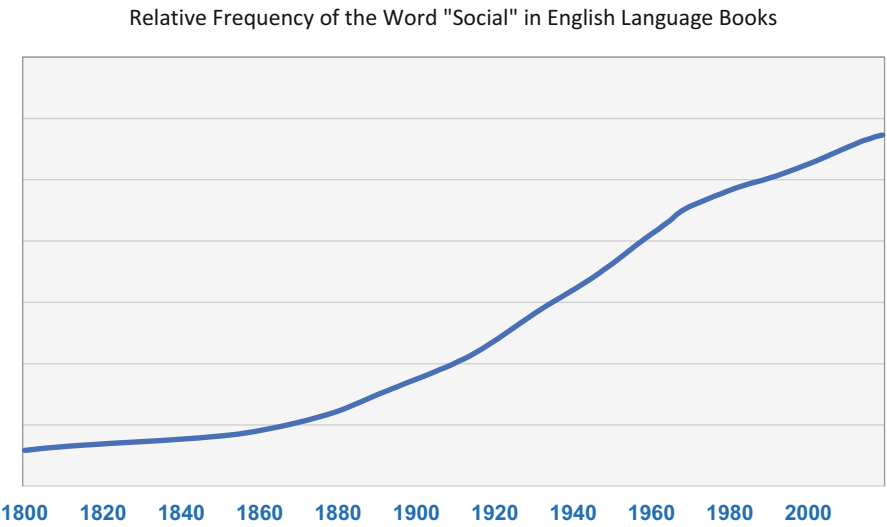

Fig. 1 An increasingly social world
Source: http://books.google.com/ngrams

social identity. Social psychology has also grown worldwide, including in Central and South America, Australia, South Africa, and Asia.

Action Teaching

As this brief history suggests, social psychology began with studies on social facilitation and social loafing, but after the upheaval of World War II, researchers increasingly began to tackle pressing social issues such as prejudice, violence, and obedience to authority. Kurt Lewin, who left Nazi Germany for the United States in 1933, was deeply troubled by anti-Semitism and anti-Black prejudice, and in the 1940s, he proposed "action research" as a way to address societal problems while also advancing scientific knowledge (Lewin 1946, 1948). "No action without research," wrote Lewin, and "no research without action" (Marrow, 1969, p. 193). This two-track approach to social research had an enduring effect on social psychology that is still visible today in the form of behavioral science-based efforts to address racial injustice (Eberhardt, 2019), climate change (Fielding et al., 2014), the COVID-19 pandemic (Van Bavel et al., 2020), and other social problems (Fig. 2).

Building on Lewin's approach, "action teaching" is the educational counterpart to action research (Plous, 2000). What distinguishes action teaching from traditional pedagogy is that it contributes directly to the betterment of society, while it teaches students about the topic being studied. That is, students don't merely listen to lectures, complete reading assignments, or write term papers – they take actions that promote peace, social justice, sustainable living, and the well-being of others.

Fig. 2 Kurt Lewin, who advocated action research and helped found contemporary social psychology
Source: http://vlp.mpiwg-berlin.mpg.de/people/data?id=per638

By incorporating prosocial action into the learning process, action teaching tends to increase student motivation, improve learning outcomes, and provide students with a foundation for future civic action (Velez & Power, 2020).

Although action teaching has been used in a variety of courses and disciplines, it is especially well suited to courses in psychology because the field covers social, cultural, and political topics such as intergroup conflict, stereotyping, climate change, human rights, criminal justice, and the development of empathy. Here are a few examples featured on ActionTeaching.org, a web-based repository of action teaching ideas and resources:

- Psychology students at Buffalo State College learned about culture and the daily life of refugees by teaching a local refugee family how to set up and balance a checking account, handle telephone solicitations, and avoid credit card debt, thereby helping family members while learning from them (Norvilitis, 2010).
- An organizational psychologist at the University of Pennsylvania taught students about the principles of persuasion, negotiation, leadership, and teamwork by challenging students to create fundraising campaigns for the Make-a-Wish Foundation, which serves children with life-threatening medical conditions. Students

in classes that included this assignment learned so much and were so engaged that they ended up raising more than $100,000 in donations to the foundation (Grant, 2013).
- Grand Valley State University psychology students learned about research methods and statistics by comparing the effectiveness of different social influence techniques that they employed to solicit volunteers for a local anti-hunger organization. Over a 4-year period, students not only learned first-hand how to collect and analyze psychological data, but the volunteers they signed up decorated more than 13,000 meal bags for children in need of food and emotional support (Jones, 2020).

Depending on the learning objectives and associated curricular goals and constraints, action teaching activities can be used in social psychology classroom demonstrations, student assignments, field experiences, or web-based exercises, and they can take a number of different forms, such as required course assignments, extra-credit assignments, honors work, half-credit courses, lab components, tutorial projects, or independent study opportunities. Action teaching has also been used in online education, where it has the potential to reach thousands of students (for an example, see the sidebar "Action Teaching Assignment: The Day of Compassion"). Regardless of the form that action teaching takes, the central idea is that students contribute to the welfare of others as they learn about course topics, often in highly memorable ways that lead to meaningful and lasting educational outcomes.

Action Teaching Assignment: The Day of Compassion

The "Day of Compassion" is an action teaching assignment that has been used in both online and campus-based social psychology courses since the 1990s (Day of Compassion, 2021). The goal of the assignment is to teach students about compassion and empathy by challenging them to live as compassionately as possible for 24 hours. Specifically, students are asked to spend the day trying their best "to reduce suffering, help other people in need, be considerate and respectful, and avoid causing harm to any living being." After the day is over, students then submit a paper answering questions such as:

- If your behavior was different than normal, which person did you like more: the "Day of Compassion you" or the "normal you"?
- If you preferred the "Day of Compassion you," what are the psychological factors that prevent this "you" from coming out?
- If you wanted to encourage others to behave as you did during the Day of Compassion, what techniques would you use?

Most students find the Day of Compassion assignment to be enlightening, and some describe it as life-changing (Plous, 2009). For example, many students report that they like their "Day of Compassion self" more than their "normal self"

and that they intend to continue behaving more compassionately in the future. Others come to realize that compassion is easier and more fun to practice than they had expected. Still others report that their acts of kindness and compassion were reciprocated by those they helped, creating a positive feedback loop in which compassion begat compassion. In the context of a social psychology course, the assignment can be used to teach about prosocial behavior, bystander intervention, conflict resolution, social identity, intergroup bias, and participant-observation research methods, among other topics.

In keeping with the twin goals of action teaching – to promote learning and contribute to the welfare of others – the Day of Compassion tends to generate a wide assortment of prosocial outcomes. For instance, students often report resolving conflicts with estranged friends or family members, helping homeless strangers, rescuing animals, donating money to nonprofit groups, and volunteering time at community organizations. In fact, when the Day of Compassion was assigned in a massive open online course on social psychology (mentioned later in this chapter), thousands of students in dozens of countries spent so much time helping and caring for their friends, colleagues, family members, and community that a BBC News article dubbed the event "the world's most compassionate 24 hours" (Stephens, 2014).

Purposes and Rationale of the Curriculum in Social Psychology

Social psychology courses address two key competencies that the US National Association of Colleges and Employers (2019) has identified as essential for undergraduates' career readiness: critical thinking/problem-solving and global/intercultural fluency. In addition, the teaching of social psychology contributes to liberal education with its three broad aims:

1. *Understanding oneself and others*: Empowering students to accurately understand and interpret behavior with less gut feeling and more evidence-based thinking
2. *Enlarging hearts*: Replacing judgmentalism with empathy and compassion – to respect our social diversity while appreciating our human kinship
3. *Enabling social flourishing*: Educating global citizens to contribute to a thriving, sustainable, peaceful future

As teachers, we strive toward these aims by training students how to think critically when it comes to human behavior – to repeatedly ask *What do you mean?* and *How do you know?* And we seek to equip them with powerful concepts that have wide applicability to everyday life.

To help social psychology instructors move from these broad aims to crafting specific course learning objectives, we recommend consulting the American

Psychological Association's (2013) *Guidelines for the Undergraduate Psychology Major: Version 2.0* (the current guidelines are scheduled for renewal and revision on or before 2023). APA's guidelines represent a set of expectations for learning and performance by undergraduate students who are majoring in psychology or enrolled in a psychology course, such as social psychology. Five learning goals appear in the *Guidelines 2.0:* knowledge base in psychology, scientific inquiry and critical thinking, ethical and social responsibility in a diverse world, communication, and professional development. These learning goals can be incorporated into a social psychology course that either follows introductory psychology or is taught as an entry-level course without prerequisite coursework (Dunn et al., 2020).

For instance, instructors teaching an introductory social psychology class might state early in the syllabus that students who successfully complete the course will be able to:

- Demonstrate knowledge of the major concepts, theoretical perspectives, empirical findings, and historical trends in social psychology
- Identify and critique research methods in social psychology
- Use critical thinking, skeptical inquiry, and, when possible, the scientific method to identify and solve problems related to social behavior and social thinking
- Apply social psychological theories and principles to understand people's everyday behavior and relationships, including one's own
- Recognize, understand, and respect the complexity of human diversity

These learning objectives are typical in an introductory social psychology class, but there is no single codified set of objectives applicable to all social psychology courses. What is most important is that learning objectives be explicit, clearly written, and closely linked to the required readings, assignments, and classroom activities.

Core Content and Topics of Social Psychology

What are social psychology's core ideas? Our short list includes this half dozen.

Attitudes and Actions Feed Each Other

As but one determinant of our behavior, our internal attitudes are imperfect predictors. Yet an attitude can matter, particularly when it's directly relevant to a behavior, such as exercising, and when we're reminded of it. Persuasion – whether viewed as "education" (by those who believe it) or "propaganda" (by those who don't) – can therefore change our attitudes and sway our behavior.

But our attitudes not only influence our behavior; they are also shaped by it. When we act and accept responsibility for our actions, our attitudes tend to fall in line. The resulting self-persuasion may lead us to believe more strongly in those things for which we have suffered or given public witness.

We Construct Our Social Reality

We humans have an urge to explain behavior – to attribute it to some cause. As intuitive lay scientists, we typically attribute behavior efficiently and with enough accuracy to serve our needs. For example, when people's behavior is distinctive and consistent, we attribute it to their personal traits and attitudes.

But in ways that may go undetected, our attributions and judgments often predictably err. Especially in individualist cultures, we may attribute people's behavior to their dispositions without noticing situational factors that constrain and influence behavior – as when thinking that a shy teacher's classroom talkativeness reflects an extraverted personality. Likewise, we are sometimes biased by our preconceptions; we see what we expect.

We may also misperceive illusory associations and causes. Thus, we may treat others in ways that lead them to fulfill our expectations. And we may be influenced more by vivid, memorable – and, therefore, cognitively available – anecdotes than by statistical reality. Finally, failing to recognize our vulnerability to bias, we may be overconfident and self-serving in our social judgments.

Social Influences Powerfully Guide Our Behavior

Faced with powerful social forces such as norms, expectations, and orders, our actions may diverge from our attitudes and values. Depending on the situation, the very same person may act kindly or viciously, submissively or independently, and foolishly or wisely. As a result, even good people sometimes do bad things. Evil situations may overwhelm the best of intentions, leading people to accept falsehoods or capitulate to cruelty. And race-based unfair treatment may result not only from bad-apple individuals with explicit prejudice but from systemic injustice and implicit bias.

Cultures matter, too. If you tell social psychologists where in the world you live, how old you are, how educated you are, and what media you read and view, they will predict your likely attitudes toward same-sex relationships, whether you prefer a slim or voluptuous body, and whether you focus relatively more on yourself or on your community.

Persons and Situations Interact

Although powerful situations may override our individual inclinations, we are not passive tumbleweeds blown hither and yon by the social winds. Facing the same situation, some (depending on their dispositions, their cultural experience, and their convictions) may acquiesce, while others may assert themselves. Therefore, people may react to restore their sense of freedom, and a numeric minority may change a group's direction. We are not only the creatures of our social world but also its creators.

As Social Animals, We Have a Deep Need to Belong

We long to connect, to be esteemed, and to bond with others. Separated from significant others, as when physically distancing under COVID-19, we find new ways to socially connect. Ostracism from one's family or friends creates genuine

pain. Short of torture, solitary confinement can be the severest punishment. Because of this need to belong, we are driven to bond with friends, fall in love, or check social media (in the United States, on a daily basis; Kunst, 2020). Given supportive, close, enduring relationships – such as a healthy marriage or intimate friendships – we express greater happiness and are at less risk of depression. And, for better and worse, we develop strong ingroup loyalties: We prefer and favor "us" over "them."

Our Social Behavior Has Biological Roots

Many of our social behaviors reflect biological wisdom. As evolutionary psychologists remind us, we share a human kinship – a human nature that inclines us to behave in ways and to exhibit likes and dislikes that helped our ancestors survive and reproduce. Whether dating and mating, caring and sharing, or hating and hurting, our biological nature has prepared us with dispositions that will help send our genes into the future.

Our brain, behavior, and relationships form an interconnected system. Because of this, social neuroscientists can explore brain networks that underlie our experiences of love, rejection, excitement, aggression, and other social and emotional states. We are the products of both "under-the-skin" biological influences and social influences.

Teaching, Learning, and Assessment in Social Psychology: Approaches and Strategies

The assessment of learning outcomes is an essential element of teaching social psychology effectively. For our purposes, assessment can be defined as the measurement and evaluation of how well students are learning key information and skills from the course they are taking (Maki, 2004; Mentkowski et al., 2000). The goal is for social psychology teachers to be able to show various stakeholders (e.g., administrators, colleagues, the students themselves, and their families) that class members are benefitting from their studies. In short, the question is simply this: *How well have students mastered the field's subject matter?*

To assess student mastery, we advise instructors to begin by outlining their course's learning objectives and then employ "backward course design" (Wiggins & McTigue, 2005) to build a framework for the course content and assessments. Identifying the learning goals in advance affords instructors the opportunity to tie course activities and evaluative elements to them, increasing the likelihood that the assessments demonstrate desired results. After identifying the desired learning outcomes, there remain two steps in backward course design (Hard et al., in press):

1. Designing the instructional activities, readings, and other course elements that will best achieve the learning objectives (e.g., lectures, classroom demonstrations, small-group discussions, assigned readings, projects)
2. Finding or creating assessment instruments that accurately measure the degree to which students have met the course's learning objectives (e.g., exams, quizzes, graded papers, oral presentations)

Backward course design, then, encourages instructors to be intentional and goal-oriented in their teaching plan from the start.

Assessing Outcomes Tied to Teaching and Student Learning

Traditional outcome measures, such as exam scores and course grades, have their place, but ideally, social psychology courses should include assessments tied to assignments and activities occurring throughout the course. As many assessment enthusiasts have long advocated, it is generally better to employ *formative assessments* – in-process, low-stakes evaluations of students' understanding and progress during the course – than to focus on high-stakes *summative assessments* that occur at the end of a course unit or the course itself (Dunn et al., 2004, 2012).

One central piece of advice for social psychology educators as they develop assessments for their courses is this: Students will benefit if their instructor helps them to perform well on assessments (Pusateri et al., 2009). Evaluating student learning and performance should never be mysterious; rather, the exercise should be transparent. Here are recommendations on how to achieve transparency where assessment is concerned:

Help Students Understand What Matters
Go beyond providing mere definitions of social phenomena by explaining why an assignment or activity is important when it comes to learning a core concept or phenomenon in social psychology (e.g., the role of confirmation bias in science, politics, and medicine; Nickerson, 1998). To solidify students' grasp of why a concept matters, instructors might also invite students to generate and share examples from their own observations or experiences.

Provide Detailed Instructions
Tell the students exactly what to do and how to do it, and explain concretely how their work will be evaluated. When feasible, it's often helpful to provide a scoring rubric for a given assignment (Greenberg, 2015) and teach students how to critique their own work.

Share Samples or Models from Prior Social Psychology Classes
Share a few examples of successful student work in the past, such as a self-reflection paper (e.g., "When do you conform?"; Asch, 1956) or an application of a social psychological theory to an everyday situation ("How does the just world hypothesis influence the way we react to other people's health problems?"; e.g., Lerner, 1980). Exemplars can illustrate what good work looks like and help students satisfy the goals of an assignment.

Provide Timely Feedback on Student Performance
In the spirit of formative rather than summative assessment, offer clear, detailed, and constructive feedback on the work so that students learn to improve in the future.

Introduce Students to Effective Learning Strategies
Research on learning and cognition reveals a variety of techniques that can promote student learning (for a summary, see Dunlosky et al., 2013). Some of these strategies include:

- *Elaborative processing* – Encourage students to reflect on the meaning of what they are learning. When students actively link new terms, theories, and research results with previously known information, learning tends to deepen and endure (e.g., "How is Asch's conformity paradigm related to yet different from Milgram's research on obedience to authority?"; Asch, 1956; Milgram, 1963).
- *Retrieval practice or the "testing effect"* – Provide repeated opportunities for low-stakes testing in which new course material is recalled from memory. Quizzes can be given during class or online to encourage study, strengthen recall, and prepare students for higher-stakes exams.
- *Distributed practice* – Let students know that they're more likely to retain information when they break their study time into a series of short sessions over a lengthy period of time than when they "cram" all studying into one long study session right before an exam.
- *Metacognition* – Ask students to think about how they are processing course material and applying it to their own life, which should be easy given that social psychology relates directly to daily life and relationships. When students become aware of their own thoughts and reactions to course material, the information is more likely to be remembered down the road.

These basic steps can help students master, integrate, and retain new material as the course unfolds.

Consider High-Impact Practices as Opportunities for Assessment

Kuh (2008) identified several educational practices that have been tied to successful student performance, known as "high-impact practices," or "HIPs." Besides engaging students in active learning opportunities, HIPs also present assessment opportunities for social psychology instructors. In other words, while using HIPs to involve students in deep learning about social psychology, they can also be leveraged as formative assessments. Here are three broad HIP categories:

Writing Intensive Activities Aimed at Different Audiences Students benefit from learning to do different types of writing aimed at distinct audiences. In academic settings, the default option is for students to write descriptive papers for the instructor (e.g., describing the hypothesis, methodology, results, and conclusions of a social psychology experiment). However, various types of reflective writing can be done as well. For example, students might write a personal account of how a psychological phenomenon affects them in daily life (e.g., overconfidence; West & Stanovich, 1997), or they might apply social psychology research findings to a societal issue by

writing a mock newspaper letter to the editor (e.g., the effect of affective forecasting biases on materialism; Wilson & Gilbert, 2005).

Collaborative Assignments and Projects Collaborative efforts allow students to learn from and instruct their peers, just as they afford students the opportunity to experience this important aspect of professional work life. To do so, instructors can form teams of 3–5 students to prepare in-class demonstrations of readily replicable social psychological effects (e.g., social loafing; Karau & Williams, 1993). Alternatively, teams of students can conduct conceptual replications of simple social psychology experiments, adding new variables in order to expand understanding of a given effect (e.g., positive affect and problem-solving; Isen, 2004).

Undergraduate Research Depending on class size, collaboration can be taken even further by having an entire class develop hypotheses, research procedures, and stimulus materials and then collect, analyze, and present or write up results. These sorts of undergraduate research activities require considerable organizational effort, yet they provide substantial benefits in terms of professional training as well as reinforcing the idea that cooperation among investigators is a hallmark of contemporary psychological science. Alternatively, if a department or program has a research participation requirement that includes social psychology, students can learn about the subfield by taking part in relevant studies.

Challenges and Lessons Learned

Teaching social psychology is a richly rewarding experience, in large measure because it helps students understand themselves and their social world based on the results of theory-driven empirical research. Nonetheless, social psychology instructors face a number of challenges worth considering. Here are a few of the most common challenges and questions that instructors encounter when teaching introductory social psychology courses, along with suggestions on how to effectively address them.

What If Class Members Vary Widely in Psychology Training?

Because introductory social psychology classes often include students with widely different levels of prior training in psychology, competency in research methods cannot be assumed. Thus, early in the term, instructors should provide an overview of basic research methodology. Key issues are how social psychologists form and test hypotheses, the distinction between correlational and experimental research (and the conclusions that can be drawn from each), the purposes of random sampling and random assignment, and the generalizability of research findings. Students should understand that social psychologists blend the logical positivist tradition with a social constructionist approach that recognizes how researchers' values and

expectations can influence the scientific process. These values affect who chooses to become a social psychologist, the research topics those individuals decide to pursue, and how the findings from those inquiries are interpreted (e.g., Else-Quest & Hyde, 2016). Students should be encouraged to critically examine the strengths and weaknesses of various research methods, including a consideration of how researchers' values might constrain or buttress social psychologists' understanding of the social world.

Do the Results of Social Psychology Research Generalize?

There are two reasons why the generalizability of social psychology research findings is especially important to cover. First, social psychology research is based heavily on convenience samples that overrepresent college students and people from Western Europe, Canada, and the United States. For example, Henry (2008) examined prejudice research in three top social psychology journals and found that more than 90% of all articles used student samples. Social science research findings are also disproportionately based on WEIRD (Western, Educated, Industrialized, Rich, and Democratic) samples (Henrich et al., 2010), and social psychology is no exception. Moreover, Arnett's (2008) analysis of six top psychology journals found that more than two thirds of empirical research articles relied on samples from the United States, whereas the people of Africa, Asia, the Middle East, and South America were only rarely represented. Although the trend toward obtaining participant samples through crowdsourcing is encouraging, these samples also fail to fully represent humankind. For instance, even though participants from Amazon's Mechanical Turk are generally older than most college students, they still tend to overrepresent college graduates, employed people, and White people (Buhrmester et al., 2011; Chandler et al., 2014). Thus, we suggest instructors acknowledge these limitations and make students aware of high-quality research from a variety of countries, as well as cross-cultural research spanning collectivist and individualist (or tight and loose) cultures (see Matsumoto & Juang, 2017).

A second reason instructors should attend to generalizability is that it serves as a starting point for discussions of diversity regarding not only race, age, and culture but social class, (dis)ability, sexual orientation, gender identity, ethnicity, and other attributes. Considering who is included and excluded from research can lead to conversations about how such decisions affect our understanding of the world (Kite & Littleford, 2015). More generally, when instructors include the experiences of people from diverse backgrounds, they help students gain scientifically valid knowledge about human behavior (Trimble et al., 2003). Moreover, discussions of sociocultural diversity invite students to sharpen their critical thinking and problem-solving skills (Bowman, 2010; Dunn et al., 2013). Finally, addressing diversity can increase students' civic engagement and help equalize the educational environment for members of marginalized groups because students achieve more when they see themselves and their social groups represented (Bowman, 2011; Elicker et al., 2010).

Are Social Psychology Findings Replicable?

Several years ago, the Open Science Collaboration (2015) published a landmark report calling into question the replicability of social psychology research. Specifically, an international coalition of 270 researchers attempted exact replications of 100 experimental and correlational psychology studies, and the coalition found that 64% of the studies failed to replicate. Indeed, the successful replication rate was especially low for social psychology studies (23% for articles from the *Journal of Personality and Social Psychology* and 29% for social psychology articles in *Psychological Science*). These results suggest that instructors should help students exercise caution with respect to social psychology findings that have yet to be replicated, and they provide an opportunity to discuss how scientific progress works, beginning with information about how to distinguish between exact replications that recreate a study and conceptual replications that test the same hypothesis with a different set of operational definitions (Kite & Whitley, 2018). Instructors might also explain why it is difficult to know whether findings from an original study or its replication are "true" (Open Science Collaboration, 2015).

Instructors can also use the topic of replication to discuss recent changes being made to strengthen confidence in research results. One such change is greater attention to whether a study's sample size has adequate statistical power for testing the proposed hypotheses. Another is the increased use of preregistration, whereby a study's rationale, methodology, and proposed statistical analyses are peer reviewed prior to data collection (Nosek et al., 2018). At the same time, we recommend assuring students that social psychology textbook authors serve as gatekeepers who endeavor to present research findings that are reliable and well validated. Although errors occasionally creep in, the social psychological theories and findings covered in an introductory course overwhelmingly represent results that can be counted on.

How Should Research Ethics Be Discussed?

The ethical behavior of social psychologists is, of course, germane to the discussion of research practices, and all the more so because social psychology is the home of two prominent psychologists associated with ethically controversial studies: Philip Zimbardo and Stanley Milgram. In Zimbardo's Stanford prison study, several research participants experienced significant distress for hours or days, but the study continued for nearly a week before being shut down (Haney et al., 1973). Likewise, in Milgram's (1974) research on obedience to authority, a number of participants experienced acute distress yet were urged by the experimenter to continue despite their protestations, thus violating the now-established right to withdraw without penalty. Although ethical standards have advanced considerably since the time of these classic studies, both cases offer instructors an excellent chance to discuss the importance of informed consent, US Institutional Review Boards and other ethics committees that regulate research on human participants,

post-experimental debriefing procedures, data security, codes of ethical conduct, and other measures designed to protect the health and welfare of research participants.

One unresolved issue in social psychology concerns the use of deception, which is often used to disguise the true purpose of a study and reduce the likelihood that participants will respond artificially to an experimental situation. This deception can range from the creation of fictitious materials distributed in a laboratory experiment (e.g., a news article summarizing made-up research findings) to outright lying (e.g., giving participants false feedback about their personality or abilities). The level of harm caused by such procedures is hard to assess, but most social psychologists would surely agree with Sieber's (1992) conclusion that it is indefensible to use deception to trick people into doing something they would avoid if they fully understood what was happening. As with the other issues we have discussed, a thoughtful consideration of research ethics can situate social psychological research findings in the broader context of risk-benefit analysis. Where the line should be drawn is ultimately a matter of opinion and conscience, but students need an understanding of the ethical issues at stake in order to reach their own conclusion.

What's the Best Way to Teach About Difficult or Controversial Topics?

The issues discussed so far focus on controversies concerning the scientific method, but social psychology topics themselves can arouse strong emotions – hot button topics that run the gamut from racism to sexual orientation to partner violence and beyond. For example, studies on prejudice and stereotyping suggest that most people exhibit ingroup favoritism and harbor implicit biases toward others with respect to race, gender, age, or other attributes. When students learn that they may hold unconscious biases toward certain groups, many are understandably troubled. Yet when students learn that biases arise in part from a reliance on common cognitive heuristics, and when they are challenged to confront their biases, the result can be greater openness, understanding, and multicultural competency. In fact, providing students with individualized feedback about their biases and how they operate can lead students to accept that they have unconscious racial biases (Casad et al., 2013) and to feel more positively about the learning process in general (Morris & Ashburn-Nardo, 2010). Interestingly, learning about personal biases may be especially helpful for people high in prejudice. For instance, when Adams et al. (2014) asked students to complete the Implicit Association Test followed by teaching modules on conscious and unconscious bias, it turned out that the students who initially displayed the highest levels of bias reported the greatest motivation to control their prejudice.

Students do not always have experience discussing emotional issues in a classroom setting, and some students find the prospect of doing so unsettling or even frightening (Vespia & Filz, 2013). To help them manage difficult conversations, students need to be assured that they are in a safe classroom environment with clearly established ground rules for discussion (ideally, rules that the students have had a voice in creating; Goldstein, 2021). Students and instructors must both be

mindful of how privilege affects classroom dynamics – who is in the room, who has social power, and how instructors can make sure that students from underrepresented groups have a voice (Warner et al., 2021). Instructors also need to consider their own level of multicultural competence and take steps to ensure they're prepared to teach about complex emotional topics (Kite & Littleford, 2015).

How Can Social Psychology Be Taught Effectively Online?

Because classroom instruction tends to feel more personal than online instruction, it may seem daunting to teach social psychology online, particularly when it comes to the controversial and emotional topics mentioned earlier. There is no reason, however, that social psychology can't be taught in a supportive, educational, and engaging way online. Indeed, Coursera's massive open online course (MOOC) in social psychology has enrolled more than a million students since it was first offered in 2013, and Coursera's MOOC on the science of well-being (based heavily on social psychology) has enrolled more than three million. During the COVID-19 pandemic, thousands of social psychology courses were taught either partially or wholly online, and even before the pandemic, an estimated 43% of US undergraduates reported taking at least one class online (Snyder et al., 2019). The primary question, then, is not whether social psychology can or will be taught online, but how to do it most effectively. Although research on this question is limited, here are some preliminary recommendations:

Choose a Course Format that Fits Student Needs and Learning Objectives One of the most important decisions an online instructor faces is whether to teach synchronously (i.e., in live sessions), asynchronously (with materials that students can watch, read, or listen to on their own), or some blend of the two (e.g., alternating live and recorded lectures or recording live lectures for students who prefer to watch them later). In general, synchronous courses are more interactive and responsive to student questions and input – a format well suited to seminars and other small classes – whereas asynchronous and blended formats have the advantage of allowing students greater flexibility in choosing when to watch the class sessions (see Martingano, 2020, for further distinctions).

Harness the Advantages of Online Teaching Rather than focusing on the limitations of online instruction, concentrate on the pedagogical advantages. For instance:

- Teaching online makes it relatively easy and affordable for instructors to host guest speakers for part or all of a class session, regardless of where guests are located. To take just one example, instructors can discuss a social psychology experiment and then surprise the class with a guest appearance of the experimenter to talk with students about the study.
- Teaching synchronously with a videoconferencing app such as Zoom allows the instructor to conduct anonymous polls to solicit student opinions, assess

mid-lecture comprehension, carry out in-class demonstrations, and see if students can predict research findings before learning of experimental outcomes.

- If a synchronous lecture class has teaching assistants and a videoconferencing app with a chat window, instructors can ask TAs to answer any questions that students post during the lecture in real time, thereby clearing up confusion without interrupting the lecture. Teaching assistants can also open each class session a few minutes early with background music that welcomes students or relates to the topic being discussed (e.g., the Dar Williams song *Buzzer* about Stanley Milgram's obedience research).
- In contrast with campus-based courses, asynchronous and blended online courses have the advantage of allowing students to pause videotaped lectures to take notes, replay the videos if something isn't clear, and rewatch lectures to help prepare for upcoming exams.
- One great advantage of MOOCs and other open-access courses is that they enroll students from around the world, thus facilitating cross-cultural dialogue. For example, in the social psychology MOOC mentioned earlier, class members from nearly 200 countries were able to interact with each other, and the class discussion forum included a Coronavirus Pandemic subforum with nearly 500 threads addressing questions such as *How can social psychology be used to reduce the pandemic?* and *What is daily life like in your country, culture, and community?* Similarly, a Black Lives Matter subforum fostered cross-cultural exchange with questions such as:
  - *How much racism is there in your country?*
  - *How can social psychology be used to reduce racism and promote respect for all people?*
  - *If there were any one video, website, book, or article on anti-racism that you wish people around the world would see or read, what would it be, and why?*

As these examples suggest, each mode of online teaching offers unique advantages, some of which would be hard to duplicate in traditional classroom settings.

Master the Technology To make the most of online teaching, it's essential that instructors take time to master the necessary technology. Depending on the course and instructional needs, this mastery might include learning how to administer online exams; edit digital videos; crop and resize images; share online documents; use Moodle, Blackboard, or other learning management systems; and smoothly operate videoconferencing apps such as Zoom, which offer an array of customizable settings and options (Levy, 2021). Although it takes time to learn new technologies, in the long run, many of them save time and have the potential to improve the quality of teaching.

Adapt to the Medium Just as a movie is more than a filmed play, an effective online course is more than a set of videotaped classroom lectures (Moore, 2016). To hold student attention online, instructors generally need to energize the delivery with faster pacing and more interactivity, theatricality, questions, stories,

and audiovisuals than a campus-based class would commonly have. For example, rather than simply quoting from a book, online instructors might occasionally hold up the book like a prop and read from it. Rather than talking about an experiment that randomly assigned participants based on a coin toss, online instructors might toss a coin on camera or share their screen and show students how to conduct random assignment using Randomizer.org. Rather than discussing social traps such as "the dollar auction game" (Teger, 1980), online instructors might auction off a dollar or other unit of currency to members of the class. Finally, a word about pacing: In his book *What the Best College Teachers Do*, Bain (2004) reported that effective teachers tended to vary the rhythm and content of their delivery every 10–12 minutes; in the world of MOOCs and other online courses, however, instructors would be well advised to change gears even more frequently and break up course content so that each videotaped lecture runs only 6–12 minutes (Bhattacharya, 2020; Hickey et al., 2020). In other words, student learning and engagement tend to be better with 5–10 brief videos covering an hour of content than with a single video showing the same hour of content.

Teaching, Learning, and Assessment Resources

Although there are thousands of excellent teaching, learning, and assessment resources available, here are a few we find especially useful for instructors teaching social psychology to undergraduates.

Recommended Reading

American Psychological Association. (2013). *APA guidelines for the undergraduate psychology major: Version 2.0*. http://www.apa.org/ed/precollege/about/psymajor-guidelines.pdf

These guidelines are designed to help psychology educators teach and assess student learning related to content-oriented and skills-based goals. Although the guidelines do not focus exclusively on social psychology, they contain a wealth of valuable recommendations for anyone teaching courses in this area.

Pusateri, T., Halonen, J. S., Hill, B., & McCarthy, M. (2009). *The assessment cyberguide for learning goals and outcomes* (2nd ed.). American Psychological Association. http://www.apa.org/ed/governance/bea/assessment-cyberguide-v2.pdf

This online guide offers advice on how to implement a range of assessment activities in psychology courses, including courses in social psychology. The text has four sections that help instructors (1) understand assessment in departmental,

institutional, educational, and societal perspectives; (2) design viable assessment plans; (3) maintain a culture of assessment; and (4) apply assessment strategies in psychology.

Myers, D. G. (2005, March 1). Teaching tips from experienced teachers. *APS Observer, 18*(3), pp. 39–40, 48–50. http://www.psychologicalscience.org/observer/teaching-tips-from-experienced-teachers

This article includes ten valuable teaching tips from master teachers in psychology. Even though the tips are intended mainly for new psychology instructors, they're useful at any level of experience, and the article includes additional advice from award-winning teachers (gathered by William Buskist) as well as six other suggestions based on David Myers' experience teaching dozens of sections of introductory and social psychology.

Recommended Websites

- ***Social Psychology Network***

http://www.socialpsychology.org/

Founded in 1996, Social Psychology Network has received more than 375 million page views and is one of the oldest, largest, and most active Internet gateways in the behavioral and social sciences. The central hub of the Network, SocialPsychology.org, features searchable databases of more than 20,000 classified resources, 16,000 psychology-related news stories, 10,000 members, 2,000 social psychology experts, and 650 career mentors for students from underrepresented groups. All resources in the Network – including thousands of teaching-related links, interactive activities, and student learning aids – are available free of charge.

- ***Resources for the Teaching of Social Psychology***

http://jfmueller.faculty.noctrl.edu/crow/

This website offers an annotated collection of more than 6,000 links to activities, exercises, class assignments, online videos, examples, and other resources for teaching social psychology and related courses. The site is organized by topic and curated by social psychologist Jon Mueller.

- ***Action Teaching***

http://www.actionteaching.org/

ActionTeaching.org is the world's largest repository of action teaching materials, including a searchable archive of more than 40 award-winning classroom activities, field experiences, student assignments, and web resources that instructors are welcome to freely use or adapt.

- ***SPSSI Action Teaching Program***

http://www.spssi.org/action-teaching

The Society for the Psychological Study of Social Issues maintains an Action Teaching Program designed to (1) recognize excellence in action teaching with an annual award honoring innovative teaching that addresses social issues such as climate change, immigration, human rights, or intergroup conflict; and (2) facilitate the development of new action teaching resources by providing grants to develop, enhance, or measure the impact of an action teaching activity, assignment, field experience, or web-based resource.

- ***Teaching Current Directions in Psychological Science***

http://www.psychologicalscience.org/tag/teaching-current-directions

This compendium offers educators a trove of creative ideas and practical tips for teaching about research topics covered in *Current Directions in Psychological Science* – a peer-reviewed journal published by the Association for Psychological Science. The compendium includes dozens of teaching ideas related to social psychology and other subfields of scientific psychology.

- ***The Stanford Prison Experiment***

http://www.prisonexp.org/

This website features detailed information on one of the most famous and controversial social psychology studies ever conducted: the Stanford Prison Experiment, a simulation study of prison life in which college-aged participants were randomly assigned to play the role of prisoner or guard over a period of 6 days. The site contains material in seven languages and includes archival documents, photos, videos, related links, critiques of the study, and rebuttals from the principal investigator and others associated with the study.

- ***UnderstandingPrejudice.org***

http://www.understandingprejudice.org/

UnderstandingPrejudice.org, whose pages have been visited more than 40 million times, offers a "Teacher's Corner" with more than 35 college-level classroom activities and student assignments, a "Reading Room" that includes a prejudice research literature review available in 10 languages, and interactive demonstrations that permit visitors to learn about different forms of prejudice, explore the dynamics of segregation, test their knowledge about US slavery and Native American issues, and compare their score on the Ambivalent Sexism Inventory with the average scores of people from 25 different countries.

- ***Project Implicit***

http://www.projectimplicit.net/

Project Implicit allows visitors to learn about implicit biases and stereotypes that operate outside conscious awareness and to take a variety of online Implicit Association Tests to see whether they themselves hold biases related to race, gender, age, sexual orientation, gender identity, weight, disability, and other social, demographic, and physical characteristics. Project Implicit was founded in 1998 by social psychologists Tony Greenwald, Mahzarin Banaji, and Brian Nosek and has thus far administered more than 25 million tests.

- ***Research Randomizer: Random Sampling and Random Assignment Made Easy***

  http://www.randomizer.org/

  Research Randomizer is a free online resource that provides researchers and students with an easy way to generate random numbers and assign participants to experimental conditions. In addition, the site offers an interactive tutorial that teaches students how random sampling and random assignment work. Thus far, the Research Randomizer tutorial has been completed by more than 100,000 students, and the site has been used to generate more than 30 billion sets of random numbers.

- ***Teaching Resources from the Society for Personality and Social Psychology***

  http://www.spsp.org/resources/teaching

  The Society for Personality and Social Psychology maintains a teaching resource page with a curated list of sample syllabi, teaching aids, textbooks, videos, and links to other websites offering useful ideas and materials for teaching personality and social psychology.

References

Adams, V. H., Devos, T., Rivera, L. M., Smith, H., & Vega, L. A. (2014). Teaching about implicit prejudices and stereotypes: A pedagogical demonstration. *Teaching of Psychology, 41*(3), 204–212. https://doi.org/10.1177/0098628314537969.

Allport, G. W. (1954). *The nature of prejudice*. Reading, MA: Addison-Wesley.

American Psychological Association. (2013). *APA guidelines for the undergraduate psychology major: Version 2.0.* http://www.apa.org/ed/precollege/about/psymajor-guidelines.pdf

Arnett, J. (2008). The neglected 95%: Why American psychology needs to become less American. *American Psychologist, 67*(7), 602–614. https://doi.org/10.1037/0003-066X.63.7.602.

Asch, S. E. (1956). Studies of independence and conformity: I. A minority of one against a unanimous majority. *Psychological Monographs: General and Applied, 70*(9), 1–70. https://doi.org/10.1037/h0093718.

Bain, K. (2004). *What the best college teachers do*. London: Harvard University Press.

Bhattacharya, P. (2020, November 23). *Why your ideal online course video must be 6-12 minutes long.* HubSkills.com. http://hubskills.com/online-course-video-to-be-6-12-minutes/

Bowman, N. A. (2010). College diversity experiences and cognitive development: A meta-analysis. *Review of Educational Research, 80*(1), 4–33. https://doi.org/10.3102/0034654309352495.

Bowman, N. A. (2011). Promoting participation in a diverse democracy: A meta-analysis of college diversity experiences and civic engagement. *Review of Educational Research, 81*(1), 29–68. https://doi.org/10.3102/0034654310383047.

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's Mechanical Turk: A new source of inexpensive, yet high-quality, data? *Perspectives on Psychological Science, 6*(1), 3–5. https://doi.org/10.1177/1745691610393980.

Casad, B. J., Flores, A. J., & Didway, J. D. (2013). Using the implicit association test as an unconsciousness raising tool in psychology. *Teaching of Psychology, 40*(2), 118–123. https://doi.org/10.1177/0098628312475031.

Chandler, J., Mueller, P., & Paolacci, G. (2014). Nonnaïveté among Amazon Mechanical Turk workers: Consequences and solutions for behavioral researchers. *Behavioral Research, 46*(1), 112–130. https://doi.org/10.3758/s13428-013-0365-7.

Day of Compassion. (2021, June 16). In *Wikipedia.* https://www.wikipedia.org/wiki/Day_of_Compassion

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest, 14*(1), 4–58. https://doi.org/10.1177/1529100612453266.

Dunn, D. S., Baker, S. C., Mehrotra, C. M., McCarthy, M., & Landrum, R. E. (Eds.). (2012). *Assessing teaching and learning in psychology: Current and future perspectives*. Cengage.

Dunn, D. S., Coffman, C., Bhalla, M., Boysen, G. A., Diaz-Granados, J. L., McGregor, L. N., Morgan, B., & Smith, P. (2020). Doing assessment well: Advances for undergraduate psychology programs and psychology educators. *Teaching of Psychology, 47*(4), 251–261. https://doi.org/10.1177/0098628320945097.

Dunn, D. S., Gurung, R. A. R., Naufel, K. Z., & Wilson, J. H. (2013). Teaching about controversial issues: An introduction. In D. S. Dunn, R. A. R. Gurung, K. Z. Naufel, & J. H. Wilson (Eds.), *Controversy in the psychology classroom: Using hot topics to foster critical thinking (pp. 3–10)*. American Psychological Association. https://doi.org/10.1037/14038-000.

Dunn, D. S., Mehrotra, C., & Halonen, J. S. (Eds.). (2004). *Measuring up: Educational assessment challenges and practices for psychology. American Psychological Association.* https://doi.org/10.1037/10807-000.

Eberhardt, J. L. (2019). *Biased: Uncovering the hidden prejudice that shapes what we see, think, and do.* Viking.

Elicker, J. D., Snell, A. F., & O'Malley, A. L. (2010). Do student perceptions of diversity emphasis relate to perceived learning of psychology? *Teaching of Psychology, 37*(1), 36–40. https://doi.org/10.1080/00986280903425706.

Else-Quest, N. M., & Hyde, J. (2016). Intersectionality in quantitative psychological research: 1. Theoretical and epistemological issues. *Psychology of Women Quarterly, 40*(3), 155–170. https://doi.org/10.1177/0361684316629797.

Fielding, K. S., Hornsey, M. J., & Swim, J. K. (2014). Developing a social psychology of climate change. *European Journal of Social Psychology (Special Issue: The Social Psychology of Climate Change), 44*(5), 413–420. https://doi.org/10.1002/ejsp.2058.

Goldstein, S. (2021). Ground rules for discussing diversity: Complex considerations. In M. E. Kite, K. A. Case, & W. R. Williams (Eds.), *Navigating difficult moments in teaching diversity and social justice* (pp. 17–29). American Psychological Association.

Grant, A. M. (2013). Bringing organizational psychology to life through fundraising. http://www.actionteaching.org/award/organizational-fundraising

Greenberg, K. P. (2015). Rubric use in formative assessment: A detailed behavioral rubric helps students improve their scientific writing skills. *Teaching of Psychology, 42*(3), 211–217. https://doi.org/10.1177/0098628315587618.

Haney, C., Banks, W. C., & Zimbardo, P. G. (1973). A study of prisoners and guards in a simulated prison. *Naval Research Review, 30*, 4–17.

Hard, B. M., Dunn, D. S., Hudson, D., Musselman, R., & Richmond, A. (in press). Designing the introductory psychology course: An evidence-informed framework. In R. A. R. Gurung & G. Neufeld (Eds.), *The introductory psychology initiative*. American Psychological Association.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33*(2–3), 61–135. https://doi.org/10.1017/S0140525X0999152X.

Henry, P. J. (2008). College sophomores in the laboratory redux: Influences of a narrow data base on social psychology's view of the nature of prejudice. *Psychological Inquiry, 19*(2), 49–71. https://doi.org/10.1080/10478400802049936.

Hickey, A., Urban, A., & Karsten, E. (2020). *Drivers of quality in online learning: How to increase engagement, satisfaction, skill development, and career impact worldwide.* Coursera. http://about.coursera.org/press/wp-content/uploads/2020/10/Coursera_DriversOfQuality_Book_MCR-1126-V4-lr.pdf

Isen, A. M. (2004). Some perspectives on positive feelings and emotions: Positive affect facilitates thinking and problem solving. In A. S. R. Manstead, N. Frijda, & A. Fischer (Eds.), *Feelings and emotions: The Amsterdam symposium* (pp. 263–281). Cambridge University Press. https://doi.org/10.1017/CBO9780511806582.016.

Jones, E. (2020). *Teaching research methods with an anti-hunger project*. http://www.actionteaching.org/award/anti-hunger

Karau, S. J., & Williams, K. D. (1993). Social loafing: A meta-analytic review and theoretical integration. *Journal of Personality and Social Psychology, 65*(4), 681–706. https://doi.org/10.1037/0022-3514.65.4.681.

Kite, M. E., & Littleford, L. N. (2015). Teaching about diversity across the undergraduate psychology curriculum. In D. S. Dunn (Ed.), *The Oxford handbook of undergraduate psychology education* (pp. 129–141). Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199933815.013.012.

Kite, M. E., & Whitley, B. E., Jr. (2018). *Principles of research in behavioral science* (4th ed.). Routledge. https://doi.org/10.4324/9781315450087.

Kuh, G. D. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter.* Association of American Colleges & Universities.

Kunst, A. (2020, November 19). Social network usage by frequency in the U.S. 2020. *Statistica*. http://www.statista.com/forecasts/997198/social-network-usage-by-frequency-in-the-us

Lerner. (1980). *The belief in a just world: A fundamental delusion*. Plenum.

Levy, D. (2021). *Teaching effectively with Zoom: A practical guide to engage your students and help them learn* (2nd ed.). Author.

Lewin, K. (1946). Action research and minority problems. *Journal of Social Issues, 2*(4), 34–46. https://doi.org/10.1111/j.1540-4560.1946.tb02295.x.

Lewin , K. (1948). *Resolving social conflicts: Selected papers on group dynamics.* Harper.

Maki, P. L. (2004). *Assessing for learning: Building a sustainable commitment across the institution.* Stylus.

Marrow, A. J. (1969). *The practical theorist; the life and work of Kurt Lewin.* Basic Books.

Martingano, A. J. (2020, August 20). *The best of both worlds: The benefits of online and offline teaching*. http://www.spsp.org/news-center/announcements/benefits-online-offline-teaching

Matsumoto, D., & Juang, L. (2017). *Culture and psychology* (6th ed.). Cengage.

Mentkowski, M., Rogers, G., Doherty, A., Loacker, G., Hart, J. R., Richards, W., O'Brien, K., Riordan, T., Sharkey, S., Cromwell, L., Diez, M., Bartels, J., & Roth, J. (2000). *Learning that lasts: Integrating learning, development, and performance in college and beyond*. Jossey-Bass.

Milgram, S. (1963). Behavioral study of obedience. *Journal of Abnormal and Social Psychology, 67*(4), 371–378. https://doi.org/10.1037/h0040525.

Milgram, S. (1974). *Obedience to authority.* Harper and Row.

Moore, S. (2016, February 22). *A filmed play is not a movie: Improving online learning.* Extension Engine. http://blog.extensionengine.com/innovative-online-learning/

Morris, K. A., & Ashburn-Nardo, L. (2010). The Implicit Association Test as a class assignment: Student affective and attitudinal reactions. *Teaching of Psychology, 37*(1), 63–68. https://doi.org/10.1080/00986280903426019.

National Association of Colleges and Employers. (2019, January). *Career readiness for the new college graduate: A definition and competencies*. http://www.naceweb.org/uploadedfiles/pages/knowledge/articles/career-readiness-fact-sheet-jan-2019.pdf

Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of General Psychology, 2*(2), 175–220. https://doi.org/10.1037/1089-2680.2.2.175.

Norvilitis, J. M. (2010). *Bringing culture alive by offering financial education to refugees*. http://www.actionteaching.org/award/refugees

Nosek, B. A., Ebersole, C. R., DeHaven, A. C., & Mellor, D. T. (2018, March). The preregistration revolution. *Proceedings of the National Academy of Sciences of the United States of America., 115*(11). https://doi.org/10.1073/pnas.1708274114.

Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science, 349*, 943. https://doi.org/10.1126/science.aac4716.

Pettigrew, T. F. (in press). Social psychology in mid-20th century United States. In P. Hegarty (Ed.), *Oxford encyclopedia of the history of psychology*. Oxford: Oxford University Press.

Plous, S. (2000). Responding to overt displays of prejudice: A role-playing exercise. *Teaching of Psychology, 27*(3), 198–200. http://www.understandingprejudice.org/pdf/roleplay.pdf.

Plous, S. (2009, Winter). Are you an action teacher? Win $1,000 while making the world a better place. *Psychology Teacher Network, 18*(4), 1, 4, 8, 10, 11. http://www.socialpsychology.org/pdf/psychteacher2009.pdf

Pusateri, T., Halonen, J. S., Hill, B., & McCarthy, M. (2009). *The assessment cyberguide for learning goals and outcomes* (2nd ed.). American Psychological Association. http://www.apa.org/ed/governance/bea/assessment-cyberguide-v2.pdf

Ringelmann, M. (1913). Recherches sur les moteuers animés: Traveil de l'homme [Research on animate sources of power: The work of man]. *Annales de l'Instiut National Agronomique,* 2nd série – tome XII, 1–40. https://gallica.bnf.fr/ark:/12148/bpt6k54409695.image.f14.langEN

Sieber, J. (1992). *Planning ethically responsible research*. Sage https://doi.org/10.4135/9781412985406

Snyder, T. D., de Brey, C., & Dillow, S. A. (2019). *Digest of Education Statistics 2018* (NCES 2020-009). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education. https://nces.ed.gov/pubs2020/2020009.pdf

Stephens, P. (2014, October 8). The world's most compassionate 24 hours. *BBC News*. http://www.bbc.com/news/business-28882749

Teger, A. I. (1980). *Too much invested to quit.* Pergamon Press.

Trimble, J. E., Stevenson, M. R., & Worrell, J. P. (2003, September 15). *Toward an inclusive psychology: Infusing the introductory psychology textbook with diversity content* (APA Commission on Ethnic Minority Recruitment, Retention, and Training, Textbook Initiative Work Group). American Psychological Association. https://www.apa.org/pi/oema/programs/recruitment/inclusive-textbooks.pdf

Triplett, N. (1898). The dynamogenic factors in pacemaking and competition. *American Journal of Psychology, 9*(4), 507–533. https://doi.org/10.2307/1412188.

Van Bavel, J. J., Baicker, K., Boggio, P. S., Capraro, V., Cichocka, A., Cikara, M., et al. (2020). Using social and behavioural science to support COVID-19 pandemic response. *Nature Human Behavior, 4*, 460–471. https://doi.org/10.1038/s41562-020-0884-z.

Velez, G., & Power, S.A. (2020). Teaching students how to think, not what to think: Pedagogy and political psychology. *Journal of Social and Political Psychology, 8*(1), 388–403. https://doi.org/10.5964/jspp.v8i1.1284

Vespia, K. M., & Filz, T. E. (2013). Preventing and handling classroom disruptions. In D. S. Dunn, R. A. R. Gurung, K. Z. Naufel, & J. H. Wilson (Eds.), *Controversy in the psychology classroom: Using hot topics to foster critical thinking* (pp. 23–32). American Psychological Association. https://doi.org/10.1037/14038-002.

Warner, L. R., Wagner, L. S., & Grzanka, P. (2021). White privilege in the classroom. In M. E. Kite, K. A. Case, & W. R. Williams (Eds.), *Navigating difficult moments in teaching diversity and social justice* (pp. 151–163). American Psychological Association.

West, R. F., & Stanovich, K. E. (1997). The domain specificity and generality of overconfidence: Individual differences in performance estimation bias. *Psychonomic Bulletin & Review, 4*(3), 387–392. https://doi.org/10.3758/BF03210798.

Wiggins, G. P., & McTighe, J. (2005). *Understanding by design* (2nd ed.). Association for Supervision and Curriculum Development.

Wilson, T. D., & Gilbert, D. T. (2005). Affective forecasting: Knowing what to want. *Current Directions in Psychological Science, 14*(3), 131–134. https://doi.org/10.1111/j.0963-7214.2005.00355.x.

Teaching Health Psychology Here, There, and Everywhere

14

Arianna M. Stone and Regan A. R. Gurung

Contents

Abstract

Health psychology is a student favorite given its easy applicability to life. In this chapter, we overview the origins and growth of the health psychology course and review current information regarding how the course is taught. We review three major studies of content outlines for the course highlighting course learning outcomes, major assessments used, and the main topics covered and thought to be important by instructors. Together with providing a comprehensive overview of current teaching resources in the field, we map the evolution of one textbook over nine editions to demonstrate changes in the health psychology course over

A. M. Stone
Oregon State University, Corvallis, OR, USA

R. A. R. Gurung (✉)
Psychological Science, Oregon State University, Corvallis, OR, USA
e-mail: Regan.Gurung@OregonState.edu

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time. We then discuss how the course is taught around the world with a focus on the United States, the United Kingdom, and Australia, highlighting areas where more information is needed. Finally, we address major challenges to teaching the course and future directions of the field.

Keywords

Health psychology · Biopsychosocial model

Health psychology is now a thriving subarea of psychology, especially in North America. Several peer-reviewed journals are disseminating research on the topic, multiple professional organizations around the world are devoted to it, and many health psychologists are playing major roles in psychology in general (Revenson & Gurung, 2019). From its origins in the 1970s, the field has now grown dramatically. In the 1990s, only 26% of US psychology departments offered a health psychology course (Perlman & McCann, 1999), but that figure reached 48% in 2005 (Stoloff et al., 2010) and nearly 70% in 2016 (Norcross et al., 2016). Health psychology is featured in many introductory psychology textbooks (e.g., Griggs, 2014) and rated by students as one of the most important and interesting topics covered in introductory psychology (McCann et al. 2016). After briefly reviewing the origins of the health psychology course and summarizing how the course is taught in the United States, we take a detailed look at how the course is taught around the world. We conclude with a description of new directions in health psychology that teachers of the course will want to follow.

Introduction

Health psychology is commonly conceptualized as studying the ways in which health and illness are affected by interactions between biological (e.g., genetics, nervous system) and psychological factors (e.g., personality, attitudes) on health. The field focuses on promoting and maintaining physical health, preventing and treating illness, and identifying the origins and process of illness (Taylor, 1990). The topics most commonly covered include stress and coping, health-risk behaviors, factors surrounding illness (e.g., access, adherence), and chronic and terminal diseases. Health psychology is largely based on the *biopsychosocial model* (Engel, 1977), which highlights the need to include physiological, psychological, and social factors in understanding health and illness.

Current estimates for the emergence of health psychology as a distinct field of study in North America are in the 1960s, which saw the formal adoption of the field in North America and other parts of the world (Lubek & Murray, 2018). In the United States, health psychology is overseen by the American Psychological Association (APA), which creates the guidelines for its practice and standards for its teaching and accreditation.

The first health psychology course was developed in the 1980s (DiMatteo & Friedman, 1982), as were the first of the many health psychology textbooks available

today (see Appendix A). Those textbooks vary in their focus, their pedagogical features, and how they have evolved across editions in parallel with changes in the field. The textbook described in Table 1, for example, takes on a less medicalized/clinical perspective across editions, in favor of a more humanized view of individuals and their health and a greater emphasis on practical applications. So although

Table 1 Evolution of Health psychology: an introduction to behavior and health 1st-9th editions

First edition: 1988 | **Length:** 14 chapters, 434 pages	**Second edition:** 1992 **Length:** 16 chapters, 544 pages
1. Introducing Health Psychology	1. Introducing Health Psychology
2. Psychological Principles in Behavioral Medicine	**2. Conducting Research in Psychology and Epidemiology**
3. Physiological Foundations of Health Psychology	**3. Defining and Measuring Stress**
4. The Psychology of Being Sick	4. *Understanding Stress and Illness*
5. Stress and Stress Management	5**. Understanding Pain**
6. Pain and Pain Management	**6. Coping with Stress and Pain**
7. Behavioral Factors in Cardiovascular Disease	7. *Identifying* Behavioral Factors in Cardiovascular Disease
8. Behavioral Factors in Cancer	8. *Identifying* Behavioral Factors in Cancer
9. Personal Control and Health	9. **Receiving Health Care**
10. Smoking Tobacco	10. *Adhering to Medical Advice*
11. Drinking Alcohol	**11. Living with Chronic Illness**
12. Eating to Control Weight	12. Smoking Tobacco
13. Exercising	13. *Using Alcohol and Other Drugs*
14. The Challenge to Health Psychology	14. Eating to Control Weight
	15. Exercising
	16. *Health Psychology: Premise and Promise*

Note: Additions to the second edition are shown in **Bold** with significant revisions to chapter titles shown in *italics.* Summaries of changes to additional editions are shown below.

Third Edition: 1997 | **Length:** 17 chapters, 567 pages

- *The chapter on research is now concisely referred to as "Conducting Health Research" without reference to epidemiology.*
- *Rather than being oriented toward "Receiving" health care, as in the previous edition, this edition frames it as "Seeking Health Care."*
- *Adds an additional chapter on "Staying Healthy."*

Fourth Edition: 2000 | **Length:** 16 chapters, 608 pages

- *It isn't clear exactly when the new section about stress appeared (since the previous two editions' contents were pulled from study guides); however, at least in this edition, there is an entire section devoted to Stress, Pain, and Coping.*
- *Compared with the first edition's section on Behavior and Illness, this edition refers to Behavior and Chronic Disease for Part III, which is reflected in Chapter 6, where "Understanding Stress and Illness" has been changed to "Understanding Stress and Disease."*
- *The chapter on "Staying Healthy" has been changed to "Preventing Injuries."*
- *The final chapter has been edited to "Future Challenges" and will remain so in all future editions.*

Table 1 (continued)

Fifth Edition: 2004 | **Length:** 17 chapters, 593 pages

The only major change in this edition is that the "behavioral factors" language was removed from the Cardiovascular Disease section and altered in the Cancer section, but only for this edition. It was returned in the next edition.

Sixth Edition: 2007 | **Length:** 17 chapters, 599 pages

- *An interesting change is the difference between "coping with" stress and pain, as in the previous edition, and "managing" stress and pain in this edition.*
- *The reference to behavioral factors in cardiovascular disease returns in this edition.*
- *Likely the most notable change is the language around eating – in previous editions, the chapter referring to diet talked about "eating to control weight," while now it only vaguely refers to "eating and weight."*

Seventh Edition: 2010 | **Length:** 16 chapters, 571 pages

Instead of two separate chapters, this edition merges "understanding" and "managing" pain.

The entire chapter on "Preventing Injuries" is removed without a clear replacement.

Eighth Edition: 2014 | **Length:** 16 chapters, 521 pages

- **Contents:** *"Receiving" returns to the chapter about Seeking health care, making it "Seeking and Receiving Health Care."*
- *Chapter 4 has been altered to indicate how to adhere to "Healthy Behavior," rather than "Medical Advice," as in the previous editions.*
- *Chapter 6 adds information regarding immunity to "Understanding Stress and Disease."*

Ninth Edition: 2018 | **Length:** 16 chapters, 531 pages

While the main chapter titles and organization have not changed since the previous edition, the following updates are contained in this edition:

- *Up-to-date coverage*
- *Revised to maintain student interest (containing more relevant examples/case studies, e.g.)*
- *Online multimedia lists*
- *Real-world profile*

some content has remained consistent (e.g., drugs/alcohol/exercise), the addition of sections on stress, chronic illness, accessibility of healthcare, and alternative approaches to managing various health problems reflect a broader, more humanistic, and less purely academic approach to teaching health psychology. The focus on applying health psychology to students' everyday lives mirrors the inclusion of "personal development" in the American Psychological Association's Guidelines for the Undergraduate major (APA, 2013).

Today, there are clear pathways to advanced degrees in health psychology in North America with 22 institutions offering a health psychology-focused Ph.D. program, several of which also offer a master's-level degree (Panjwani et al., 2017). Many of these programs utilize the "embedded" rather than "exclusive" formula, where the health psychology content is combined into a related field

within psychology rather than offered stand-alone (Martin et al., 2014). The field of health psychology has evolved significantly over 30 years, but most programs have a clinical focus (Murray, 2014), and undergraduate psychology programs are overall fairly consistent in the types of topics they cover (i.e., in textbooks), although they may not be entirely uniform in their teaching (Panjwani et al., 2017).

Purposes, Rationale, and Content of the Health Psychology Curriculum

The Society for Health Psychology (Division 38 of the American Psychological Association) lists ten major course objectives for the health psychology course (Society for Health Psychology, n.d.). They are:

1. Develop an understanding and appreciation of the complex interplay between one's physical well-being and a variety of biological, psychological, and social factors.
2. Learn how psychological research methods, theories, and principles can be applied to enhance biomedical approaches for promoting health and treating illness.
3. Learn the nature of the stress response and its impact in the etiology and course of many health problems.
4. Discover how behavioral and cognitive methods can help individuals cope with stress.
5. Develop skills for designing programs to improve one's own and others' personal health habits and lifestyles.
6. Acquire an understanding of the difficulty patients experience in deciding whether or when to seek treatment for disturbing symptoms.
7. Become aware of the experiences of patients in the hospital setting, factors that affect adherence to medical regimens, and sources of problems in patient/practitioner relationships.
8. Determine how psychological and medical methods for relieving pain differ and are often combined to enhance treatment effectiveness.
9. Become aware of the impact that disabling or life-threatening illnesses have on patients and their families.
10. Discover how psychological methods and principles can be applied to help patients manage and cope with chronic illness.

A small number of studies have examined the extent to which these learning objectives are reflected in health psychology courses as they are taught in the United States. The first study to shine a light on the health psychology course, and the one best positioned to unpack the purposes and rationale of the course,

reviewed 300 course catalogs from a random sample of institutions of higher education (Brack et al., 2010). The reviewers first read course descriptions to identify the titles used for the course (e.g., health psychology, behavioral medicine) and then conducted a survey of course instructors. The catalog review showed that at 93% of the institutions, the course was considered to be an elective and at 63% of them, it was offered only in alternative academic terms. The study also provided a good look at the topics frequently taught in the course. The most common topics (shown here as percent of respondents) included the biopsychosocial model (93%), chronic illnesses (90%), adherence (87%), alcohol/drugs (83%), and behavior modification (80%). Most instructors in this study reported using lecture to teach (97%) and videos to provide supplemental information (77%). The most common assessments included writing assignments and examinations (both 97%). Half the sample reported using personal health change assignments (53%).

A second study (Gurung & Rittenhouse, 2015) examined 50 health psychology course outlines collected in response to a national call and found 13 major themes:

1. General learning (e.g., build active learners and develop careful reading and oral communication skills)
2. Critical thinking
3. Health-related professionals (e.g., understand the challenge involved in health behavior change)
4. Terms and concepts (e.g., acquire an understanding of the components of the field of health psychology)
5. History (e.g., the history of healing in different cultures)
6. Scientific methods (e.g., understand the scientific method)
7. Interpreting research (e.g., basic conceptual skills for interpreting research)
8. Role of psychology (e.g., the role of psychology in health risks and outcomes)
9. Roles of other psychological constructs (e.g., personality and social support)
10. The biopsychosocial model
11. Patterns of health behavior problems (e.g., disease risk)
12. Personal health
13. Importance of culture and diversity (e.g., the role of culture in disease)

In general, course outlines contained specific learning outcomes relating to a wide range of topics. Whereas many learning objectives (e.g., critical thinking, general learning, terms and concepts, interpreting research, and the scientific method) were applicable to any psychology course, a number were specific to health psychology (e.g., health-related professions, roles of psychosocial constructs, biopsychosocial model, patterns of health behavior, and personal health).

The most recent study found that the ten course topics considered most important by instructors were stress, health behavior change, coping, chronic illness, health behavior theories, social support, health disparities, pain, interventions, and cardiovascular disease (Panjwani et al., 2017, Table 2).

Teaching, Learning, and Assessment in Health Psychology

Over the years, several resources have appeared to aid in the teaching of the health psychology course, especially at the graduate level. These include articles in the Society for Health Psychology's flagship journal *Health Psychologist*, and in peer-reviewed journals such as *Annals of Behavioral Medicine*, as well as a wide array of handbooks and specialized volumes (e.g., Benyamini et al., 2017; Gurung, 2014; Revenson & Gurung, 2019; see Appendix B).

A more detailed picture of exactly how the health psychology course is taught in the United States comes from a survey of 126 instructors who described their course format, teaching tools, views about the importance of covering specific topics, and resources needed (Panjwani et al., 2017). A principal component analysis of the topic importance ratings described above revealed five domains: chronic illness, stress and adjustment processes, health psychology in practice, health behavior change, and basics and background. A review of the course outlines provided by 30 of these instructors showed that the most common teaching formats were lecture (97%), discussion (87%), and video presentations (77%). Not surprisingly, exams were the most common form of learning outcome assessment, but 20–25% of instructors also assigned graded papers, projects, discussion boards, quizzes, and presentations[1]. Survey responses also showed that there is some inconsistency in how the course is taught and that there is a clear need for additional teaching resources, including integrated digital media and suggestions for class activities.

New guidelines in teaching health psychology in the United States are trending toward a more diverse and inclusive model that represents greater training in cultural aspects, with a particular focus on social justice and critical psychology, which springs from critical theory and focuses on social critique of structures of power and their contributions to social ills like prejudice and discrimination, especially more "hands-on" training in these perspectives (Ertl et al., 2020). There is also a larger focus in global health education, which has resulted in more opportunities for cross-cultural collaboration in health psychology (Berić-Stojšić et al., 2020), and LGBTQ+ issues (Nic Giolla Easpaig et al., 2014), as well as a community health-centered psychology practice designed to better focus on the needs of a given community from within rather than from the perspective of outsiders (Campbell & Murray, 2004).

A Global View of Health Psychology

Most of the material presented in the preceding sections is well-known in the United States, but because little attention has been paid to how health psychology is taught around the world, we allocate the bulk of this chapter to rectifying that information

[1]Survey respondents noted that health psychology textbooks provided inadequate coverage of topics related to diversity and to health disparities across demographic groups. A need for integrating digital media and class activities as teaching tools was apparent.

gap. The following review covers some major themes in the teaching of health psychology globally, but it is incomplete because of the difficulty we encountered in finding relevant information from some parts of the world, because what we in the United States call "health psychology" may be given other names in other countries (in Australia and New Zealand, e.g., the field is often referred to as "behavioral health"; Hamilton & Hagger, 2014), and because many countries have yet to establish health psychology courses. Additionally, in many countries, there is significant overlap between health psychology and community psychology such that it would be inaccurate to divide the two areas fully.

Canada

In Canada, the professional organization that is responsible for generating standards for psychological research and teaching is the Canadian Psychological Association (CPA). This organization has a specific sub-group that represents health psychology, the Health Psychology and Behavioral Medicine Section (*Health Psychology and Behavioural Medicine Section*, n.d.). As in the United States, health psychology is ubiquitous in Canada and is often taught within undergraduate introductory psychology courses as well as in stand-alone health psychology courses, under the guidance of the Canadian Psychological Association (Canada Health Psychology University Programs, Health Psychology and Behavioural Medicine Section). At least five Canadian institutions offer Ph.D.- and/or master's-level degrees specifically in health psychology, and at least one undergraduate institution offers a program at the bachelor's level (Programs in Health Psychology, n.d.). Most programs in Canada have a significantly different emphasis as compared to their US counterparts, mainly because they tend to be framed as community health psychology (Reich, 2007), and particularly because of their focus on a critical approach to the field (Stam et al., 2018), characterized by their critique of the mainstream perspective of psychology (Campbell & Cornish, 2014; MaClachlan, 2006).

Central and South America

Central and South America are very large and complex regions with unique and varied experiences in the development and implementation of health psychology; however, there are some commonalities that can be observed across their trajectories. Overarching themes indicate that health psychology as a discipline is underpracticed in Central and South America (with a few notable exceptions) in favor of a more distinctly community-focused, social change approach (Reich, 2007). The large number of countries involved makes it difficult to render sweeping generalizations, but a critical approach to health psychology that openly opposes problematic, colonized systems of power and emphasizes collective, community response to

health concerns in their areas is vastly favored in this region over accommodationist perspectives that seek compromise and conciliation with such systems (Campbell & Murray, 2004; Reich, 2007). In both regions, Freire's *Popular Education*, an educational movement focusing on social class and rejecting the traditional roles of student and teacher in favor of a more equitable, community-centered model, has been utilized (Montero, 1996).

Programs in South America tend to be in community psychology with a focus area in health and extend in many cases to the master's and Ph.D. level. In Brazil, as is common across South America, health psychology is often divided into two main practice areas: hospitals and public health initiatives (Lubek & Murray, 2018). A critical perspective with a focus on social change is the cornerstone common to both of these programs and will generally diverge from similar social psychology or clinical psychology courses by paying specific attention in the curriculum to researching interventions while simultaneously practicing them in the community (Reich, 2007). Community psychology in Chile was founded upon the mental health framework, and its engagement in health is rooted in those origins, as well as the subsequent critical pushback against traditional psychiatric care (Hanitio & Perkins, 2017). Like other countries in Central and South America, Chile's community-based education has courses in many private and public universities focusing on such issues as economic development, social work, and health (Hanitio & Perkins, 2017). This community health perspective in academic programming has been prevalent in other South American countries (e.g., Colombia, Peru, and Venezuela) since the 1960s (Montero, 1996).

In Central America, a similar view is favored. While countries such as Guatemala and Honduras have no specific programs or are only developing programs in community psychology, others (e.g., El Salvador, Costa Rica) have created programs with a strong emphasis in critical psychology and a robust connection to a social as opposed to a clinical psychological perspective (Montero, 1996). While this region has seen simultaneous growth in academic programming for community psychology alongside countries in South America, the process hasn't been identical; there has been a dual model in which one area is focused primarily on traditional approaches to health in the community, whereas the other has utilized a more critical, grassroots perspective that is typical across South America (Montero, 2008).

Several professional organizations that support the training and development of community psychologists in Central and South America, such as the Interamerican Society of Psychology (Sociedad Interamericana de Psicología; SIP), help to establish guidelines for the field (Reich, 2007) as it continues to grow. While community psychology focuses on several different dimensions of public life, a renewed emphasis on community health and health promotion, preventative care, and the impact of social support on health in community settings has been marked in the broad Latin American literature (Montero, 2008). More academic programming is likely to become available as this unique perspective on health psychology continues to grow in these regions.

The United Kingdom

Health psychology in the United Kingdom is overseen by the British Psychological Society (BPS; Quinn et al., 2020). As is the case in North America, there are a long history of health psychology in the United Kingdom, a curriculum reflecting health psychology as a priority in undergraduate psychology education, and journals, textbooks, and training programs (Quinn et al., 2020). And as in the United States, Australia, and Europe, "Health Psychologist" is a protected title in the United Kingdom that requires practitioners to have at least master's-level training for certification. Training programs are offered by 32 institutions, 9 of which are at the Ph.D. level (Martin et al., 2014). There are fewer health psychology textbooks in the United Kingdom than in the United States, but they present a more balanced view of the field, including both the quantitative "hard science" approach that is popular in the United States and a more classical positivist perspective that prioritizes the experiential, qualitative method in community-based, critical work that is popular in Central and South America (Murray, 2014).

The main focus of the UK curriculum is on promoting research in health psychology, and, as in Central and South America, there is a burgeoning critical psychology paradigm, as well as a trend toward separating health psychology from clinical psychology (Martin et al., 2014). Community psychology is a distinct but related focus in health psychology in the United Kingdom, where there is a call to evolve from scientist-practitioners into "scholar-activists" and to transform the curriculum to reflect a broader mission to promote social justice (Campbell & Murray, 2004).

Europe

EuroPsy, also referred to as the European Qualification in Psychology, is a European standard of education, professional training, and competence in psychology set by the European Federation of Psychologists' Associations (EFPA) that complements national standards that already exist in individual European nations. Since 2009, EFPA has been responsible for oversight of standards and practices for health psychology in Europe. This organization makes no distinction between clinical psychology and health psychology overall, so its requirements are such that training programs at most European institutions would not meet the standards for doctoral-level specialists in health psychology in the United States. Further, in many European countries, there are no particular requirements for licensure or certification in health psychology (Martin et al., 2014). Still, there are now undergraduate and postgraduate degree programs in health psychology in at least nine European countries (Martin et al., 2014).

The competencies in health psychology that are required for the European Certificate in Psychology focus primarily on assessment, development, intervention, and other skills that are particularly relevant to clinical practice (Bartram &

Roe, 2005). The European Health Psychology Society (EHPS), too, has worked in recent years to establish a consensus on the content of the health psychology curriculum in the countries it represents. That content reflects a view of health psychology as an offshoot of medicine, rather than behavioral science, albeit with a strong biopsychosocial orientation (Plass & Ingmar, n.d.). Many programs are also considering adding more virtual opportunities for learning, as in community psychology programs in Italy that are beginning to offer entire programs at full distance (Francescato, 2013).

Australia

In Australia, where health psychology is overseen by the Australian Psychological Society (APS), and particularly the College of Health Psychologists, the training curriculum is more research-oriented than in it tends to be in Europe, and it has also become increasingly focused on developing intercultural competence in health psychologists (Mak, 2012). As in the United Kingdom, graduate-level certification in health psychology is typically embedded in clinical psychology (Fisher et al., 2008; Hamilton & Hagger, 2014; Martin et al., 2014). Though health psychology appeared more recently in Australia than in other parts of the world, it has generated intense interest among students. Unfortunately, the growth of the field has been curtailed by an inadequate number of training programs (Hamilton & Hagger, 2014). Though efforts are now being made to include health psychology courses as part of the undergraduate core curriculum (Lubek & Murray, 2018), psychology departments are not required to do so. This situation, combined with too few training programs at the graduate level, means that there are not enough new health psychologists entering the field (Hamilton & Hagger, 2014).

Organizations such as the Australasian Society for Behavioral Health and Medicine, alongside the APS, have attempted to address this problem in a country where the demand for training in health psychology has far outpaced the supply (Hamilton & Hagger, 2014). Undergraduate courses in psychology in Australia tend to use standard North American textbooks with little specific information to Australia, while the concepts of social justice, particularly as it relates to indigenous issues and the notion of Aboriginal land rights, are paramount in the Australian psychological discourse (Fisher et al., 2008; Reich, 2007). Thus, a push has been made to reorient the discourse to a critical community perspective and promote health psychology as a core curriculum (Lubek & Murray, 2018).

Other Regions

In South Africa, health psychology is remarkable for the claim that "there is no health psychology in South Africa" (Yen, 2016). Instead, as in parts of Central and South America, one sees a focus on health as part of the broader field of community

psychology (Yen, 2016). This focus reflects what has been described as a rejection of the narrow, North American view of health that was imposed upon African society by colonialism and is echoed in other parts of the continent. In Ghana, for example, community psychology examines health and illness from a perspective that seeks to link them to the impact of colonialism (Lubek & Murray, 2018). While there are some clinical psychology graduate programs and some health psychology undergraduate courses throughout Africa (Yen, 2016), health psychology per se remains an underdeveloped field in the region.

In Hong Kong, there are no professional organizations or licensing bodies related to health psychology, but the field has nevertheless appeared as a channel through which to provide community-based clinical services (Reich, 2007). Community psychology grew in Hong Kong out of a need for more applied research and community-based delivery of mental health services, more as an extension of clinical psychology than as a stand-alone area of behavioral medicine (Lam & Ho, 1989). Recently, an orientation toward social justice and community issues has taken the forefront of this discipline and will likely guide its growth (Reich, 2007).

In Egypt and Lebanon, as with many other regions, a focus on community-based health psychology is influenced by the Western model and is supported by a Master of Arts program in community psychology offered through the American University in Cairo; however, this program has not been successful in reaching Egyptian and Lebanese psychologists due to its use of the English language and primarily American programming, which are less accessible to this population (Amer et al., 2015). Palestinian universities, such as Birzeit University, have been prominent in rejecting the Westernized educational forces that persist in the Arab world and focus instead on anti-colonial, critical community psychology frameworks that draw inspiration from Central and South America as well as post-Apartheid South Africa (Makkawi, 2017). As more programs become available throughout this region, a primary focus on social justice in health, education, and scholarship is likely to be the primary perspective through which health psychologists are educated.

Challenges and Future Directions

Teaching the health psychology course creates some unique challenges. First, some students find it difficult to deal with course topics such as death, euthanasia, health-risky sex, and other dangerous behaviors (Gurung & Bruns, 2013). They may want to deny or ignore these uncomfortable topics and thus show little motivation to talk about them in class. Even in the face of clear evidence for racial differences in the probability of contracting and dying from COVID, many

students do not believe health disparities exist among different demographic groups.

Another challenge for health psychology teachers lies in the effort required to keep up with the rapid growth of health psychology research and applications. Building on successes in the twentieth and early twenty-first century in terms of spanning different levels of analysis, contemporary health psychology research may focus on social, environmental, biological, behavioral, and even a cellular analysis, all in one project. For example, the movement in health psychology toward studying biological processes surrounding health at a molecular and cellular level (c) brings with it a greater need for health psychology teachers to discuss basic biology, neuroscience, and neurochemistry. Health psychologists are also highlighting the ways in which biopsychological processes influence socioeconomic forces and interact with culture (Ruiz et al., 2019). As a result, some of them are advocating a new *biopsychosociocultural* model for health psychology (Revenson & Gurung, 2019).

Health psychology is a continually growing area of psychology with new advances in medicine, closer collaboration between different disciplines, and an increase in interdisciplinary research. Especially after remote teaching in response to the COVID pandemic (2020–2021), there has been a greater focus on pedagogy and instructional methods, which promises new ways to teach this intrinsically interesting course.

Annotated List of Teaching Resources

Teaching Resources for Health Psychology (https://societyforhealthpsychology.org/training/training-resources/teaching-resources-for-health-psychology/). This website is the online home of the Society for Health Psychology and together with sample syllabi also provides sample course descriptions and typical course content.

Teaching Health Psychology (Gurung & Rittenhouse, 2015). This chapter in Oxford Handbook of Undergraduate Psychology Education (Dunn, 2015) provides a detailed discussion of the evolution of the health psychology course, together with information on the course gleaned from a national study of 50 syllabi in areas such as learning outcomes, textbooks, varieties of content delivery, and assessment.

Appendixes

Appendix A
Appendix B

Appendix A Health Psychology textbook resources with most recent edition prior to 2015

Author	Title	Originally published	Edition (date)	Pages	Chapters	Focus	Cost paper/ eBook	Publisher
Forshaw M. & Sheffield D.	Health Psychology in Action	2012	1 (2012)	256	20	Clinical	$65/52	Wiley
French, D., Vedhara, K., Kaptein, A. A., & Weinman, J.	Health Psychology	2010	2 (2012)	432	31	Biopsychosocial	$71	Wiley
Friedman, H. S.	H ealth Psychology	2001	2 (2002)	528	15	Clinical/social	$259	Prentice Hall
Hadjistavropoulos, T., & Hadjistavropoulos, H. D.	Fundamentals of Health Psychology	2012	2 (2015)	399	15	Clinical	$NA/ 112	Oxford University Press
Harrington, R.	Stress, Health, and Well-Being: Thriving in the 21st Century	2013	1 (2013)	538	15	Social	$107/ 25	Cengage Learning
Jones, K. & Creedy, D.	Health and Human Behavior	2003	3 (2012)	352	16	Clinical	$92/80	Oxford University Press
Karren, K. J., Smith, N. L., & Gordon, K. J.	Mind/Body Health: The Effects of Attitudes, Emotions, and Relationships	1996	5 (2014)	616	21	Clinical/social	$117/ 34	Pearson
Murray, M.	Critical Health Psychology	2004	2 (2015)	368	16	Socio-cultural	$NA/ 50	Red Globe Press
Stroebe, W.	Social Psychology and Health	1995	3 (2011)	376	8	Social	$99	Open University Press

Appendix B Other written resources for teaching Health Psychology

Author	Title	Originally published	Edition (date)	Pages	Chapters	Focus	Cost paper/ eBook	Publisher
Andrasik, F., Goodie, J. L., & Peterson, A. L.	Biopsychosocial Assessment in Clinical Health Psychology	2015	1 (2015)	512	15	Clinical	$NA/ 82	The Guildford Press
Benyamini, Y., Johnston, M., & Karademas E. C.	Assessment in Health Psychology	2016	1 (2016)	345	18	Clinical	$NA/ 49	Hogrefe Publishing
Caltabiano, M. L., & Ricciardelli L.	Applied Topics in Health Psychology	2012	1 (2012)	560	36	Clinical	$66/53	Wiley
Kazarian, S. S. & Evans D. R.	Handbook of Cultural Health Psychology	2001	1 (2001)	488	16	Social	$129/ 126	Elsevier
Marks, D. F., Murray, M., & Estacio E. V.	Health Psychology: Theory, Research, and Practice	1999	5 (2018)	832	25	Critical/public policy	$126	SAGE
Pickren, W. E.	Psychology and Health: Culture, Place, and History	2020	1 (2020)	116	6	Socio-cultural	$60/19	Routledge
Revenson, A. T. & Gurung, R. A. R.	Handbook of Health Psychology	2019	1 (2019)	540	40	Multidisciplinary	$130/ 117	Routledge
Revenson, A. T., Saab, P. G., Zoccola, P. M., & Traeger, L. N.	Becoming a Health Psychologist	2020	1 (2020)	210	9	Mentorship/ guidance	$29/26	Routledge
Rohleder, P.	Critical Issues in Clinical and Health Psychology	2012	1 (2012)	226	8	Clinical	$NA/ 25	SAGE
Suls, J. M., Davidson, K. W., & Kaplan R. M.	Handbook of Health Psychology and Behavioral Medicine	2010	1 (2010)	608	36	Clinical	$115	The Guildford Press

References

American Psychological Association. (2013). *APA guidelines for the undergraduate psychology major: Version 2.0*. Retrieved from http://www.apa.org/ed/precollege/undergrad/index.aspx

Amer, M. M., El-Sayeh, S., Fayad, Y., & Khoury, B. (2015). Community psychology and civil society: Opportunities for growth in Egypt and Lebanon. *Journal of Community Psychology, 43* (1), 49–62. https://doi.org/10.1002/jcop.21688.

Bartram, D., & Roe, R. A. (2005). Definition and assessment of competences in the context of the European diploma in psychology. *European Psychologist, 10*(2), 93–102. https://doi.org/10.1027/1016-9040.10.2.93.

Benyamini, Y., Johnston, M., & Karademas, E. C. (2017). *Assessment in Health Psychology (E. C. Karademas, Ed.)*. Hogrefe Publishing.

Berić-Stojšić, B., Doobay-Persaud, A., & Neubauer, L. (2020). How do we teach for global health reviewing and renewing to advance pedagogy for global health and health promotion. *Pedagogy in Health Promotion.* https://doi.org/10.1177/2373379919900647.

Brack, A. B., Kesitilwe, K., & Ware, M. E. (2010). Taking the pulse of undergraduate health psychology: A nationwide survey. *Teaching of Psychology, 37*(4), 271–275. https://doi.org/10.1080/00986283.2010.510962

Campbell, C., & Cornish, F. (2014). Reimagining community health psychology: Maps, journeys and new terrains. *Journal of Health Psychology, 19*(1), 3–15. https://doi.org/10.1177/1359105313500263.

Campbell, C., & Murray, M. (2004). Community health psychology: Promoting analysis and action for social change. *Journal of Health Psychology, 9*(2), 187–195. https://doi.org/10.1177/1359105304040886.

DiMatteo, M. R., & Friedman, H. S. (1982). A model course in social psychology and health. *Health Psychology, 1*(2), 181–193. https://doi.org/10.1037/0278-6133.1.2.181.

Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science, 196* (4286), 129–136. https://doi.org/10.1126/science.847460

Ertl, M. M., Agiliga, A. U., Martin, C. M., Taylor, E. J., Kirkinis, K., Friedlander, M. L., Kimber, J. M., McNamara, M. L., Pazienza, R. L., Cabrera Tineo, Y. A., & Eklund, A. C. (2020). "Hands-on" learning in a health service psychology doctoral program through social justice consultation. *Training and Education in Professional Psychology.* https://doi.org/10.1037/tep0000311.

Fisher, A. T., Gridley, H., Thomas, D. R., & Bishop, B. (2008). Community psychology in Australia and Aotearoa/New Zealand. *Journal of Community Psychology, 36*(5), 649–660. https://doi.org/10.1002/jcop.20242.

Francescato, D. (2013). Community psychology practice competencies in undergraduate and graduate programs in Italy. *Global Journal of Community Psychology Practice, 4*(4). https://doi.org/10.7728/0404201303.

Griggs, R. A. (2014). *Psychology: A Concise Introduction (Fourth edition)*. Worth Publishers.

Gurung, R. A. R. (2014). *Multicultural Approaches to Health and Wellness in America* (1st Edition, Vol. 1–2). ABC-CLIO.

Gurung, R. A. R., & Bruns, D. (2013). Health psychology and policy: When politics infiltrate science. *Controversy in the Psychology Classroom: Using Hot Topics to Foster Critical Thinking*, 225–241. https://doi.org/10.1037/14038-014.

Gurung, R. A. R., & Rittenhouse, E. M. (2015). Teaching health psychology. In *The Oxford Handbook of Undergraduate Psychology Education*. Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199933815.013.039.

Hamilton, K., & Hagger, M. S. (2014). The 'health' of health psychology in australia: behavioural approaches and interventions: Guest editorial. *Australian Psychologist, 49*(2), 63–65. https://doi.org/10.1111/ap.12051.

Hanitio, F., & Perkins, D. D. (2017). Predicting the emergence of community psychology and community development in 91 countries with brief case studies of Chile and Ghana. *American Journal of Community Psychology, 59*(1–2), 200–218. https://doi.org/10.1002/ajcp.12127.

Health Psychology and Behavioural Medicine Section – Canadian Psychological Association. (n.d.). Retrieved October 7, 2020, from https://cpa.ca/sections/healthpsychology/

Lam, D. J., & Ho, D. Y. F. (1989). Community psychology in Hong Kong: Past, present, and future. *American Journal of Community Psychology, 17*(1), 83–97.

Lubek, I., & Murray, M. (2018). Doing Histor{y/ies} of Health Psycholog{y/ies}. *Journal of Health Psychology, 23*(3), 361–371. https://doi.org/10.1177/1359105317753627.

MaClachlan, M. (2006). Towards a global health contribution for critical health psychology: Some comments on Hepworth. *Journal of Health Psychology, 11*(3), 361–365. https://doi.org/10.1177/1359105306063304.

Mak, A. S. (2012). Embedding intercultural competence development in the psychology curriculum. *Psychology Learning & Teaching, 11*(3), 365–369. https://doi.org/10.2304/plat.2012.11.3.365.

Makkawi, I. (2017). The rise and fall of academic community psychology in Palestine and the way forward. *South African Journal of Psychology, 47*(4), 482–492. https://doi.org/10.1177/0081246317737945.

Martin, P. R., Cairns, R., Lindner, H., Milgrom, J., Morrissey, S., & Ricciardelli, L. A. (2014). The training crisis in health psychology in Australia: Training crisis in health psychology. *Australian Psychologist, 49*(2), 86–95. https://doi.org/10.1111/ap.12042.

McCann, L., Immel, K., Kadah, L., & Adelson, S. (2016). The importance and interest of introductory psychology textbook topics: Student opinions at technical college, 2-, and 4-year institutions. *Teaching of Psychology, 43*. https://doi.org/10.1177/0098628316649477.

Montero, M. (1996). Parallel lives: Community psychology in Latin America and the United States. *American Journal of Community Psychology, 24*(5), 589–605. https://doi.org/10.1007/BF02509715.

Montero, M. (2008). An insider's look at the development and current state of community psychology in Latin America. *Journal of Community Psychology, 36*(5), 661–674. https://doi.org/10.1002/jcop.20241.

Murray, M. (2014). Social history of health psychology: Context and textbooks. *Health Psychology Review, 8*(2), 215–237. https://doi.org/10.1080/17437199.2012.701058.

Nic Giolla Easpaig, B. R., Fryer, D. M., Linn, S. E., & Humphrey, R. H. (2014). A queer-theoretical approach to community health psychology. *Journal of Health Psychology, 19*(1), 117–125. https://doi.org/10.1177/1359105313500259.

Norcross, J. C., Hailstorks, R., Aiken, L. S., Pfund, R. A., Stamm, K. E., & Christidis, P. (2016). Undergraduate study in psychology: Curriculum and assessment. *The American Psychologist, 71*(2), 89–101. https://doi.org/10.1037/a0040095.

Panjwani, A. A., Gurung, R. A. R., & Revenson, T. A. (2017). The teaching of undergraduate health psychology: A national survey. *Teaching of Psychology, 44*(3), 268–273. https://doi.org/10.1177/0098628317712786.

Perlman, B., & McCann, L. I. (1999). The Structure of the psychology undergraduate curriculum. *Teaching of Psychology, 26*(3), 171–176. https://doi.org/10.1207/S15328023TOP260302.

Plass, A. M., & Ingmar, S. (n.d.). Health psychology practice in Europe and other countries represented in the EHPS: A first step to moving forward together. *19*(6), 8.

Programs in Health Psychology. (n.d.). *Society for Health Psychology*. Retrieved October 7, 2020, from https://societyforhealthpsychology.org/training/programs/programs-in-health-psychology-non-clinical/.

Quinn, F., Chater, A., & Morrison, V. (2020). An oral history of health psychology in the UK. *British Journal of Health Psychology, 25*(3), 502–518. https://doi.org/10.1111/bjhp.12418.

Reich, S. M. (Ed.). (2007). *International community psychology: History and theories*. New York: Springer.

Revenson, T. A., & Gurung, R. A. R. (Eds.). (2019). *Handbook of Health Psychology* (1st edition). Routledge.

Ruiz, L. D., Zuelch, M. L., Dimitratos, S. M., & Scherr, R. E. (2019). Adolescent obesity: Diet quality, psychosocial health, and cardiometabolic risk factors. *Nutrients, 12*(1), E43. https://doi.org/10.3390/nu12010043.

Society for Health Psychology. (n.d.). https://www.apa.org. Retrieved October 7, 2020, from https://www.apa.org/about/division/div38

Stam, H. J., Murray, M., & Lubek, I. (2018). Health psychology in autobiography: Three Canadian critical narratives. *Journal of Health Psychology, 23*(3), 506–523. https://doi.org/10.1177/1359105318755409.

Stoloff, M., McCarthy, M., Keller, L., Varfolomeeva, V., Lynch, J., Makara, K., Simmons, S., & Smiley, W. (2010). The undergraduate psychology major: An examination of structure and sequence. *Teaching of Psychology, 37*(1), 4–15. https://doi.org/10.1080/00986280903426274.

Taylor, S. E. (1990). Health psychology: The science and the field. *American Psychologist, 45*(1), 40–50. https://doi.org/10.1037/0003-066X.45.1.40.

Yen, J. (2016). Psychology and health after apartheid: Or, Why there is no health psychology in South Africa. *History of Psychology, 19*(2), 77–92. https://doi.org/10.1037/hop0000025.

Educational Psychology: Learning and Instruction

15

Neil H. Schwartz, Kevin Click, and Anna N. Bartel

Contents

Abstract

Educational psychology is a field that straddles two large domains: education and psychology. Reaching far back into antiquity, the field was borne from philosophies and theories that weaved back and forth between each domain all with the intent of understanding the way learners learn, teachers teach, and educational settings should be effectively designed. This chapter tells the story of educational psychology – its evolution, its characteristics, and the insights it provides for

N. H. Schwartz (✉) · K. Click
Department of Psychology, California State University, Chico, CA, USA
e-mail: kclick1@csuchico.edu

A. N. Bartel
Department of Psychology, University of Wisconsin, Madison, WI, USA
e-mail: anbartel@wisc.edu

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understanding it as a field of study, teaching it at the tertiary level of education, and leveraging its findings in the classroom. The chapter begins with a rationale for a curriculum of educational psychology, tracing its core teaching and learning objectives. It describes the topics that are core to the field, as well as the theory-based and evidence-based strategies and approaches for teaching it effectively. It discusses the basic principles of effective teaching, including problem-based learning, inquiry-based learning, and small-group and service-based learning, among others. Finally, it addresses technology in learning, open-university teaching and learning, and closes with a discussion of the best approaches – both theory-based and evidence-based – for assessing the core competencies of the field.

Keywords

Educational psychology · Teaching · Learning · Post-secondary teaching · Teacher training · Educational curriculum · Teaching core competencies · Assessing core competencies · Theory-based teaching strategies · Evidence-based teaching strategies

Introduction

Educational psychology, as a field of study, is devoted to the application of a wide variety of theories to understand the way humans learn so that the most effective practices of instruction can be implemented. Yet, while educational psychology seems rather simple to describe, its application to education is complex. After all, when we examine the two words individually, "education" exists in a myriad of contexts, both formal and informal, over the course of one's life, and "psychology" is an ocean of concepts, principles, and processes across layers of dynamic human-environmental transactions. We are not alone in noticing the complexities, as some contemporary and popular textbooks of educational psychology (Ormrod, Anderman, & Anderman, 2020; Santrock, 2021; Slavin, 2021; Snowman & McCown, 2015; Woolfolk Hoy, 2019) comprise a wide collection of vectors pointing to the target of the field; and while the field is divided into two main sections within the current volume, the collection is no less daunting for the present chapter. That is, the subsection of learning and instruction within educational psychology traditionally includes multiple theoretical and conceptual domains (e.g., human development, complex cognitive processes, behavioral and social-cognitive views of learning, social-constructivist views of learning, self-regulation and classroom management, classroom assessment strategies, and motivation) – domains that are intersectional within culture, language, technology, and levels of schooling.

What is common to the field of educational psychology, as represented in the textbooks above, are five common domains: 1. Developmental Theories; 2. Learning and Motivation; 3. Student Heterogeneity; 4. Classroom Instruction; and 5. Assessment and Evaluation. The first domain, developmental theories, addresses the

development of cognition and language, as well as social, emotional, and moral development. The second domain, learning and motivation, encompasses behavioral and social learning theory, motivation, and cognitive views of learning. Given that learners are very different across a wide swath of the student landscape, the third domain, student heterogeneity, is addressed with a focus on culture and diversity as well as students' special needs. Fourth, classroom instruction focuses on (a) how instruction may be organized, (b) models for managing the learning environment, (c) use of technology for teaching, and (d) how to think about instructional strategies given what we know about how students actively construct knowledge. Finally, the fifth domain, assessment and evaluation, underscores the importance of evidence-based practices and making educational decisions empirically. Thus, the field of educational psychology has, over the decades, embraced – and continues to embrace – the need for the measurement of student performance both formatively and summatively.

However, a look through the history of educational psychology reveals that making empirically based educational decisions was not always common practice. Indeed, tracing its beginning to the early twentieth century some six generations of thinkers ago, most would agree that the field's evolution was often adversarial if not conceptually competitive (Berliner, 1993). After all, the field grew from a collection of convergent and divergent ideas centuries before that – for example, Democritus in the fifth century B.C. (see Watson, 1961); Plato and Aristotle a century later (see Adler, 1952); Quintilian around 35–100 A.D. (Quintilian, translated by Butler, 1953; Quintilian translated by Smail, 1966); and Vives during the early years of the sixteenth century (see Vives, 1913; Charles, 1987). Thus, from those beginnings in antiquity, Berliner (1993) traced the agreed-upon ideas at the time that can be considered precursory thinking of the field today. Those ideas were:

1. Getting to know and leveraging the unique characteristics of students
2. Developing criteria for selecting teachers
3. Making teaching engaging within an interesting curriculum to circumvent behavior problems of students
4. Using visual material to enhance learning
5. Focusing on understanding rather than rote learning
6. Ordering instruction and deploying it from higher-order ideas to specific details
7. Making certain all material to be taught is vetted in experience
8. Recognizing that students teaching other students is the best way to learn
9. Involving parents in the education of their children

In 1899, James published educational psychology's first definitive book: *Talks to Teachers on Psychology* (James, 1899, 1983) following his publication of one of the first books on psychology – *Principles of Psychology* (James, 1890). In his psychology text, James espoused that the science of the mind's laws, while not elemental as the Europeans viewed it, was important to study experimentally as a stream – an indivisible continuous flow of consciousness – that required careful observation for the purpose it served rather than the cause by which it arose. This was a teleological point of view that gave rise to a decidedly American perspective called *pragmatism*

– a philosophical theme that became the cornerstone of educational psychology as a field. From this perspective, James, in his lectures to teachers on psychology, came to believe that the new science of psychology could not provide "definite programmes and schemes and methods of instruction for immediate school-room use" (James, 1899; 1983, p. 15). That is, he was loath to transform teachers into psychologists. Instead, he believed that psychology could only offer heuristics that teachers could explore within the parameters of their own knowledge and experience – to offer guidelines and directions within which teachers could apply their own wisdom when teaching their students. James said it best when he wrote, "Psychology is a science, and teaching is an art; and sciences never generate arts directly out of themselves" (James, 1899; 1983, p. 15). Thus, James' (1899) contribution to the field of educational psychology was to see psychology as offering: (a) deeper logical thinking to underlying common instructional beliefs, (b) guardrails to ensure teachers avoided errors of instruction, and (c) well-thought-out support for the pedagogical choices he believed teachers should be making on their own (Berliner, 1993). This was in stark contrast to his former doctoral student, E. L. Thorndike.

While Thorndike was remarkably influenced by James' thinking about psychology's application to education – even as an undergraduate student – Thorndike preserved a steadfast commitment to the experimental science of psychology and statistics. In fact, dominating the field of educational psychology for over 40 years with scores of books and hundreds of articles, Thorndike believed that only a strict experimental and disciplined study of psychology should provide prescriptions to education – just as in any other discipline with an applied arm (Thorndike, 1910). Furthermore, and rather unbelievably, Thorndike admonished educational psychologists from spending any time in schools or classrooms. Instead, he was quite strong in his opinions that *only* methods of exact science should be applied to educational problems and that opinions and perspectives of those people teaching and learning in the schools were essentially irrelevant.

Fast forward to the present, educational psychology has found a common ground between these two extremes; and that ground is due in no small part to the trajectory of thought from the field's other early forebears – principally, G. Stanley Hall and John Dewey. Indeed, Berliner (1993) wrote:

> In Hall and Dewey, our granduncles, we have former classroom teachers who respected teachers and the complexity of teaching more than did James. Hall's science had a common sense to it; he trusted teachers to be good observers and data collectors, and he defended passion, sentiment, and love as elements in the making of a good science of child and educational study. Although generally poorly carried out, his was a science more naturalistic than laboratory based, more clinical than experimental, and more qualitative than quantitative. Dewey held to a holistic psychology, understood the teacher as a social being, and thought that if psychology presented its findings as truths to be applied it would necessarily put teachers in a position of servitude. He saw laboratory psychology as limited and all psychological findings as tentative, as working hypotheses for teachers to test. (pp. 14–15)

Thus, today, educational psychologists show great respect for the complexities and vagaries of teaching and the individuals who do it, recognizing that listening to

teachers and students and observing them both in real time are essential. Educational psychologists recognize that there must be a tight reciprocal and recursive relationship between the lab and the classroom that allows generating theories and testing hypotheses borne from each source. This contemporary way of conceptualizing and conducting the field has paid dividends in understanding the teaching-learning process.

Rationale of the Curriculum in Educational Psychology

Presently, the American Psychological Association (APA) is the largest scientific organization for the field of psychology. Psychologists around the world follow APA guidelines related to ethics, writing, and research. While the APA is home to many different fields of psychology, the focus of this chapter is targeted to educational psychology. According to the APA, the primary goal of educational psychologists is to study how people learn. Educational psychologists use their knowledge to improve learning among students, aiming to ensure that all students are successful learners. In order for educational psychologists to meet this goal, they need to take into account many facets of learning. These facets of learning include not only cognitive processes but also social and emotional processes.

Furthermore, educational psychology is inherently interdisciplinary. It is a broad domain that covers many different subgroups: human development, learning sciences, quantitative methods, school psychology, learning analytics, and educational technology – and all of these different subgroups have specific curricula. However, when speaking of curricula broadly in educational psychology, the goals of each subgroup align. The primary purpose of the overarching curriculum is to provide psychology students with opportunities to critically evaluate learning theories, conduct progressive research, and acquire skills to become successful communicators of information. All of these goals aim to improve educational outcomes both for psychologists and for students across educational contexts.

These curricula may not be explicitly defined in any one educational psychology program but will typically follow an apprenticeship model of student training and mentoring. This type of apprenticeship model is called a cognitive apprenticeship. Cognitive apprenticeship is an instructional model that focuses on cognitive skills and the knowledge that learning is situated in authentic contexts. Cognitive apprenticeships assume that people learn from each other in authentic contexts, and the model advocates for using teaching methods that include modeling, scaffolding, reflection, and exploration (Collins, 1991; Collins, Brown, & Holum, 1991). For example, students trained in educational psychology are frequently matched with faculty mentors based on corresponding research interests. The faculty serve as mentors, working closely with students at a graduate or undergraduate level, to improve each student's research and teaching skills. Throughout their training, students will likely work with different faculty members given the interdisciplinary nature of educational psychology as a field of study.

Core Teaching and Learning Objectives

Like most training programs, student learning is assessed by providing learning objectives. Often, these learning objectives are based on qualification frameworks. One specific type of qualification framework is called a competency model. Competency models provide a standard of competence that should be met by trainees. Specifically, in the field of psychology, there have been efforts and difficulties in defining acceptable standards of competence (Nash & Larkin, 2012). In fact, the only mention of competencies from the APA is through their Code of Ethical Principles and Standards of Conduct, which indeed highlights the importance of standards of competence in the field (American Psychological Association [APA], 2016). Further, APA designates that psychologists may only teach and conduct research within the bounds of their competence. These bounds of competence are "based on education, training, supervised experience, consultation, study, or professional experience" (p. 5).

On the other hand, while the APA does not designate a specific competency model, they do provide a general Benchmark Evaluation System (APA, 2012). This Benchmark Evaluation System was designed to help graduate programs in professional psychology, not specifically educational psychology, evaluate their success in meeting the above defined standard competence in the field. The Benchmark Evaluation System is organized into six general benchmark clusters, all of which have corresponding core competencies. The six clusters and their core competencies can be seen in Table 1.

The Benchmark Evaluation Systems goes into further detail by describing the core competencies at three different developmental levels. However, these developmental levels are specific to professional psychology and not easily applied to

Table 1 Benchmark Evaluation System as designated by the APA (2012)

Benchmark Evaluation System	
Benchmark cluster	Core competency
Professionalism	Professional Values and Attitudes Individual and Cultural Diversity Ethical, Legal Standards and Policy Reflective Practice/Self-Assessment/Self-Care
Relational	Relationships
Science	Scientific Knowledge and Methods Research/Evaluation
Application	Evidence-Based Practice Assessment Intervention Consultation
Education	Teaching Supervision
Systems	Interdisciplinary Systems Management/Administration Advocacy

different types of psychology courses (see Benchmark Evaluation System, APA, 2012; Peterson, Peterson, Abrams, & Stricker, 2010; Rodolfa, Bent, Eisman, Nelson, Rehm, & Ritchie, 2005). As such, while the Benchmark Evaluation System provides generally useful information, the specific competencies beyond professional psychologists remain undefined (Kelly, 2016; Nash & Larkin, 2012).

Despite the importance of assessing competence for educational psychologists, many of the existing competency models are specific to professional psychology careers, such as clinical psychology (see Benchmark Evaluation System, APA, 2016; Peterson, Peterson, Abrams, & Stricker, 2010; Rodolfa, Bent, Eisman, Nelson, Rehm, & Ritchie, 2005). Consequently, many programs that train educational psychologists who are interested in teaching and conducting research do not have such formalized and specific competency models (Kelly, 2016; Nash & Larkin, 2012).

Competencies Students Should Acquire

There is currently no specific role of qualification frameworks in educational psychology, and there has been no clear understanding of how qualification frameworks might be defined (Kelly, 2016). As it pertains to training contexts in educational psychology, it is possible that qualification frameworks could be based on theoretical and practical perspectives. A unique skill of educational psychologists is that they are required to learn theoretical frameworks, practice frameworks, and understand the relationship between the two (Kelly, 2016).

For educational psychologists, having an understanding of theoretical frameworks is a core competency because the frameworks describe different learning theories and how these theories might be applied. Through understanding many different theoretical perspectives of learning, educational psychologists may conduct innovative research that brings together seemingly disparate theories of learning. In this case, combining multiple theoretical perspectives may lead to a wider range of practical applications. Practical applications may only be fully understood by gaining knowledge of practice frameworks, which are defined as a series of actions that support the application of theoretical frameworks in authentic contexts (Kelly, 2016). It is key for educational psychologists to have an understanding of practice frameworks as they serve to bridge the gap between theoretical frameworks in research and help to effectively apply those theories in practice.

As previously stated, the goal of educational psychologists is to better understand and improve student learning. In order to achieve this goal, educational psychologists need training that produces an understanding of the complex relationship between learning theories and educational practice. What follows is an understanding of the role of evidence in educational psychology. Understanding what constitutes evidence is a large undertaking, one that warrants its own task force (see APA Presidential Task Force on Evidence-Based Practice, 2006). To briefly describe the main points, evidence has an important role for educational psychologists because understanding what constitutes good evidence for demonstrating successful learning

can, and probably should, lead to a substantive change in instructional practice (Boyle & Kelly, 2016). In an effort to gain understanding of what exactly constitutes good evidence, educational psychologists should have a solid foundation in the hierarchy (Pilcher & Bedford, 2011) and typology (Petticrew & Roberts, 2003) of evidence, as well as sufficient training in research methods to apply that foundational knowledge to measuring and refining elements of their own teaching practice.

Superordinate Learning Objectives

In all, the superordinate learning objective for students of educational psychology is to reduce the gap between research and practice in learning. Through their years of training, educational psychologists gain expertise in the multiple theoretical perspectives of learning. Further, educational psychologists master the creation and implementation of rigorous psychological research designed to build understanding and address educational issues relevant to learning in different, authentic, contexts.

Core Topics of Educational Psychology

Educational psychologists are the liaisons between psychology and education. As such, they have the responsibility of identifying those areas of psychology pertinent to the field of education; they also have the responsibility to curate the scholarly, empirical, and in-practice evidence relevant to educational application. Perhaps the best source of curation is those sources tasked with informing future practitioners and scholars in the field: textbooks of educational psychology and the seminal works written over the decades that form the bedrock of the field.

As described at the top of this chapter, there are five educational psychology domains that form the core topics of the field. Of the five textbooks examined, each shares consistent treatment of the topics within those domains.

As for the seminal works, Kirschner and Hendrick (2020) assembled an interpretive collection of the most influential researchers in the fields of educational psychology and cognitive psychology, explaining how their findings illuminate how learners learn and what learners need to have, in order to be able to learn efficiently, effectively, and successfully. Not only does their collection inform the core topics of educational psychology, but the collection informs the delivery of the field's combined knowledge to teachers and learners. For example, with regard to the development of cognition, Kirschner and Hendrick (2020) explain the work of Chi, Feltovich, and Glaser (1981), a seminal paper on experts and novices in physics problem-solving. Not only do novices have less knowledge than experts, the experts think differently than the novices. That is, experts cognitively represent physics problems differently by categorizing problem features based on their specific knowledge of physics principles; novices, on the other hand, use superficial features of the problems, generally leading the novices to generate erroneous or misleading solution strategies and pathways.

Applying the question of core topics exclusively to cognition, Kirschner and Hendrick (2020) also contend that the field of educational psychology has brought to educational classrooms the sine qua non gems of cognitive load theory, the importance of prior knowledge – subsumption theory – and depth of processing during learning, elaboration theory. Cognitive Load Theory (Sweller, 1988, 2020) is the idea that humans have only so much room in working memory to process information, and the nature of that information creates different types of strain (load) during processing; some of that load is germane to problem-solving, some is irrelevant or extraneous, and some is immutable because it is intrinsic to the structure and complexity of a problem. After closely examining findings on the way experts bring to mind the configurations of a problem they already know, Sweller (1988) realized that when cognitive load was being spent by experts to deploy their memory of problem state configurations, the load was not only utilitarian but also was germane to the problem's solution. This led Sweller (1988) to conclude that educators must find ways to guide their learners to manipulate information not only to reach solution of particular types of problem sets but also to remember those effective cognitive machinations.

Subsumption theory was borne from Ausubel (1960, 1968) who hypothesized that knowledge held in memory is organized hierarchically into higher-order concepts that subsume sub-concepts and specific data of information within those sub-concepts. Ausubel (1960, 1968) demonstrated that when educators provide organizers in advance of instruction that tap these higher-order memory stores, subsequent learning of new related information is easier, more effective, enduring, and more utilitarian. Multiple examples of the application of Ausubel's theory to education have been published since the early 1960s, with nearly 18,000 citations of his 1968 publication. Ausubel's work was also one of the essential precursors to schema theory (c.f. Alba & Hasher, 1983) – another integral core topic of psychology's application to education.

As for the other seminal topics of cognition, depth of processing theory (Craik & Lockhart, 1972) added to the field the idea that enduring memory of information is the result of more and more deliberate processing – going beyond sensory analysis and pattern recognition of stimuli (essentially shallow processing) to deeper processing characterized by a learner's quest to actively process semantic associations to what the learner already knows. One of the ways to build these associations into an effective structure of new knowledge can be seen in the Elaboration Theory of Instruction (Reigeluth & Stein, 1983) – a theory that is a good example of the topic domain of organizing instruction. According to elaboration theory, classroom lessons should be presented as simple as possible at first and then increased in complexity relative to the learners' knowledge base. This synergy between what a learner already knows and what needs to be learned emphasizes the importance of appropriate content structure, context that is meaningful to the learner, and systematic integration and review at the end of each lesson. Endemic to elaboration theory is a recursive process where teachers guide learners to zoom in and out of new concepts at each level of complexity.

Other examples of seminal works illuminating core topics of the field can be seen in the domains of social cognitive theory and motivation. With regard to social cognition, Zimmerman (1989) suggested that effective learners are self-regulated – that is, they have agency, purpose, and regulation over the actions they take to learn. However, this agency of actions is not exclusively internal to the learner. Rather, it is comprised of personal, behavioral, and environmental aspects that work harmoniously with each other to form what Zimmerman calls "triadic reciprocality." The notion of triadic reciprocality refers to the recursive transaction between (a) what a learner brings to learning – the learner's knowledge and beliefs about their level of efficacy to learn; (b) what the environment affords for that learning, teacher modeling, verbal persuasion, direct assistance from a teacher, and the way the learning context is structured; and (c) the learners behavior, that is, their regulatory use of specific learning strategies and self-monitoring of performance manifest in the planning, decision-making, and activities they engage in before, during, and in reflection of their learning.

What is interesting about self-efficacy (Bandura, 1977) and beliefs is that they are both also core topics under the domain of motivation. Both are also braided with concepts like "goal orientation" (Pintrich, 2000) and Attribution theory (Weiner, 1985). In essence, teachers can motivate their students by helping them believe that whatever intellectual capacity they have is not immutable; that is, they can get "smarter" and work harder or in more effective ways to achieve at levels higher than they currently believe. For example, Dweck and Leggett (1988) explained that learners show two patterns of behavior – mastery and helpless – with regard to the learning beliefs they have about themselves and the way they approach goals based on those beliefs. The mastery disposition leads a learner to seek challenging tasks where they maintain a level of striving even under conditions of failure. The helpless disposition, on the other hand, is characterized by a learner's tendency to pull the throttle back on their effort to perform and avoid challenges when they encounter obstacles. These dispositions lead learners to create very different approaches to learning – the mastery students, when encountering obstacles, work to *improve* their ability, whereas helpless students pursue the goal of *proving* their ability. These are strikingly different ways of approaching challenging learning situations that can be altered by teachers with respect to what learners believe about themselves (see Kirschner and Hendrick, 2020, for a discussion of these alterations).

The final example of core topics to be illustrated comes under the category of technology. Within that category, the Cognitive Theory of Multimedia Learning (Mayer, 2005) serves as an excellent example.

Technology has become ubiquitous across educational contexts. PowerPoint and Prezi are software that have become staples in blending words, pictures, animations, videos, and sound effects in the delivery of instruction; indeed, Canva, Renderforest, Google Slides, and Visme, for example, are other multimedia presentation software available for instructional use. The question for educational psychology is how to use them effectively during instruction. Mayer (2005) worked out and tested 12 design principles for multimedia-based instruction that led to prescriptions of the design, development, and implementation of multimedia learning material.

These principles have at their base the core theories of information processing, cognitive load theory, and a theory of the way knowledge is stored in memory – for Mayer, dual-coding theory (Clark & Paivio, 1991). In essence, Mayer (2005) contends that learners process multimedia presentations by first selecting relevant words from the text or narration in the presentation; at the same time, they select relevant images from the visual graphical illustrations presented along with the words; then, within two separate but parallel cognitive channels, they organize the words into a coherent verbal representation and organize the relevant images into a coherent pictorial representation; finally, they integrate together the pictorial and verbal representations into a cognitive framework blended with the knowledge they already have. In short, the value of Mayer's (2005) multimedia theory is the degree to which its 12 design principles lead to the assembly of visual and verbal presentation material that can efficiently and effectively prime these processes.

Approaches and Strategies in Educational Psychology

Any approach to instructing university students in the best practices of learning and instruction is founded upon the problems and goals of curricular design. Curricular design must do a large part of the work that is necessary to demonstrate the relevance of educational psychology to non-psychologists – especially in relation to the training of students, such as pre-service teachers, who will not become psychologists (Berliner, 1993). Over the last three decades, many modern reformers (e.g., Anderson et al., 1995; Greenwood & Fillmer, 1999; Ormrod, 2006; Ormrod & McGuire, 2007; Sudzina, 1997; Woolfolk Hoy, 1996, 2008) have advocated for prioritizing educational psychology principles in curriculum design.

A critical mission, then, for educational psychology is designing curriculum that promotes an understanding by key stakeholders of how basic principles derived from psychological science are applied to teaching in the classroom (Patrick, Anderman, Bruening, & Duffin, 2011). These key stakeholders may include teachers-in-training; university students studying psychology or other disciplines who may become higher education faculty; or existing university faculty in psychology and other disciplines. In other words, the role of educational psychologists in training their students is threefold: (1) help non-psychologists relate key concepts from psychological theory to problems and goals within their own field of practice; (2) help non-psychologists build knowledge of how to apply that theory to their own field of practice; and (3) train developing psychologists to promote these types of learning in their own classrooms. Thus, educational psychologists must learn how to build bridges between the knowledge base of psychology and other professional fields.

The public image of psychology as a whole discipline – not just within the field of educational psychology – depends upon the attitudes that non-psychology majors develop about the usefulness of psychological principles (Dutke et al., 2019), lending a broader sense of urgency to the endeavor. While specific data describing nonmajors' experience with psychology courses is sparse, Dutke et al. (2019) argued that students who take courses in psychology departments are much more likely to

be nonmajors than to be psychology majors, citing reports from Germany (Statistisches Bundesamt, 2017) and the Czech Republic (The Czech Ministry of Education, Youth and Sports, 2018, as cited in Dutke et al., 2019; Slovak Centre of Scientific and Technical Information, 2018).

Although data is also sparse in the United States, similar reports suggest that the number of undergraduate students who take an Introduction to Psychology course is an order of magnitude higher than the number of undergraduate students who earn a bachelor's degree in psychology (Gurung et al., 2016; National Center for Education Statistics, 2019). Because many students who earn a bachelor's degree in psychology undertake careers outside of psychological science or applied psychological practice, those graduates act as ambassadors to other professional communities regarding the benefit and application of psychological knowledge (Cranney, 2013). Such convergence of interest between psychologists and non-psychologists calls for collaboration between psychologists and experts in other fields, particularly regarding psychological curriculum development (Berliner, 1993, 2006; Dutke et al., 2019; Patrick et al., 2011).

Theory-Based and Evidence-Based Approaches to Teaching Core Competencies

The quality of collaboration in fields of professional practice between psychologists and non-psychologists is increased when non-psychologists better understand the methods involved in deriving and implementing psychological principles (Dutke et al., 2019). Moreover, collaboration with experts in other fields helps educational psychologists create and maintain the relevance of both their curriculum and their research to a broad array of students in psychology classrooms. Cross-disciplinary cooperation serves to familiarize psychologists with the real problems faced by professionals in other fields – leading to better, and more relevant, curriculum design (Berlin, 1993, 2000; Dutke et al., 2019). Collaboration with field-specific experts (e.g., educational faculty, supervisors of teacher induction programs, and pre-service teachers) serves to generate a framework of "desirable competencies" (Dutke et al., 2019, p. 8) on which constructing relevant curricula can be focused (e.g., see ► Chap. 33, "Psychology in Teacher Education," by Narciss and Zumbach in this volume for an extensive discussion of psychology curricula for pre-service teacher training). Maintaining relevance of psychological research and curriculum to psychology students who will work in other professions, as well as for students not who are nonmajors, is squarely within the role of educational psychologists because it facilitates the relation of psychological concepts to the problems and goals of a broad range of fields.

Making the case for relevance of psychological knowledge to students majoring in psychological study is more straightforward than making the same case to students of other disciplines. Thus, Dutke et al. (2019) propose five criteria for the selection of content in courses that are aimed to develop psychological knowledge among students who will not become psychologists. First, the content should be

specific to the field of study (e.g., education, law, medicine, or management), rather than assuming that all psychological principles are equally useful to constituent groups. Second, content should be need oriented, selection being driven by specific practical problems or epistemological considerations of the constituent groups. Third, content should be process oriented – in other words, derived from theoretical perspectives and research methodologies that are consistent with those used by – and, thus, well understood by, the constituent group. Fourth, content should be limited to information that is relevant to the professional or academic field of the constituent group. Students of other disciplines, such as teachers, do not need to become psychologists and consequently do not require breadth of coverage. For instance, psychology curricula aimed at pre-service teachers should include only those elements of theory and application that can make them better teachers. Fifth, with the goal of fostering deep understanding of this relevant psychological material, the content should remain internally consistent while systematically offering depth of coverage.

The aim of these criteria is to meet what Narciss (2019) describes as a challenging task for instructional faculty "to align the goals and affordances of the academic discipline with those of the diverse professional fields in which the graduates of this discipline will work" (p. 2). It is also challenging to achieve alignment with the constraints and the goals of local settings. In short, educational psychologists should provide professionally relevant curricula for non-psychological professions and enable appropriate application of that knowledge.

Unfortunately, although the five criteria provided by Dutke et al. (2019) are a useful framework for discussion, the framework does not necessarily provide concrete recommendations for curriculum design. Thus, Narciss (2019) suggests a strategy in addition to interdisciplinary collaboration: use existing resources – including competency frameworks and domain-specific guidelines – such as the European Qualifications Framework for Higher Education, to structure curriculum in a way that meets the same goals and results in the delivery of psychology knowledge that students will value when working in applied settings.

Within the field of traditional education, the content of teacher education curriculum already includes key educational psychology content areas (Patrick et al., 2011). Widespread integration of psychological principles into expectations for teacher competencies is evidenced by numerous reports and teacher education standards (e.g., Educational Testing Service [ETS], 2004, 2009; Klieme and Maag Merki, 2008; Interstate New Teacher Assessment and Support Consortium, 1992; Darling-Hammond, and Baratz-Snowden, 2007; National Council for the Accreditation of Teacher Education, 2008; Queensland College of Teachers, Professional Standards Unit, 2011; Training and Development Agency for Schools, 2007). Educational psychology theorists have also identified key content areas. For instance, Woolfolk Hoy (2000) identified five psychological knowledge domains central to pre-service teachers, namely:

1. Developmental changes in student thinking and metacognition
2. Socially supported learning as a function of dialogue, interaction, and collaboration

3. Matching classroom instruction to students' learning abilities
4. Utilizing effective communication to foster successful inquiry and learning
5. Assessment strategies that are effective for refining student learning

As discussed earlier in this chapter, there are five general psychological knowledge domains represented in the most commonly used educational psychology textbooks. Four of these (1. Developmental Theories; 2. Learning and Motivation; 3. Classroom Instruction; and 4. Assessment and Evaluation) align with Woolfolk Hoy's (2000) domains of knowledge. While teachers are only a subset of the professional fields of study to which Dutke et al. (2019) refer, they are no less important; and it is safe to conclude that the process of teaching and learning makes up an integral component necessary for all fields of study, both in the university classroom and in their field of practice. Thus, the domains identified by Woolfolk Hoy (2000) are informative to psychology instructors when teaching the full range of students in their classrooms.

And yet, like Narciss (2019), Lohse-Bossenz, Kunina-Habenicht, & Kunter (2013) suggested that such broad category domains provide insufficient guidance to instructors who seek to develop a curriculum that meets the needs of applied professionals, like teachers in the classroom. The category domains are also not particularly useful as standards for pre-service teacher instruction, per se. Thus, Lohse-Bossenz et al. (2013) sought to quantitatively assess which specific topics within the common domains were seen as important, relevant, and of practical utility to the three important groups of education-specific constituents: education faculty; supervisors of teacher induction programs; and pre-service teachers. Using a list of topics drawn from textbooks, literature, interviews, and educational governing standards, Lohse-Bossenz et al. (2013) tested 43 topic areas across the categories of learning, development, and assessment. Consensus among the three constituent groups pointed to the following as important:

1. In the area of learning: problem-solving and creativity; social learning; learning motivation; achievement motivation; knowledge acquisition; knowledge transfer; and metacognition and self-regulated learning
2. In the area of development: cognitive development; development of conceptual knowledge; development of motivational, emotional, and behavioral regulation; and development of social cognition
3. In the area of assessment: data collection methods and procedures; test theories and test construction; test score interpretation; theory, hypothesis, scientific observation, falsification, and internal/external validity; and qualitative research methods

In addition to meeting the real-world needs of professional teachers, these topics also map onto a broad array of professional applications and are thus relevant to a wide range of psychology students. Moreover, these topics, as well as the broad content areas discussed by others (e.g., Woolfolk Hoy, 2000) and those covered by popular textbook authors mentioned earlier in this chapter, are among the

psychological principles addressed in depth by other chapters in this volume. We will briefly discuss of a few of them here.

Basic Principles of Effective Teaching (see also Bernstein, ▶ Chap. 48, "Basic Principles and Procedures for Effective Teaching in Psychology"). One central goal of teaching psychology is to cultivate psychological literacy (Cranney, 2013). Development of psychological literacy promotes an appreciation for, and valuation of, evidence-based teaching practices among education faculty and administrators at universities and among their students. Dutke, Bakker, Papageorgi, & Taylor (2017) wrote that psychology has generated well-supported ideas about teaching and learning that generally apply across subject matters (e.g., collaborative learning, spaced learning, multimodal learning). As experts in the field then, psychologists should apply these principles in their own classrooms. As instructors, psychologists should *adapt* these principles to the "demands and constraints of the specific learning situation and content" (Dutke et al., 2017, p. 174). For example, pre-service teachers benefit from a combination of training in general best practices, as well as in subject-specific teaching practices. Thus, training psychological literacy in pre-service teachers results in a better application by *classroom* teachers of the psychological principles of good teaching to the demands of subject-specific teaching (Buskist, 2013).

Psychologists have also developed numerous principles of good teaching that are supported by substantial bodies of evidence and can be implemented with relative ease in classrooms (Dunn, Saville, Baker, & Marek, 2013). These practices include (a) testing to enhance memory (e.g., Butler and Roediger, 2007; Karpicke, Butler, & Roediger, 2009) and transfer (e.g., Carpenter, 2012), (b) distributed practice or spaced learning (e.g., Cepeda, Pashler, Vul, Wixted, & Rohrer, 2006; Wahlheim, Dunlosky, & Jacoby, 2011), (c) metacognitive skills such as reflective note-taking (e.g., Dunn, 2011), (d) writing to learn (e.g., Berninger, 2012; Dunn 1994, 2011), and (e) interteaching (e.g., Boyce & Hineline, 2002; Saville, Lambert, & Robertson, 2011; Saville & Zinn, 2009). Students profit from guidance and reminders from their instructors on the benefits of these strategies, as well as on the effects of other habits and behaviors known to impact academic success (Dunn et al., 2013). Thus, the application and development of evidence-based teaching practices such as these is vital to improving student learning outcomes.

There are also other models that are noteworthy for their promise of enhancing psychological literacy and leveraging the principles above. For example, the Scholarship of Teaching and Learning (SoTL) model proposes that faculty adopt a scholarly approach to the continual development of good teaching practices (Wilson-Doenges & Gurung, 2013). The SoTL model suggests that faculty deliberately combine best practices in teaching with science-driven experimentation, curiosity, creativity, and self-reflection toward their own practice of teaching. Thus, teachers can and should become, according to SoTL, teacher-scholars who contribute to the field of educational psychology, as well as to the practice of instruction, by deliberately and scientifically examining teaching and learning across disciplines in settings of applied teaching practice. While the model underscores the need to disseminate the results of scientifically evaluating their teaching practices to others

within the education community, there are caveats to such an implementation. That is, challenges to accomplishing the goals of the SoTL model include the difficulties associated with producing true experiments in the classroom, gathering data of adequate quantitative depth and accuracy, obtaining diverse and representative samples in the classroom, and constructing experimental conditions that do not violate ethical applications of educational standards.

And yet, even if a teacher-scholar perspective is not necessarily adopted by teachers per se, there are still principles that are borne from it, as well as from the promotion of psychological literacy and other principles of instruction discussed above. Consider the first principles of instruction espoused by Merrill (2002).

First Principles of Instruction (see also ▶ Chap. 49, "First Principles of Instruction Revisited," by Merrill). Merrill (2002, pp. 44–45) argued that there are five first principles about learning – basic, key truths – that underpin all successful teaching practices:

1. *Learning is promoted when learners are engaged in solving real-world problems.*
2. *Learning is promoted when existing knowledge is activated as a foundation for new knowledge.*
3. *Learning is promoted when new knowledge is demonstrated to the learner.*
4. *Learning is promoted when new knowledge is applied by the learner.*
5. *Learning is promoted when new knowledge is integrated into the learner's world.*

What Merrill's (2002) first principles add is another set of "truisms" collected across multiple theoretical accounts that help facilitate a better understanding and deployment of instructional practices, as well as helping to organize programs of instruction that are composed of these practices. In short, any program or practice has the potential to successfully promote learning, provided that it applies the first principles accurately and effectively. What follows is a brief description of Merrill's first principles and an example of teaching practices that exemplify the application of those principles.

Learning is more successful when it centers on relatable, real-world problems, beginning with a demonstration of the process by the instructor, followed by conceptual instruction, scaffolding the learner toward mastery of more complex versions of the problems, and a more comprehensive understanding of abstract concepts inherent in the problems. Comprehensive understanding is more likely when relevant prior knowledge is activated to provide a framework for the construction of mental models for new information, and connections between prior knowledge and new knowledge are made explicit through an instructor's expert guidance, as with the cognitive apprenticeship model (Collins, 1991; Collins et al., 1991), for instance.

An instructor's expertise can be used to demonstrate the application of new skills or knowledge in multiple ways, consistent with the learning goals, along with explicit mapping of these differing demonstrations to the same problem structure, for the learner to compare and contrast under the instructor's guidance. Regular and repeated applied practice opportunities, combined with feedback, error correction,

and redirection, form a supporting framework from which the instructor can gradually withdraw, as the learner's performance accuracy increases. As the learners' performances improve, they should be encouraged to integrate – or transfer – their new skill or knowledge to other situations. Public demonstrations of new knowledge and skills are intrinsically motivating to learners, particularly when they are encouraged to reflect on or to defend their new knowledge, finding application to their everyday life.

As an example in practice, these principles might take the form of walking through the critical analysis of a few short, formal arguments from a recent or well-known political debate: The instructor would begin by identifying, describing, and demonstrating the various steps and showing whether the argument is sound, prior to providing a detailed theoretical description of each step taken in the analysis. The process of demonstration would serve as a conceptual anchor for the learning process, and the relatable aspects of the political argument would serve to activate prior experience and knowledge, which would allow the learner to more successfully create a mental model of the key analysis concepts. Asking the learner to participate in comparing and contrasting multiple example arguments on the same topic would allow the learner to circumscribe their understanding of concepts involved in the analysis while providing opportunities for performance with corrective feedback from the instructor. Assigning the learner to present their own longer form argument on a self-chosen public policy topic takes the learned concepts out of abstraction and into application in everyday life.

Another approach to reifying instruction through the application of instructional principles and psychological literacy (cf., Cranney, 2013; Cranney & Dunn, 2011) is problem-based learning.

Problem-Based Learning (see also Zumbach, Prescher, Niegemann, Blalock et al., ▶ Chap. 50, "Problem-Based Learning and Case-Based Learning"). Problem-based learning (PBL) is a pedagogical style that is student-centered, where learners often work in groups, solving open-ended problems, with the aim of developing self-directed learning skills (Wiggins, Chiriac, Abbad, Pauli, & Worrell, 2016). In PBL, a "problem" represents an issue for investigation, analysis, or discussion, with no pre-determined correct solution. Students each take responsibility for independently researching and presenting relevant content to the group. The group then collaborates to produce a solution to the problem. PBL does not represent a single pedagogical model but rather serves as a foundation for several models, each with a slightly different set of parameters and each deployed differently depending on disciplinary or course-specific learning objectives.

In psychology programs, direct benefits of PBL on learning outcomes include better long-term knowledge retention, conceptual synthesis, and transfer to novel applications (e.g., Hmelo, 1998; Hung, Jonassen, & Liu, 2008). On the other hand, for psychology majors who do not go into a psychological profession, it can be difficult to focus PBL in a psychology course on desirable or useful outcomes (e.g., Cranney & Voudouris, 2012; Trapp et al., 2011). For implementation of PBL to be successful at achieving its goals, support is needed from administrators, and buy-in is needed from students (Wiggins et al., 2016). As Wiggins et al. (2016) describe,

this can take the form of whole programs of study – such as with Linköping University where there is broad departmental and institutional support for the pedagogy. Psychology students at Linköping University form groups at the beginning of their 5-year combined bachelor and master's degree program, remaining with their group throughout their years in the program; PBL is integrated across all the academic courses within the program, where PBL takes the form of deployment in short course modules or entire semester-long courses.

Like PBL, inquiry-based learning leverages the features of student self-direction and open-ended problems.

Inquiry-Based Learning (see also Lipmann, ▶ Chap. 51, "Inquiry-Based Learning in Psychology"). Inquiry-based learning (IBL) is a way of approaching the learning process that aims to mimic the process of discovery outlined by the scientific method (Keselman, 2003). IBL pedagogy has developed through constructivist and discovery-based learning theories – indeed, it is sometimes described synonymously with discovery-based learning (e.g., Pedaste et al., 2015). IBL began to achieve a prominent place in primary and secondary education programs within the last few decades (Abd-El-Khalick et al., 2004; Alfieri, Brooks, Aldrich, & Tenenbaum, 2011), in part, because of the inclusion of key tenets of the practice in a prominent National Research Council report by Bransford, Brown, and Cocklin (2000). The purpose of IBL, then, is to involve students in self-directed construction of knowledge that results both in the conceptual understanding of information within the investigated domain and promoting problem-solving skills and scientific thinking (Abd-El-Khalick et al., 2004; Pedaste et al., 2015).

In IBL, as it is also in PBL, the learning process is predicated on self-direction. Self-directed knowledge construction allows learners to situate new knowledge within their own experiences, rather than simply as an abstract concept. It is also effective. Meta-analyses continue to find positive effects on student achievement when implementing inquiry-based learning (e.g., Furtak, Seidel, Iverson, & Briggs, 2012; Lazonder & Harmsen, 2016; Zheng, Li, Tian, & Cui, 2018), although the inquiry-based feature of self-direction still requires expert guidance to be truly successful. That is, learners face challenges to achievement within an inquiry-based framework due to both domain-specific knowledge gaps and deficits in meta-cognitive skillsets required for productive scientific inquiry (Keselman, 2003). Thus, the positive effects of inquiry-based learning still rely on guidance, scaffolding, and support in order to be more effective than traditional instructional delivery (e.g., Alfieri et al., 2011; Furtak et al., 2012), and effectiveness may depend on the type of guidance received (e.g., Lazonder & Harmsen, 2016).

One example of inquiry-based learning incorporating modern instructional technology can be seen in the European Union's Global Online Science Labs for Inquiry Learning in Schools (Go-Lab). The Go-Lab is described by the project team as an online collection of virtual and remote laboratories, as well as archival datasets designed specifically for educational use at scale (de Jong, Sotiriou, & Gillet 2014). The Go-Lab federation collects dozens of inquiry-based learning projects across these three main laboratory types, including a remote experiment involving synthesis of methyl orange (cf. van Rens, Van Dijk, Mulder, &

Nieuwland, 2013). This experiment requires equipment and supplies that many chemistry laboratories may not possess. Instructors can use the Go-Lab web portal to customize the phases of the inquiry cycle, the progression, and the available guidance – such as process constraints, hints, and heuristics, as well as other supports – while students learn concepts related to pH and chemical reactions (de Jong et al., 2014). The value of the Go-Lab portal as an example is that it reveals how a rich environment can be established for students to dive into the learning process by using available resources to learn about the subject matter while also learning how to learn.

Another way of importing psychological literacy and principles of instruction into learning environments is through evidence-based small-group learning. Small-group learning scales down the learning environment to a level more manageable for students to learn.

Small-Group Learning (see also Dollar and Grease, ▶ Chap. 52, "Small Group Learning"). Evidence-based small-group learning strategies have three main aims: (1) to leverage the characteristics of more intimate, small-group interactions in comparison to large, lecture-based teaching; (2) to involve students in aspects of teaching-to-learn; and (3) to involve students in contributing to projects or activities based on their own competencies. Small-group learning strategies include reciprocal teaching (e.g., Palincsar & Brown, 1984; Hattie, 2009), interteaching (Boyce & Hineline, 2002; Saville et al., 2011; Saville & Zinn, 2009), and team-based learning (TBL). TBL is a form of small-group learning originally developed in the late 1970s. Its purpose was to address perceived problems with large courses (Sibley & Ostafichuk, 2015) by helping students develop skills needed for the professional workforce, including tackling real-world problems (Parmelee, Michaelsen, Cook, & Hudes, 2012). TBL incorporates evidence-based teaching and learning practices such as frequent assessment and interleaved practice, as well as elaborating, explaining, and defending positions (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013; Hattie, 2012). Liu and Beaujean (2017) conducted a meta-analysis of TBL studies, showing that there is a reliable benefit to using TBL as a pedagogical technique, with some variance in effectiveness according to the type of program.

When using TBL in a course, teams are formed deliberately and transparently, aiming to balance each group's strengths and weakness, thus maximizing team effectiveness (e.g., Michaelsen & Sweet, 2008). The learning sequence is prescribed, and teams remain together throughout the duration of the course. Sequentially, learners begin with individual preparation where they study preparatory material; then, the students assure their readiness to learn by being formatively tested on lower-order knowledge at the individual and group level; finally, the group applies their course content by collaboration and discussion where they exercise and assess their newly acquired higher-order knowledge of challenging, complex concepts (Liu & Beaujean, 2017). At first, TBL was developed and deployed primarily in post-graduate medical programs but has since been adopted across a variety of disciplines and levels of tertiary education (e.g., Burgess, McGregor, & Mellis, 2014; Haidet, Kubitz, & McCormack, 2014).

Service-Based Learning (see also Bring et al., ▶ Chap. 53, "Service Learning"). Another learning method that leverages psychological knowledge and effective teaching practice is service-based learning. Service-based learning (SL) "integrates community service with academic study to enrich learning, teach civic responsibility, and strengthen communities" (Fiske, 2002, p. 6). As a pedagogical strategy, SL aims to facilitate student application of abstract academic concepts to resolving real-world social problems while developing long-term commitments to civic involvement after graduation. The strategy results in learning that is identity transformative (Macías Gomez-Estern, Arias-Sánchez, Marco Macarro, Cabillas Romero, and Martínez Lozano, 2019). SL research has a history of demonstrating achievement in the concomitant goals of improving students' academic learning while also developing a sense of greater social responsibility (e.g., Boland, 2014; Katz, DuBois, & Wigderson, 2014; Meyer et al., 2016; Rockquemore & Schaffer, 2000; Shek, Ma, & Yang, 2019).

One empirical example of the efficacy of SL was conducted by Macías Gomez-Estern et al. (2019). They experimented with university students enrolled in two sections of the same psychology courses. Students in one course were assigned to an SL-based curriculum that included teaching children at a primary school, primarily populated by an under-served ethnic minority. Their involvement in teaching the children included leading collaborative learning groups, giving guidance to the children, and providing classroom support. Students in the other course were assigned to the same program of study but had no involvement with the children. In support of the efficacy of SL model, students in the SL course section reported higher valuation of the course, more personal growth, and better knowledge of the course content.

Technology-Enhanced Psychology Learning (see also Niegemann, ▶ Chap. 56, "Technology-Enhanced Psychology Learning and Teaching"). Technologies that are successful at improving learning outcomes tend to incorporate features that leverage well-established principles of cognitive architecture (Sweller, 2020). The process of acquiring knowledge that is pertinent to culture – rather than knowledge that simply meets the demands of survival – is effortful, demands attention, requires guidance, and benefits from effective supports. Alongside other effective teaching strategies, well-designed technology-assisted learning strategies can provide support, particularly in circumstances where it would be otherwise difficult to reduce cognitive load for learners. Ensuring that learning technologies are well-designed requires the incorporation of sound psychological principles of teaching and learning into the design and deployment of those technologies (Crompton, Bernacki, & Greene, 2020).

Crompton et al. (2020) reviewed six modern learning technologies – identified by experts (Brown et al., 2020), and in use by modern higher education institutions – with a focus on the underlying psychological principles that inform their potential and their success: adaptive learning technologies; learning analytics; artificial intelligence; improved instructional design tools; X-reality systems; and Open Educational Resources. Adaptive learning technologies modify the learning experience based on real-time analysis of student responses, adjusting the presentation of

content, and the level of learner support, to optimize learning efficiency (Aleven, McLaughlin, Glenn, & Koedinger, 2016). Adaptive learning technologies are learning systems designed to employ a framework of support, based on cognitive task analysis and other psychological principles, like metacognitive self-analysis by learners engaged in solving complex problems (Aleven et al., 2016). When the design of these systems incorporates such well-established psychological principles, adaptive learning systems can be as effective as human tutors in promoting learner success (VanLehn, 2011).

Using evidence-based psychological principles to provide optimal support for learning requires the capacity to understand the processes of learners and the contributions of their environments. Learning analytics seeks to provide data and analysis that can be used for this purpose (Fischer et al., 2020). Such data and analyses can detect the use – or lack of use – of important and well-researched components of learning, including retrieval practice, self-explanation, metacognitive self-regulation, performance feedback, and strategy adaptation (Crompton et al., 2020). Successful application of detailed data and analyses can be supported by complex software systems, such as with the use of artificial intelligence (AI) in educational contexts.

Artificial intelligence (AI) describes computing systems performing human-like cognitive and metacognitive processes (Popenici & Kerr, 2017). In higher education, AI use learning analytics to predict low performance among students and then use adaptive learning supports to improve student strategies and metacognitions (Bernacki, Crompton, & Greene 2020). These adaptive supports allow for personalization of the learning experience, customizing, scaffolding, and fading support, and improved outcomes (van de Pol, Volman, & Beishuizen, 2010) with massive scalability. Expanded adoption and development of instructional design tools and learning platforms have led to a focus on the deliberate incorporation of central psychological principles of learning, such as multimedia learning theory and cognitive load, into frameworks informing user interface design (Bernacki et al., 2020). Modern applications of those design principles can be seen in the development of complex content delivery interfaces, such as X-reality systems.

X-reality systems are capable of overlaying, mixing, or subsuming real environments with artificially supplied information (augmented, mixed, and virtual realities, respectively). Research shows that involving X-reality in teaching and learning can facilitate improved learning outcomes (e.g., Al Janabi et al., 2020), provided that design and implementation are informed by well-established psychological principles of learning (Crompton et al., 2020). Such systems can enhance the realism of training environments, enhancing the efficiency for learners establishing their emerging ability to put abstract concepts into practice.

Online and Open-University Teaching and Learning (see also Jesseau, ► Chap. 5, "Teaching the Psychology of Learning"). Finally, online and distance-based education has risen in public consciousness and discourse since the COVID-19 pandemic forced educational systems to find ways to combine continued curriculum delivery with precautions to protect public health and safety (e.g., Aguilera-

Hermida, 2020; Ali, 2020). While online education is a relatively new educational format, its adoption in higher education has become increasingly commonplace (e.g., Gikandi, Morrow, & Davis, 2011; Nguyen, 2015) – including models that blend in-person instruction with some online course delivery.

Despite the relative novelty of online education, researchers and educational theorists have been grappling with the structure, benefits, and challenges of online learning for decades (e.g., Gikandi et al., 2011; Kebritchi, Lipschuetz, & Santiague, 2017; Lou, Bernard, & Abrami, 2006; Means, Toyama, Murphy, Bakia, & Jones, 2009; Nguyen, 2015; Nichols, 2003; Oliver, 1999). Nichols (2003) argued that online learning should be thought of as a new expression of education, and a pedagogy-independent collection of tools for delivering education, rather than as a separate system. Kebritchi et al. (2017) described online education as being "post-secondary and credit bearing coursework completely delivered through online courses via a learning management system" (p. 6).

The broad term "open education" has historically described educational practices aimed at providing inclusion and access to educational opportunities across wider populations (Weller, Jordan, DeVries, & Rolfe, 2018). Cronin (2017) notes that the concept of openness is multidimensional, referring at times to admission standards, cost, resources, or practices. Modern conceptualizations of open education have grown from the expansion of the Open Educational Resources movement and further magnified by the very modern development of open educational practices and massive open online courses (Weller, et al., 2018).

McCutcheon, Lohan, Traynor, & Martin (2015) contend that students can have equivalent, or better, learning outcomes (e.g., Means et al., 2009; Nguyen, 2015) in online courses then they might in face-to-face courses. However, the student outcomes supporting such a position are variable; success frequently depends on factors such as (a) learner characteristics (e.g., readiness for distance learning, self-direction), (b) the structure and delivery of the course, (c) the availability and quality of interaction opportunities between learners and their peers or instructor, and (d) time spent by the learners on learning tasks (e.g., Gikandi et al., 2011; Lou et al., 2006; Means et al., 2009; Nguyen, 2015). Successful online education continues to face numerous challenges: 1) expectations, readiness, and participation of the learner; 2) preparation, time management, and teaching style of the instructor; 3) development, delivery, and instructional strategies for the content; as well as 4) student preparation, instructor development, and logistical support from the institution (Kebritchi et al., 2017).

Assessing Core Competencies: Theory-Based and Evidence-Based Approaches

Summative Assessment (see also Blalock et al., ▶ Chap. 54, "Assessment of Learning in Psychology"). Summative assessment is a process of evaluation defined by Taras (2005) as "a judgement which encapsulates all the evidence up to a given point" (p. 468). Typically, assessment that is summative in nature represents the final evaluation of the state of a learner's mastery of a topic or skill, often tied to a high-stakes decision or certification (e.g., Harrison et al., 2013; Harrison, Könings,

Schuwirth, Wass, & van der Vleuten, 2015; van der Vleuten et al., 2012; Yorke, 2003). In other words, a summative assessment measures the degree to which a learner has met the standard represented by a learning goal, and that measurement facilitates making judgments that are a necessity in the course of education and in everyday life (Taras, 2005).

Many authors agree that summative assessment affects learning, despite its focus on measuring learning outcomes. This is particularly the case given the power of the well-understood "testing effect" (Roediger & Karpicke, 2006), whereby the act of taking tests during learning improves later retrieval. Schwieren, Barenberg, & Dutke (2017), for example, conducted a recent meta-analysis of the contributions of testing to learning in psychology classrooms, finding a moderate benefit from intermediate testing between the initial acquisition of knowledge and a final test of that knowledge, even without the intermediate provision of feedback.

And yet, summative assessments are not without their disadvantages. Boud (2000) suggests that a summative assessment provides a framework for focusing student attention on specific elements of the curriculum, but that such a framework suffers from ambiguity. Others, such as Harrison et al. (2015), have argued that summative assessment focuses learners on a fear of failure, often to the detriment of learning progress.

Still, best practices in summative assessment do help to attenuate some of these risks when close attention is paid to reliability and validity of the assessments, clarity about the standards for achievement, and close connection of the assessment to clearly articulated learning goals (e.g., Kibble, 2017).

Formative Assessment and Feedback Strategies (see also Narciss and Zumbach, ▶ Chap. 55, "Formative Assessment and Feedback Strategies"). Black and Wiliam (1998, 2009) wrote that assessment serves a formative function when it provides information that instructors, learners, and peers can use to modify, support, plan, or facilitate decisions about regulating the process of future learning, in a way that will likely result in better learning outcomes. In other words, assessment is formative insofar as it provides actionable information used in metacognitive processing that is involved in monitoring and directing efforts made toward achieving a learning goal.

This definition of formative assessment provides differentiation from summative assessment by virtue of how the information provided by the assessment is exchanged, interpreted, and applied – rather than by virtue of the form the assessment takes as an information-gathering tool. For instance, Taras (2005) suggests that formative assessment "focuses on the process of assessing and using feedback, whereas summative assessment tends to focus on product" (p. 472). Consequently, assessments can be formative in utility when information is gathered using formalized instruments such as tests and exams or when information is gathered using less formal methods (e.g., Yorke, 2003) such as online discussion boards or verbal exchanges in a classroom setting.

All of these types of assessment have the potential to provide feedback to the instructor, learner, or the learner's peers, in the form of evidence about a learner's current progress or state of mastery. What is critical to applying such assessments formatively is to ensure that this evidence is "used in a way that fits formative

purposes" (Gikandi et al. 2011, p. 2337). In other words, the feedback must be available to, and understood by, the learner, who must also have a chance to apply the feedback to their learning process (Boud, 2000).

Feedback, Black and Wiliam (2009) conclude, is most useful when instructors possess valid models of student learning that allow them to predict in advance which types of feedback will result not only in use by the learner but also in beneficial effects upon learning processes. Like Sadler (1989, 1998), Nicol and Macfarlane-Dick (2006) argued that those benefits should include the development of self-regulated learning – a metacognitive process. In addition, sustained development of self-regulated learning requires the feedback to be in the form of dialectic exchanges between learners, their peers, and their instructors (Nicol & Macfarlane-Dick, 2006). Such exchanges help ensure that feedback is appropriate for, is understood by, and is more likely to be applied successfully by the learner (Black & Wiliam, 2009; Boud, 2000; Nicol, 2010; Nicol & Macfarlane-Dick, 2006; Sadler, 1989, 1998; Yorke, 2003). Boud (2000) calls the practice of this type of assessment "sustainable" because it represents assessment that both "meets the needs of the present and prepares students to meet their own future learning needs" (p. 151).

Still, formative assessments and summative assessments are, by some accounts, not clearly differentiated (Gikandi et al., 2011), and their use is "inextricably woven together" in higher education (Boud, 2000, p. 154), with summative assessment central to – and a necessary condition of – formative assessment (Taras, 2005). Yet others suggest adopting assessment regimes that strategically and purposefully integrate the use of both methods – sometimes called programmatic assessment (e.g., van der Vleuten et al., 2012). Additionally, formative assessments can often overlap in utility with summative assessments, as assessments designed to be formative may also serve summative purposes – providing information about the state of a learner's progress at the time of the assessment (Yorke, 2003).

Finally, it is important to note that the most prototypically summative of in-class assessment tools can also serve a formative purpose if feedback is both provided to, and utilized by, learners to inform their future learning efforts (Gikandi et al. 2011; Taras, 2005). While not all learners make equal use of feedback after summative assessments (e.g., Harrison et al., 2013, 2015; Heeneman, Schut, Donkers, van der Vleuten, & Muijtjens, 2017), Harrison et al. (2013) found that learners who valued feedback more, and those who performed better on summative assessments, were more engaged with available feedback. In sum, it may be difficult to argue that any assessment is not formative in some way, unless the results of the assessment are unavailable to provide feedback for the learner, their peers, or the instructor – or unless all of the parties ignore the information when it is available.

Teaching, Learning, and Assessment Resources

In this chapter, we have woven issues, concepts, theories, and practices with evidence – both historically and contemporarily – into as clear a picture as possible of the field of educational psychology. Thus, we recommend the following practices

for those psychology teachers teaching in higher education with a focus on learning and instruction in the context of educational psychology:

1. Be cognizant of the fact that teaching and learning consists of dynamic human-environment interactions. Thus, when teaching, try and take into account multiple perspectives (e.g., human development, complex cognitive processes, behavioral and social-cognitive views of learning, social-constructivist views of learning, self-regulation and classroom management, classroom assessment strategies, and motivation). However, be sensitive to and embrace the intersectionality of these perspectives within the culture and language of both teachers and learners.
2. Begin the instructional process at the point where students have knowledge as close as possible to the new knowledge they are being asked to build. Students do not think like experts when attempting to learn; instead, their strategic naivete leads them to deploy simple and typically erroneous approaches toward problem-solving. Thus, it is important to guide student learning by scaffolding information and strategies of acquisition from simple to complex, modeling effective knowledge building approaches, and providing feedback and cues during the knowledge construction process.
3. There is a reciprocal and recursive relationship between the lab and the classroom. Keep this relationship in mind because it reflects one of the superordinate learning objectives of educational psychology: to reduce the gap between research and practice in learning.
4. In the year 2020, online learning and teaching rose to the forefront of the public discussion around education – and the practice of education – at all levels, due to a global health pandemic. However, online learning will likely continue to grow in use and in importance, even though a return to traditional classrooms occurred for the majority of teachers and learners worldwide. Online teaching and learning offer the possibility of (a) reducing some of the traditional constraints limiting delivery of education, (b) reducing or eliminating barriers of educational access due to educational inequities, and (c) improving opportunities to learn across age groups, socioeconomic groups, and learning goals. Thus, constructing efficient, accessible, and effective online learning environments has never been more important. Understand and communicate how effective learning and teaching practices can be built and leveraged online.
5. Students can be cognitively and emotionally inspired to change their beliefs about themselves as learners – to become their own champions in taking on the challenges of learning situations they experience as difficult. This can be done by helping students migrate their goals from *performance* goals to *learning* goals while gradually scaling up the difficulty of lessons. Guiding and supporting students away from a focus on performance goals toward learning goals shift their disposition to one of mastery, rather than helplessness. Mastery dispositions empower to students to believe that they can take on more and more challenging tasks and succeed based on their effort rather than their ability.

6. Psychologists have developed principles of effective teaching that can be implemented with relative ease in classrooms. These practices include testing to enhance memory and transfer, distributed practice or spaced learning, metacognitive skills such as reflective note-taking, and interteaching. The application and development of evidence-based teaching practices, such as these, is vital to improving student learning outcomes.
7. Formative assessment should be used as extensively as is practical, bearing in mind the necessity of providing high-quality feedback following assessment performance. The practical considerations include the size of the class, the complexity of the assessment for which feedback will be provided, and the time constraints of the instructor. One way to minimize the time required to provide in-depth feedback to a larger class is to assign low-stakes assessments (such as reading quizzes or quick-writes) during a class meeting. Other options include classroom response technology such as iClickers or PollEverywhere, where it is possible to check knowledge and provide immediate, high-quality, corrective feedback to the entire class at once.

Recommended Readings and Resources

Berliner, D. C. (2006). Educational psychology: Searching for essence throughout a century of influence. In P.A. Alexander and P. H. Winne (Eds.), *Handbook of educational psychology* (pp. 3–28). Routledge. Berliner has produced a (now-classic) comprehensive analysis that traces the history and development of ideas about what educational psychology should be as a discipline, across the course of the twentieth century. In this (2006) update to his earlier (1999) version, he reflects on how those ideas have developed and changed while discussing the intertwined influences of theory, research, and practice on the current (2006) state of the field. By producing a clear and comprehensible description of the educational psychology, Berliner (2006) both highlights the ideas and debates that are structural to the discipline, and he challenges current and future educational psychologists to continue pushing toward a fulfillment of the discipline's promise and potential.

Cranney, J. (2013). Towards psychological literacy: A snapshot of evidence-based learning and teaching. *Australian Journal of Psychology*, *65*, 1–4. In a brief introduction to a special issue of the *Australian Journal of Psychology*, Cranney (2013) succinctly calls for a move toward the scholar-teacher model. This call underscores two important points about psychology in education. First, dissemination of psychological knowledge and facilitating an understanding of how such knowledge is produced – especially to people who will not become psychologists themselves – are part of the responsibility of psychologists as educators. She calls this responsibility the production of psychological literacy. Second, effective dissemination of this goal requires psychologists to apply what they know about human learning to the aim of producing psychological literacy. Thus, a teacher-scholar uses existing knowledge to implement evidence-based teaching techniques and then

observes the resulting effect on learning. Observations are reported to the psychological community. The teacher-scholar makes adjustments to their teaching practice, and the cycle of refinement and testing begins again. Despite acknowledged challenges to implementing such a model, Cranney suggests that aspiring to this "gold standard" is both possible and necessary.

Kirschner, P.A., and Hendrick, C. (2020). How learning happens: Seminal works in educational psychology and what they mean in practice. Routledge. This book is a compendium of seminal works designed to inventory and explain the most important papers published in the field of learning and teaching. As such, the book not only is a historical record of the major thinkers in the field but also provides the most important research findings that have formed the bedrock for educational psychology's best practices. As Schwartz (2020) wrote, "the authors give voice, reason, and seasoned erudition to the findings, perspectives, and applications of these classics—in short, a level of percipience that is well-nigh beyond what most authors are typically able to do"(p.120).

Taras, M. (2005). Assessment – summative and formative – some theoretical reflections. *British Journal of Educational Studies*, *53*(4), 466–478. We have suggested here that testing and assessment form a core piece of effective teaching. We have cited many theorists and researchers (e.g., Black & Wiliam, 2009; Gikandi et al., 2011) who have reflected in some depth on assessment, particularly formative assessment. Numerous authors discuss both formative and summative assessment – at least briefly. Taras (2005) differs from others we have cited by virtue of her in-depth consideration of the application, appropriateness, and interrelationship of *both* summative assessment and formative assessment within the same discussion. She argues that using both forms of assessment is critical to developing, refining, and producing an effective educational environment. In addition, she makes a strong effort in this discussion to more clearly define each assessment type, along with describing the role of each in the classroom – an issue that psychologists continue to struggle with.

Other valuable digital resources include:

1. https://www.learningscientists.org/downloadable-materials. These free resources were put together by cognitive psychologists interested in education and are based on research from cognitive psychology. The site suggests that these materials be used to provide flexible guiding principles to help guide learning.
2. https://www.retrievalpractice.org/library. These are additional free resources, also put together by a team of cognitive psychologists. This site condenses cognitive and educational research related to teaching strategies, why they enhance learning, and how to implement them in the classroom.
3. https://theeffortfuleducator.com/downloadables/. This website was designed by a high school psychology teacher who wanted to highlight the connections between research being done on learning, memory, and cognition and the classroom. The website contains many resources directly relevant to teaching (e.g., how to enhance multiple-choice questions).

Cross-References

- ▶ Assessment of Learning in Psychology
- ▶ Basic Principles and Procedures for Effective Teaching in Psychology
- ▶ First Principles of Instruction Revisited
- ▶ Formative Assessment and Feedback Strategies
- ▶ Inquiry-Based Learning in Psychology
- ▶ Problem-Based Learning and Case-Based Learning
- ▶ Psychology in Teacher Education
- ▶ Service Learning
- ▶ Small Group Learning
- ▶ Teaching the Psychology of Learning
- ▶ Technology-Enhanced Psychology Learning and Teaching

References

Abd-El-Khalick, F., Boujaoude, S., Duschl, R., Lederman, N. G., Mamlok-Naaman, R., Hofstein, A., … Tuan, H. L. (2004). Inquiry in science education: International perspectives. *Science Education, 88*(3), 397–419.

Adler, M. (Ed.). (1952). *The great ideas: A syntopicon of the great books of the Western world*. Encyclopedia Britannica.

Aguilera-Hermida, A. P. (2020). College students' use and acceptance of emergency online learning due to Covid-19. *International Journal of Educational Research Open, 1*(2020), 100011.

Alba, J. W., & Hasher, L. (1983). Is memory schematic? *Psychological Bulletin, 93*(2), 203.

Al Janabi, H. F., Aydin, A., Palaneer, S., Macchione, N., Al-Jabir, A., Khan, M. S., … Ahmed, K. (2020). Effectiveness of the HoloLens mixed-reality headset in minimally invasive surgery: A simulation-based feasibility study. *Surgical Endoscopy, 34*(3), 1143–1149.

Aleven, V., McLaughlin, E. A., Glenn, R. A., & Koedinger, K. R. (2016). Instruction based on adaptive learning technologies. In R. E. Mayer & P. Alexander (Eds.), *Handbook of research on learning and instruction* (pp. 522–560). Taylor & Francis.

Alfieri, L., Brooks, P. J., Aldrich, N. J., & Tenenbaum, H. R. (2011). Does discovery-based instruction enhance learning? *Journal of Educational Psychology, 103*(1), 1–18.

Ali, W. (2020). Online and remote learning in higher education institutes: A necessity in light of COVID-19 pandemic. *Higher Education, 10*(3), 16–25.

American Psychological Association. (2012). *A practical guidebook for the competency benchmarks*. American Psychological Association.

American Psychological Association. (2016). Revision of Ethical Standard 3.04 of the "Ethical Principles of Psychologists and Code of Conduct" (2002, as amended 2010). *The American Psychologist*, *71*(9), 900.

Anderson, L. M., Blumenfeld, P., Pintrich, P. R., Clark, C. M., Marx, R. W., & Peterson, P. (1995). Educational psychology for teachers: Reforming our courses, rethinking our roles. *Educational Psychologist, 30*(3), 143–157.

APA Presidential Task Force on Evidence-Based Practice. (2006). Evidence-based practice in psychology. *The American Psychologist, 61*(4), 271.

Ausubel, D. P. (1960). The use of advance organizers in the learning and retention of meaningful verbal material. *Journal of Educational Psychology, 51*(5), 267.

Ausubel, D. P. (1968). *Educational Psychology: A cognitive view*. Holt Rinehart and Winston.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191.

Berliner, D. C. (1993). The 100-year journey of educational psychology: From interest, to disdain, to respect for practice. In T. K. Fagan & G. R. VandenBos (Eds.), *Master lectures in psychology. Exploring applied psychology: Origins and critical analyses* (pp. 37–78). American Psychological Association. https://doi-org.mantis.csuchico.edu/10.1037/11104-002

Berliner, D. C. (2006). Educational psychology: Searching for essence throughout a century of influence. In I. P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (pp. 3–28). Routledge.

Bernacki, M. L., Crompton, H., & Greene, J. A. (2020). Towards convergence of mobile and psychological theories of learning. *Contemporary Educational Psychology, 60*(2020), 101828.

Berninger, V. W. (Ed.). (2012). *Past, present, and future contribution of cognitive writing research to cognitive psychology*. Psychology Press.

Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice, 5*(1), 7–74.

Black, P., & Wiliam, D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation and Accountability, 21*(1), 5–31.

Boland, J. A. (2014). Orientations to civic engagement: Insights into the sustainability of a challenging pedagogy. *Studies in Higher Education, 39*(1), 180–195.

Boud, D. (2000). Sustainable assessment: Rethinking assessment for the learning society. *Studies in Continuing Education, 22*(2), 151–167.

Boyce, T. E., & Hineline, P. N. (2002). Interteaching: A strategy for enhancing the user-friendliness of behavioral arrangements in the college classroom. *The Behavior Analyst, 25*(2), 215–226.

Boyle, J., & Kelly, B. (2016). The role of evidence in educational psychology. In B. Kelly, L. M. Woolfson, & J. Boyle (Eds.), *Frameworks for practice in educational psychology: A textbook for trainees and practitioners* (2nd ed.). Jessica Kingsley Publishers.

Bransford, J. D., Brown, A. L., & Cocklin, R. R. (2000). How people learn: Brain, mind, experience, and school: Expanded edition. In National Research Council (Ed.), *Early childhood development and learning: New knowledge for policy* (pp. 57–86). National Academy Press.

Brown, M., McCormack, M., Reeves, J., Brooks, D. C., Grajek, S., Alexander, B., … Weber, N. (2020). *2020 Educause horizon report: Teaching and learning edition*. EDUCAUSE.

Burgess, A. W., McGregor, D. M., & Mellis, C. M. (2014). Applying established guidelines to team-based learning programs in medical schools: A systematic review. *Academic Medicine, 89*(4), 678–688.

Buskist, W. (2013). Preparing the new psychology professoriate to teach: Past, present, and future. *Teaching of Psychology, 40*(4), 333–339.

Butler, A. C., & Roediger, H. L., III. (2007). Testing improves long-term retention in a simulated classroom setting. *European Journal of Cognitive Psychology, 19*(4–5), 514–527.

Carpenter, S. K. (2012). Testing enhances the transfer of learning. *Current Directions in Psychological Science, 21*(5), 279–283.

Cepeda, N. J., Pashler, H., Vul, E., Wixted, J. T., & Rohrer, D. (2006). Distributed practice in verbal recall tasks: A review and quantitative synthesis. *Psychological Bulletin, 132*(3), 354–380.

Charles, D. C. (1987). The emergence of educational psychology. In J. A. Glover & R. R. Ronning (Eds.), *Historical foundations of educational psychology*. Plenum Press.

Chi, M. T., Feltovich, P. J., & Glaser, R. (1981). Categorization and representation of physics problems by experts and novices. *Cognitive Science, 5*(2), 121–152.

Clark, J. M., & Paivio, A. (1991). Dual coding theory and education. *Educational Psychology Review, 3*(3), 149–210.

Collins, A. (1991). Cognitive apprenticeship and instructional technology. *Educational values and cognitive instruction: Implications for reform, 1991*, 121–138.

Collins, A., Brown, J. S., & Holum, A. (1991). Cognitive apprenticeship: Making thinking visible. *American Educator, 15*(3), 6–11.

Craik, F. I., & Lockhart, R. S. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal Behavior, 11*(6), 671–684.

Cranney, J., & Dunn, D. S. (Eds.). (2011). *The psychologically literate citizen: Foundations and global perspectives*. Oxford University Press.

Cranney, J., & Voudouris, N. J. (2012). Psychology education and training in Australia: Shaping the future. In S. McCarthy, K. L. Dickson, J. Cranney, V. Karandashev, & A. Trapp (Eds.), *Teaching psychology around the world* (Vol. 3, pp. 2–14). Cambridge Scholars Press.

Cranney, J. (2013). Towards psychological literacy: A snapshot of evidence-based learning and teaching. *Australian Journal of Psychology, 65*, 1–4.

Crompton, H., Bernacki, M., & Greene, J. A. (2020). Psychological foundations of emerging technologies for teaching and learning in higher education. *Current Opinion in Psychology, 36*, 101–105.

Cronin, C. (2017). Openness and praxis: Exploring the use of open educational practices in higher education. *The International Review of Research in Open and Distance Learning, 18*(5), 15–34.

Darling-Hammond, L., & Baratz-Snowden, J. (2007). A good teacher in every classroom: Preparing the highly qualified teachers our children deserve. *Educational Horizons, 85*(2), 111–132.

de Jong, T., Sotiriou, S., & Gillet, D. (2014). Innovations in STEM education: The Go-Lab federation of online labs. *Smart Learning Environments, 1*(3), 1–16.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest, 14*(1), 4–58.

Dunn, D. S., Saville, B. K., Baker, S. C., & Marek, P. (2013). Evidence-based teaching: Tools and techniques that promote learning in the psychology classroom. *Australian Journal of Psychology, 65*(1), 5–13.

Dunn, D. S. (1994). Lessons learned from an interdisciplinary-writing course: Implications for student writing in psychology. *Teaching of Psychology, 21*(4), 223–227.

Dunn, D. (2011). *A short guide to writing about psychology* (3rd ed.). Longman.

Dutke, S., Bakker, H. E., Papageorgi, I., & Taylor, J. (2017). PLAT 16 (2) 2017: Introduction to the special issue on evidence-based teaching (EBT): Examples from learning and teaching psychology. *Psychology of Learning & Teaching, 16*(2), 175–178.

Dutke, S., Bakker, H., Sokolová, L., Stuchlikova, I., Salvatore, S., & Papageorgi, I. (2019). Psychology curricula for non-psychologists? A framework recommended by the European Federation of Psychologists' Associations' Board of Educational Affairs. *Psychology Learning & Teaching, 18*(2), 111–120.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*(2), 256.

Educational Testing Service. (2004). *Study guide: Principles of learning and teaching* (2nd ed.). Educational Testing Service.

Educational Testing Service. (2009). *About the praxis series™ tests*. Educational Testing Service.

Fischer, C., Pardos, Z. A., Baker, R. S., Williams, J. J., Smyth, P., Yu, R., … Warschauer, M. (2020). Mining big data in education: Affordances and challenges. *Review of Research in Education, 44*(1), 130–160.

Fiske, E. B. (2002). *Learning in deed: The power of service-learning for American schools*. National Commission on Service-Learning.

Furtak, E. M., Seidel, T., Iverson, H., & Briggs, D. C. (2012). Experimental and quasi-experimental studies of inquiry-based science teaching: A meta-analysis. *Review of Educational Research, 82*(3), 300–329.

Gikandi, J. W., Morrow, D., & Davis, N. E. (2011). Online formative assessment in higher education: A review of the literature. *Computers & Education, 57*(4), 2333–2351.

Greenwood, G. E., & Fillmer, H. T. (1999). *Educational psychology cases for teacher decision-making*. Merrill.

Gurung, R. A., Hackathorn, J., Enns, C., Frantz, S., Cacioppo, J. T., Loop, T., & Freeman, J. E. (2016). Strengthening introductory psychology: A new model for teaching the introductory course. *American Psychologist, 71*(2), 112–124.

Haidet, P., Kubitz, K., & McCormack, W. T. (2014). Analysis of the team-based learning literature: TBL comes of age. *Journal on Excellence in College Teaching, 25*(3–4), 303–333.

Harrison, C. J., Könings, K. D., Molyneux, A., Schuwirth, L. W., Wass, V., & van der Vleuten, C. P. (2013). Web-based feedback after summative assessment: How do students engage? *Medical Education, 47*(7), 734–744.

Harrison, C. J., Könings, K. D., Schuwirth, L., Wass, V., & van der Vleuten, C. (2015). Barriers to the uptake and use of feedback in the context of summative assessment. *Advances in Health Sciences Education, 20*(1), 229–245.

Hattie, J. (2009). *Visible learning. A synthesis of over 800 meta-analyses relating to achievement*. Routledge.

Hattie, J. (2012). *Visible learning for teachers: Maximizing impact on learning*. Routledge.

Heeneman, S., Schut, S., Donkers, J., van der Vleuten, C., & Muijtjens, A. (2017). Embedding of the progress test in an assessment program designed according to the principles of programmatic assessment. *Medical Teacher, 39*(1), 44–52.

Hmelo, C. E. (1998). Problem-based learning: Effects on the early acquisition of cognitive skill in medicine. *Journal of Learning Science, 7*(2), 173–208.

Hoy, A. W. (2019). *Educational psychology.* Pearson.

Hung, W., Jonassen, D. H., & Liu, R. (2008). Problem-based learning. In: *Handbook of Research on Educational Communications and Technology, 3*(1), 485–506.

Interstate New Teacher Assessment and Support Consortium. (1992). Model standards for beginning teacher licensing, assessment and development: A resource for state dialogue. Interstate New Teacher Assessment and Support Consortium.

James, W. (1890). *Principles of psychology.* New York: Henry Holt. Reprinted*:* Harvard.

James, W. (1983). *Talks to teachers on psychology and to students on some of life's ideals*. Harvard University Press. (Original work published 1899).

Karpicke, J. D., Butler, A. C., & Roediger, H. L., III. (2009). Metacognitive strategies in student learning: Do students practise retrieval when they study on their own? *Memory, 17*(4), 471–479.

Katz, J., DuBois, M., & Wigderson, S. (2014). Learning by helping? Undergraduate communication outcomes associated with training or service-learning experiences. *Teaching of Psychology, 41*(3), 251–255.

Kebritchi, M., Lipschuetz, A., & Santiague, L. (2017). Issues and challenges for teaching successful online courses in higher education: A literature review. *Journal of Educational Technology Systems, 46*(1), 4–29.

Kelly, B. (2016). Frameworks for practice in educational psychology. In B. Kelly, L. M. Woolfson, & J. Boyle (Eds.), *Frameworks for practice in educational psychology: A textbook for trainees and practitioners* (2nd ed.). Jessica Kingsley Publishers.

Keselman, A. (2003). Supporting inquiry learning by promoting normative understanding of multivariable causality. *Journal of Research in Science Teaching, 40*(9), 898–921.

Kibble, J. D. (2017). Best practices in summative assessment. *Advances in Physiology Education, 41*, 110–119.

Kirschner, P. A., & Hendrick, C. (2020). *How learning happens: Seminal works in educational psychology and what they mean in practice*. Routledge.

Klieme, E., & Maag Merki, K. (2008). Introduction of educational standards in German-speaking countries. In J. Hartig, E. Klieme, & D. Leutner (Eds.), *Assessment of competencies in educational contexts* (pp. 215–224). Hogrefe.

Lazonder, A. W., & Harmsen, R. (2016). Meta-analysis of inquiry-based learning: Effects of guidance. *Review of Educational Research, 86*(3), 681–718.

Liu, S. N. C., & Beaujean, A. A. (2017). The effectiveness of team-based learning on academic outcomes: A meta-analysis. *Scholarship of Teaching and Learning in Psychology, 3*(1), 1–14.

Lohse-Bossenz, H., Kunina-Habenicht, O., & Kunter, M. (2013). The role of educational psychology in teacher education: Expert opinions on what teachers should know about learning, development, and assessment. *European Journal of Psychology of Education, 28*(4), 1543–1565.

Lou, Y., Bernard, R. M., & Abrami, P. C. (2006). Media and pedagogy in undergraduate distance education: A theory-based meta-analysis of empirical literature. *Educational Technology Research and Development, 54*(2), 141–176.

Macías Gomez-Estern, B., Arias-Sánchez, S., Marco Macarro, M. J., Cabillas Romero, M. R., & Martínez Lozano, V. (2019). Does service learning make a difference? Comparing students' valuations in service learning and non-service learning teaching of psychology. *Studies in Higher Education*, 1–11.

McCutcheon, K., Lohan, M., Traynor, M., & Martin, D. (2015). A systematic review evaluating the impact of online or blended learning vs. face-to-face learning of clinical skills in undergraduate nurse education. *Journal of Advanced Nursing, 71*(2), 255–270.

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies. US Department of Education.

Merrill, M. D. (2002). First principles of instruction. *Educational Technology Research and Development, 50*(3), 43–59.

Mayer, R. E. (2005). Cognitive theory of multimedia learning. *The Cambridge handbook of multimedia learning, 41*, 31–48.

Meyer, C. L., Harned, M., Schaad, A., Sunder, K., Palmer, J., & Tinch, C. (2016). Inmate education as a service learning opportunity for students: Preparation, benefits, and lessons learned. *Teaching of Psychology, 43*(2), 120–125.

Michaelsen, L. K., & Sweet, M. (2008). The essential elements of team-based learning. *New Directions for Teaching and Learning, 2008*(116), 7–27.

Narciss, S. (2019). Curriculum design for (non-) psychology programs–a reflection on general and specific issues, and approaches on how to address them: Comment on Dutke et al., 2019. *Psychology Learning & Teaching, 18*(2), 144–147.

Nash, J. M., & Larkin, K. T. (2012). Geometric models of competency development in specialty areas of professional psychology. *Training and Education in Professional Psychology, 6*(1), 37.

National Center for Education Statistics. (2019). Integrated postsecondary education data system (IPEDS) fall 2000 through fall 2018, completions component. US Department of Education.

National Council for the Accreditation of Teacher Education. (2008). Professional standards for the accreditation of teacher preparation institutions. National Council for the Accreditation of Teacher Education.

Nguyen, T. (2015). The effectiveness of online learning: Beyond no significant difference and future horizons. *MERLOT Journal of Online Learning and Teaching, 11*(2), 309–319.

Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education, 31*(2), 199–218.

Nicol, D. (2010). From monologue to dialogue: Improving written feedback processes in mass higher education. *Assessment & Evaluation in Higher Education, 35*(5), 501–517.

Nichols, M. (2003). A theory for eLearning. *Journal of Educational Technology & Society, 6*(2), 1–10.

Oliver, R. (1999). Exploring strategies for online teaching and learning. *Distance Education, 20*(2), 240–254.

Ormrod, J. E. (2006). Commentary: Similarities and differences among educational psychology textbooks: An author's perspective. *Teaching Educational Psychology, 1*(3), 1–4.

Ormrod, J. E., Anderman, E. M., & Anderman, L. H. (2020). *Educational psychology: Developing learners*. Pearson.

Ormrod, J. E., & McGuire, D. J. (Eds.). (2007). *Case studies: Applying educational psychology* (2nd ed.). Merrill.

Parmelee, D., Michaelsen, L. K., Cook, S., & Hudes, P. D. (2012). Team-based learning: A practical guide: AMEE guide no. 65. *Medical Teacher, 34*(5), e275–e287.

Patrick, H., Anderman, L. H., Bruening, P. S., & Duffin, L. C. (2011). The role of educational psychology in teacher education: Three challenges for educational psychologists. *Educational Psychologist, 46*(2), 71–83.

Palincsar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction, 1*(2), 117–175.

Pedaste, M., Mäeots, M., Siiman, L. A., De Jong, T., Van Riesen, S. A., Kamp, E. T., … Tsourlidaki, E. (2015). Phases of inquiry-based learning: Definitions and the inquiry cycle. *Educational Research Review, 14*(2015), 47–61.

Peterson, R. L., Peterson, D. R., Abrams, J. C., Stricker, G., & Ducheny, K. (2010). The National Council of schools and programs of professional psychology: Educational model 2009. In M. B. Kenkel & R. L. Peterson (Eds.), *Competency-based education for professional psychology* (pp. 13–42). American Psychological Association.

Petticrew, M., & Roberts, H. (2003). Evidence, hierarchies, and typologies: Horses for courses. *Journal of Epidemiology & Community Health, 57*(7), 527–529.

Pilcher, J., & Bedford, L. A. (2011). Hierarchies of evidence in education. *The Journal of Continuing Education in Nursing, 42*(8), 371–377.

Pintrich, P. R. (2000). Multiple goals, multiple pathways: The role of goal orientation in learning and achievement. *Journal of Educational Psychology, 92*(3), 544.

Popenici, S. A., & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. *Research and Practice in Technology Enhanced Learning, 12*(1), 1–13.

Queensland College of Teachers, Professional Standards Unit. (2011). *Australian professional standards for teachers*. Queensland College of Teachers.

Quintilian, F. B. (1953). *Institutio oratoria* (4 Vols.; H. E. Butler, Trans.). Harvard University Press.

Quintilian, F. B. (1966). *Quintilian on education* (W. M. Smail, Trans.). Teachers College Press.

Reigeluth, C. M., & Stein, F. (1983). The elaboration theory of instruction. In C. M. Reigeluth (Ed.), *Instructional design theories and models* (pp. 335–381). Erlbaum.

Rockquemore, K. A., & Harwell Schaffer, R. (2000). Toward a theory of engagement: A cognitive mapping of service-learning experiences. *Michigan Journal of Community Service Learning, 7*(1), 14–25.

Rodolfa, E., Bent, R., Eisman, E., Nelson, P., Rehm, L., & Ritchie, P. (2005). A cube model for competency development: Implications for psychology educators and regulators. *Professional Psychology: Research and Practice, 36*(4), 347.

Roediger, H. L., III, & Karpicke, J. D. (2006). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science, 17*(3), 249–255.

Sadler, D. R. (1989). Formative assessment and the design of instructional systems. *Instructional Science, 18*(2), 119–144.

Sadler, D. R. (1998). Formative assessment: Revisiting the territory. *Assessment in Education: Principles, Policy & Practice, 5*(1), 77–84.

Santrock, J. W. (2021). *Educational psychology*. McGraw-Hill.

Saville, B. K., & Zinn, T. E. (2009). Interteaching: The effects of quality points on exam scores. *Journal of Applied Behavior Analysis, 42*(2), 369–374.

Saville, B. K., Lambert, T., & Robertson, S. (2011). Interteaching: Bringing behavioral education into the 21st century. *The Psychological Record, 61*(1), 153–165.

Schwieren, J., Barenberg, J., & Dutke, S. (2017). The testing effect in the psychology classroom: A meta-analytic perspective. *Psychology Learning & Teaching, 16*(2), 179–196.

Shek, D. T. L., Ma, C. M. S., & Yang, Z. (2019). Transformation and development of university students through service-learning: A corporate-community-university partnership initiative in Hong Kong (Project WeCan). *Applied Research in Quality of Life, 15*(2020), 1375–1393.

Sibley, J., & Ostafichuk, P. (2015). Getting started with team-based learning. Stylus Publishing, LLC.

Slavin, R. E. (2021). *Educational psychology: Theory and practice*. Pearson.

Slovak Centre of Scientific and Technical Information. (2018). *Štatistická ročenka - vysoké školy [Statistic yearbook – higher education]*. Ministerstvo školstva, vedy, výskumu a športu Slovenskej Republiky [Ministry of Education, Science, Research and Sports of the Slovak Republic].

Snowman, J., & McCown, R. R. (2015). *Educational psychology*. Wadsworth/Cengage Learning.

Statistisches Bundesamt. (2017). *Bildung und Kultur. Prüfungen an Hochschulen 2016 [Education and culture. Examinations at universities 2016]*. Statistisches Bundesamt.

Sudzina, M. R. (1997). Case study as a constructivist pedagogy for teaching educational psychology. *Educational Psychology Review, 9*(2), 199–218.
Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science, 12*(2), 257–285.
Sweller, J. (2020). Cognitive load theory and educational technology. *Educational Technology Research and Development, 68*(1), 1–16.
Taras, M. (2005). Assessment–summative and formative–some theoretical reflections. *British Journal of Educational Studies, 53*(4), 466–478.
Thorndike, E. L. (1910). The contribution of psychology to education. *Journal of Educational Psychology, 1*, 5–12.
Training and Development Agency for Schools. (2007). Professional standards for teachers. Training and Development Agency.
Trapp, A., Banister, P., Ellis, J., Latto, R., Miell, D., & Upton, D. (2011). The future of undergraduate psychology in the United Kingdom. Higher Education Academy Psychology Network, University of York.
Van de Pol, J., Volman, M., & Beishuizen, J. (2010). Scaffolding in teacher–student interaction: A decade of research. *Educational Psychology Review, 22*(3), 271–296.
van der Vleuten, C. P., Schuwirth, L. W. T., Driessen, E. W., Dijkstra, J., Tigelaar, D., Baartman, L. K. J., & van Tartwijk, J. (2012). A model for programmatic assessment fit for purpose. *Medical Teacher, 34*(3), 205–214.
van Rens, L., Van Dijk, H., Mulder, J., & Nieuwland, P. (2013). Using a web application to conduct and investigate syntheses of methyl orange remotely. *Journal of Chemical Education, 90*(5), 574–577.
VanLehn, K. (2011). The relative effectiveness of human tutoring, intelligent tutoring systems, and other tutoring systems. *Educational Psychologist, 46*(4), 197–221.
Vives, J. L. (1913). De tradendis disciplinis. In *Vives on education* (F. Watson, Trans.). Cambridge University Press. (Original work published 1531).
Wahlheim, C. N., Dunlosky, J., & Jacoby, L. L. (2011). Spacing enhances the learning of natural concepts: An investigation of mechanisms, metacognition, and aging. *Memory & Cognition, 39*(5), 750–763.
Watson, R. I. (1961). A brief history of educational psychology. *Psychological Record, 11*, 209–242.
Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92*(4), 548.
Weller, M., Jordan, K., DeVries, I., & Rolfe, V. (2018). Mapping the open education landscape: Citation network analysis of historical open and distance education research. *Open Praxis, 10*(2), 109–126.
Wiggins, S., Chiriac, E. H., Abbad, G. L., Pauli, R., & Worrell, M. (2016). Ask not only 'what can problem-based learning do for psychology?' but 'what can psychology do for problem-based learning?' A review of the relevance of problem-based learning for psychology teaching and research. *Psychology Learning & Teaching, 15*(2), 136–154.
Wilson-Doenges, G., & Gurung, R. A. R. (2013). Benchmarks for scholarly investigations of teaching and learning. *Australian Journal of Psychology, 65*(1), 63–70.
Woolfolk Hoy, A. (1996). Teaching educational psychology: Texts in context. *Educational Psychologist, 31*(1), 41–49.
Woolfolk Hoy, A. (2000). Educational psychology in teacher education. *Educational Psychologist, 35*(4), 257–270.
Woolfolk Hoy, A. (2008). *Educational psychology in teacher education*. Teachers College Record.
Yorke, M. (2003). Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice. *Higher Education, 45*(4), 477–501.
Zheng, L., Li, X., Tian, L., & Cui, P. (2018). The effectiveness of integrating mobile devices with inquiry-based learning on students' learning achievements: A meta-analysis. *International Journal of Mobile Learning and Organisation, 12*(1), 77–95.
Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology, 81*(3), 329.

Neuroscience in the Psychology Curriculum 16

Jennifer Parada and Leighann R. Chaffee

Contents

J. Parada (✉)
Bellevue College, Bellevue, WA, USA
e-mail: jennifer.parada@bellevuecollege.edu

L. R. Chaffee
University of Washington, Tacoma, Tacoma, WA, USA
e-mail: LChaffee@uw.edu

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Abstract

Neuroscience, as an academic concentration and area of research, has grown significantly in past decades and has influenced the content and methods of closely related fields. Psychology programs have expanded biopsychology course offerings, increased the hiring of faculty with neuroscience academic concentrations, and provide considerable emphasis on the biology of behavior in introductory psychology courses. The goals of this chapter are to provide instructors with an understanding of neuroscience content in psychology programs, outline the competencies that students gain from taking biopsychology courses, and offer teaching resources. The chapter begins with a review of the history of neuroscience, including its current role in psychology programs and in shaping undergraduate curriculum. We then outline biopsychology competencies and organize content into three core concepts: foundational knowledge of the nervous system, application of the foundational knowledge, and understanding the clinical/social impact. Each core concept is connected to prompts for addressing influential themes in biopsychology (scientific literacy, evolution, and neuroplasticity and adaptability). Example learning activities and teaching resources that align with core concepts and themes are provided. The final sections of the chapter discuss the opportunities, challenges, and lessons learned in teaching biopsychology with evidence-based pedagogical approaches, including self-regulated learning, active learning through the use of high-impact practices, centering professional development skills through course work, and tips for successful instruction.

Keywords

Teaching neuroscience · Teaching biopsychology · Evidence-based teaching · Self-regulated learning · High-impact practices

Introduction

Neuroscience is an interdisciplinary field, drawing from disciplines like psychology, biology, mathematics, and chemistry to investigate nervous system functions (Stead, Wiseman, & Hellemans, 2019). Applying a neuroscientific level of analysis to psychological phenomena, for instance, pinpointing the biological correlates of cognition, emotion, and mental illnesses, has grown significantly in recent decades (Schwartz, Lilienfeld, Meca, & Sauvigné, 2016). This *neuroscience movement* within psychology has not only influenced areas of research and experimental methods but has also impacted the training and requisite knowledge of psychology

students (Homa et al., 2013; Norcross et al., 2016). This chapter aims to provide instructors a foundation for teaching biopsychology courses (also titled "physiological psychology," "biological psychology," or "behavioral neuroscience") by summarizing the role of neuroscience in psychology programs, discussing core content areas in biopsychology, including learning activities and resources, outlining assessment options, and overcoming teaching challenges.

The History of Neuroscience in Psychology

The field of neuroscience was initially concerned with understanding the electrical and chemical properties of neurons, localized functions of brain regions, development and organization of neural tissue, and functions of neurotransmitters (Palermo & Morese, 2019; Stead et al., 2019). The foundational basis of neuroscience has expanded rapidly in the past century, resulting in many disciplines adopting neuroscientific approaches and methodologies, with psychology being no exception. Psychology has become a top area of research in neuroscience (Yeung, Goto, & Leung, 2017), and neuroscience-driven subfields of psychology, including behavioral and cognitive neuroscience, social neuroscience, evolutionary psychology, and comparative neuroscience, have expanded. Technological advances, particularly in imaging and microscopy, have made it more feasible to incorporate neuroscience variables into behavioral science research (Schwartz et al., 2016; Yeung et al., 2017). This growth is also attributed to increases in funding, the growing number of individuals with advanced neuroscience degrees, and the general public's growing interest in the brain (Akil et al., 2016).

Neuroscientific findings greatly inform our understanding of behavior and cognition; yet, the early allure of neuroscience information perpetuated several unsupported claims about the brain and behavior. For instance, the emergence of "brain-based learning" led many educators to trust myths like brain hemisphere dominance and learning styles (Bowers, 2016; Goswami, 2006; Lindell & Kidd, 2011), which could have negatively impacted instruction quality and led to misuse of instructional resources. Fortunately, the belief in neuroscience myths has decreased among educators and experts alike. The general public and students continue to perceive psychological explanations that contain neuroscience information as more compelling, even when the neuroscience information is irrelevant or inaccurate (see Weisberg, Keil, Goodstein, Rawson, & Gray, 2008). This suggests that the way we use neuroscience information to interpret psychological phenomena matters, particularly for those that do not have a thorough understanding of neuroscience and the philosophy of science.

Science communication and outreach have not always been prioritized or regarded as essential for neuroscience students (Kerchner, Hardwick, & Thornton, 2012). Fortunately, undergraduate and graduate training programs have made significant efforts to center science communication across disciplines and accurate representation of findings to combat the misapplication of neuroscientific information (Akil et al., 2016; Brownell, Price, & Steinman, 2013). Similarly, psychology

programs are recommended to provide students with a broad knowledge base of psychology, incorporating multiple levels of analysis (e.g., biological, social, developmental, cultural) while fostering critical thinking skills (Schwartz et al., 2016). This chapter highlights influential themes and learning activities across core content areas in biopsychology as ways to promote critical thinking. The themes of scientific literacy and research, genetics and evolutionary influences, and neuroplasticity and adaptability align with content- and skill-based competencies outlined in this chapter and by other neuroscience education groups (e.g., Faculty for Undergraduate Neuroscience; Kerchner et al., 2012). These themes, outlined in subsequent sections, provide students with opportunities to critically evaluate the course content and their learning.

Given the rapid growth and application of neuroscience in psychology, it is no surprise that undergraduate psychology programs have also shifted toward highlighting the biological correlates of behavior, from introductory psychology courses through advanced course work.

Neuroscience in Undergraduate Psychology Programs

Neuroscience content is heavily incorporated into the undergraduate psychology curriculum. Homa et al. (2013) found that introductory psychology instructors spend significantly more time covering biopsychology content compared to other areas like social, clinical, or developmental psychology. This focus on biopsychology content in introductory psychology could reflect the role neuroscience plays in our understanding of behavior, an increase in the number of instructors with a specialty in neuroscience (Akil et al., 2016), and the fact that foundational neuroscience content can be applied to several psychological domains (e.g., brain development across the lifespan, the neurological correlates of psychological disorders). In fact, Gurung et al.'s (2016) model for introductory psychology content coverage highlights biology as a major pillar/domain of knowledge. Despite the reasoning, from the beginning of their undergraduate education, psychology students' understanding of behavior is shaped considerably by a biopsychological perspective.

Introductory biopsychology courses are commonly offered (Norcross et al., 2016). The number of psychology programs in the United States that offer such a course has increased from 89% in 2005 to 93% in 2013. Despite the rise in biopsychology course offerings, there remains substantial variability in the number of programs that require students to take biopsychology to fulfill degree requirements (Norcross et al., 2016; Stoloff et al., 2009). Estimates suggest that only between 25 and 49% of programs require biopsychology, while the rest of programs give students the option to pick biopsychology out of a group of other required courses or count the course as an elective. It is rare for universities to offer a dedicated major in biopsychology (Stoloff et al., 2009), and only about 1% of students in the biological and life sciences major in cognitive science and biopsychology (Carnevale, Strohl, & Melton, 2013).

The variability in biopsychology requirements is particularly interesting as it is a popular course and has been shown to benefit psychology students in several ways. Betancur, Rottman, Votruba-Drzal, and Schunn (2019) found that high performance in biopsychology (and research methods) was uniquely predictive of high performance in subsequent psychology courses. Content covered in biopsychology and research methods can be inherently difficult for students; thus, gaining a thorough understanding of such content areas could benefit students in future courses by allowing them to apply this knowledge more critically to other areas of psychology. Using biopsychology as an opportunity to foster critical thinking could be a way to combat persistent misinformation based on irrelevant neuroscience explanations (see Weisberg et al., 2008).

Biopsychology is one of the few courses in psychology programs that is occasionally accompanied by a lab. Approximately 28% of psychology programs in the United States offer a biopsychology lab course (Norcross et al., 2016). This low number could represent the unique challenges faced by lab faculty and students. A prominent challenge to offering and maintaining lab courses is a lack of resources (Peterson & Sesma Jr, 2017). Labs require additional space and facilities, funding to obtain equipment and supplies (e.g., dissection tools, personal protective equipment, lab manuals), and coordination of faculty to run the lab. Access to the resources necessary for lab courses varies significantly across 2- and 4-year institutions, particularly when it comes to the teaching load of instructors and funding (Hailstorks, Stamm, Norcross, Pfund, & Christidis, 2019). For students, labs can pose both financial and time-related burdens as they may require more course fees and an additional 2–3 hours of on-campus presence per week. Despite these challenges, the benefits of lab courses are well documented such as increasing students' content knowledge and interest (Thieman, Clary, Olson, Dauner, & Ring, 2009) and their interest in pursuing graduate school (Lloyd, Shanks, & Lopatto, 2019) or research careers (Adedokun, Bessenbacher, Parker, Kirkham, & Burgess, 2013). See Parada and Birkett (2020) for an overview of psychology lab benefits and teaching resources.

Though biopsychology primarily serves students majoring in psychology, it is often taken by pre-medical and nursing students. The revised Medical College Admissions Test (MCAT) emphasizes biological, psychological, and social aspects of behavior, making courses like biopsychology important for pre-medical students (Hong, 2012). Psychology and neuroscience are interdisciplinary fields, which lends to their relevance and application to several professions, especially those that are service-oriented, like medicine.

Purposes and Rationale of the Curriculum in Neuroscience

Considering the importance of neuroscience in psychology and related programs, it is essential to understand the core learning objectives of the course. As with the course requirements, there is vast variability in the learning objectives across biopsychology courses. Generally, though, the course learning objectives can be

organized under content- and skill-focused competencies as displayed in Table 1. These competencies are consistent with those proposed by the Faculty for Undergraduate Neuroscience (FUN; Kerchner et al., 2012) and align with two standards in higher education, the American Psychological Association (APA) Guidelines for the undergraduate psychology major (Version 2.0; APA, 2018) and the European Higher Education Area (EHEA) framework of qualifications (EHEA, 2005).

The following sections provide an overview of the core content areas in biopsychology: *foundational knowledge of the nervous system*, *application of foundational knowledge*, and an *understanding of social/clinical impact*. Core concepts are

Table 1 Content- and skill-focused competencies for biopsychology courses

Content-focused core competencies	Skill-focused core competencies
Foundational Nervous System Knowledge • Examples: Structure and function of neurons and neural communication; brain structures and associated functions; influence of endocrine and immune systems.	*Research Methods* • Basic understanding of neuroscience methods. • Comprehension of the strengths and weaknesses of common biopsychology methods. • Ethical standards for animal and human research.
APA goal 1: Knowledge base in psychology	**APA goal 2**: Scientific inquiry and critical thinking
EHEA: Demonstrated knowledge and understanding in a field of study that builds on previous education	**EHEA**: Gather and interpret relevant data to inform judgments
Application of Foundational Knowledge • Examples: Survival/motivation-based behaviors such as eating, sleeping, reproduction; responding to stressors; sensation and perception; movement.	*Scientific Literacy* • Finding credible sources of information, reading research articles, critically evaluating evidence. • Applying biopsychology knowledge to own life (e.g., sleep patterns, taste perception, stress management, reflexes).
APA goal 1: Knowledge base in psychology	**APA goal 2**: Scientific inquiry and critical thinking
EHEA: Apply knowledge and understanding and problem-solving abilities within broader contexts	**EHEA**: Critical analysis, evaluation, and synthesis of new and complex ideas
Understanding Clinical/Social Impact • Examples: Biological basis of substance use and reward; psychological disorders; neurological disorders such as dementia and head trauma.	*Communication* • Written communication, including scientific writing. • Communicating with peers and instructor.
APA goal 3: Ethical + social responsibility in a diverse world	**APA goal 4**: Communication **APA goal 5**: Professional development
EHEA: Integrate knowledge and handle complexity, formulate judgments, and reflect on social or ethical responsibilities	**EHEA**: Communicate conclusions plus knowledge and rationale to specialists and non-specialists clearly and unambiguously

demonstrated across three influential themes related to students' understanding of biopsychology: *scientific literacy and research*, *genetics and evolutionary influences*, and *neuroplasticity and adaptability.* The goal of incorporating themes into biopsychology courses is twofold. First, it encourages students to apply their knowledge of core content areas, and second, it provides an opportunity for students to think critically about the real-world application of these areas; see Table 2.

Core Contents and Topics of Neuroscience

Core Concept 1: Foundational Knowledge of the Nervous System

Consider the following subcategories for Core Concept 1: cells of the nervous system, neural communication, neuroanatomy, and spinal cord and peripheral nervous system functions. Core Concept 1 content is consistent with topics of introductory and advanced neuroscience courses (see Kerchner et al., 2012; Stevenson, Shah, & Bish, 2016), which reflect popular areas of neuroscience research including cellular, molecular, and anatomical (Yeung et al., 2017). Core Concept 1 provides students with foundational knowledge of nervous system functions applied in Core Concepts 2 and 3. It is recommended that instructors spend as much time as they think is necessary on the recommended topics for Core Concept 1 (see Table 3). The topics covered and time allotted will depend on their specific course learning outcomes.

Core Concept 2: Applications of Foundational Knowledge

Application of foundational knowledge allows for more complex understanding of psychological processes. These areas are relevant to students, as they can observe concepts from class in their daily life and apply the principles from earlier chapters to their academic interests. Coverage of sensation and perception, plus movement and motor systems, transition from anatomical pathways to applied topics such as top-down and bottom-up processing. The study of motivated behaviors and the reward system transitions to a selection of the remaining topics, including eating, sleeping and biological rhythms, and sexual development and reproduction. Additional applications include language and development or emotions and stress anchored in a broader discussion of health. It is recommended that instructors select a couple of the recommended topics from Core Concept 2 (see Table 4) that best align with their course learning outcomes.

Core Concept 3: Clinical Applications

Core Concept 3 merges foundational knowledge and the understanding of basic behavioral processes to challenge students to consider the impact of atypical

Table 2 Core concepts and themes for biopsychology courses

	Core Concept 1: Foundational knowledge of the nervous system	Core Concept 2: Applications of foundational knowledge	Core Concept 3: Clinical/social impact
Scientific literacy and research	How do neuroscientists study the nervous system? Note methods (anatomical and neurobiological techniques, neuroimaging, psychophysiology) including strengths and limitations. Clarify ethics of research with animal subjects and human participants, including the practical limitations of these models.	How do we locate credible sources of information about the brain? Distinguish types of information, identify peer-reviewed sources, and critically evaluate evidence behind common neuroscientific claims. Note the role of human and animal research in the generation of knowledge related to each topic.	What are the limitations in our knowledge and areas for future research? Identify pseudoscience and pop-neuroscience claims around health and disease, and debunk common myths about the brain and behavior.
Genetics and evolutionary influences	How do brain sizes and shapes differ across primates? What explains the similarities and differences? What factors could have contributed to the large number of neurons that make up the human brain? Discuss how comparative neuroanatomy can be used to elucidate basic principles in natural selection and evolution of the human brain.	How might these behaviors have contributed to the survival of our hunter-gatherer ancestors? Do these behaviors continue to serve the same evolutionary benefit today? Provide examples of simple genetic inheritance, such as single nucleotide polymorphisms, and more complex patterns of inheritance, including epigenetics, on these functions.	How do genes and experience interact to influence the presentation of neurological diseases and psychological disorders? Describe the potential for experiences such as stress to impact our phenotype through epigenetic mechanisms.
Neuroplasticity and adaptability	How does the brain change, grow, and adapt across the lifespan? Describe neurogenesis, synaptogenesis, and dendritic branching and under what circumstances each of these processes occur. What are the functional impacts of changes to brain architecture?	How does learning, memory, and our environment play a role in these behaviors? Processes of associative and social learning can be modeled for behaviors in each chapter. More complex memory functions can then be incorporated in the persistence of these behaviors.	How do rehabilitative treatment options for neurological disorders work? Describe pharmacological and psychological treatment options for psychological disorders. Identify environmental and social influences that impact the development of substance use disorder and psychological disorders.

Table 3 Recommended biopsychology content for Core Concept 1

	Description	Recommended content
Cells of the nervous system	What is our brain made of? How do these fundamental elements work together? Note the number of neurons the human brain has and highlight the underlying biological principles that govern the workings of the structures that allow neurons to function.	Functions of internal neuron structures: • Nucleus • Organelles: Smooth and rough endoplasmic reticulum, mitochondria, lysosomes • Cytoplasm Functions of external neuron structures: • Cell membrane • Cell body or soma • Dendrites • Axon, myelin sheath including nodes of Ranvier • Terminal buttons and vesicles Glial cell functions: Astrocytes, oligodendrocytes, Schwann cells, microglia
	Key theme: Genetics and evolutionary influences	
Neural communication	How do neurons communicate with each other? How do different neurotransmitters influence the brain and behavior? Note the electrical and chemical properties of neural communication, including action potentials and the influence of neurotransmitter systems.	Resting membrane potential principles: • Uneven ion distribution: The role of diffusion and electrostatic pressure • Voltage-gated ion channels when neurons are at rest • Sodium-potassium pumps Action potentials: • Threshold of excitation • Postsynaptic potentials (excitatory and inhibitory) • Saltatory conduction Neurotransmitter release: • Steps of exocytosis • Synaptic gap • Postsynaptic receptor binding (ionotropic and metabotropic receptors) • Neurotransmitter deactivation via reuptake or enzymatic degradation Neurotransmitter systems including release, deactivation, and behavioral correlates: • Amino acids (GABA, glutamate) • Monoamines (dopamine, serotonin, norepinephrine, epinephrine) • Acetylcholine • Neuropeptides
	Key theme: Scientific literacy and research	

(continued)

Table 3 (continued)

	Description	Recommended content
Brain structures and functions	Do our brain regions have specific functions? How do these regions communication with each other? Note basic elements of the nervous system, including early development, and highlight the various functions associated with specific brain regions. *Key themes: Scientific literacy and research; genetics and evolutionary influences*	Protective elements of the nervous system: • Meninges (dura mater, arachnoid membrane, pia mater) • Ventricular system and production of cerebrospinal fluid • Blood-brain-barrier Fundamental brain elements and terminology: • Difference between gray and white matter • Gyri, sulci, and fissures • Directional terms: Anterior (rostral), posterior (caudal), medial, lateral • Planes: Coronal, horizontal, sagittal. Early brain development and the formal divisions of the brain (e.g., hindbrain, midbrain, forebrain) Functions associated with specific brain regions: • Hindbrain regions: Medulla, pons, reticular formation, cerebellum • Midbrain regions: Inferior and superior colliculi, substantia nigra, ventral tegmental area. • Forebrain regions: Limbic system structures (e.g., amygdala, hippocampus, fornix), basal ganglia structures (globus pallidus, striatum, nucleus accumbens), thalamus, hypothalamus, cerebral cortices (frontal, parietal, occipital, temporal)
Spinal cord and peripheral nervous system	How does our nervous system control our reflexes? How do environmental factors influence our voluntary and involuntary behavior and bodily functions? This section provides an overview of the functions associated with spinal cord regions and branches of the peripheral nervous system. *Key theme: Genetics and evolutionary influences*	Spinal cord divisions: • Cervical • Thoracic • Lumbar • Sacral. Peripheral nervous system divisions and functions: • Somatic division; highlight efferent and afferent nerves • Autonomic division; note sympathetic and parasympathetic functions

Table 4 Recommended biopsychology content for Core Concept 2

	Description	Recommended content
Sensation and perception	How does our brain receive and represent stimuli from our sensory organs? How does the process of perception guide our interpretation of sensory stimuli? Note principles of sensory system organization: Hierarchy, functional segregation, and parallel processing.	For each of the five senses below, discuss the similarities and differences in the pathway from the sensory receptor to the cortex, and note additional processes for each: • Vision: Edge detection, color vision, cortical mechanisms, prosopagnosia • Audition: Auditory-visual interactions, damage to the auditory system • Somatosensation: Role of association cortex, agnosias, and pain perception • Gustation: Taste perception and taste sensitivity • Olfaction: Odor-evoked memories, taste-smell interactions Describe the role this system plays in our ability for selective attention
	Key theme: Scientific literacy	
Movement	How does the brain guide the movement of our body? Note the role of reflexes and subconscious control of movement. Principles of sensorimotor function: Hierarchy, guiding by sensory input, learning changes locus of control.	Top-down organization of pathway: • Sensorimotor association cortex • Secondary motor cortex • Primary motor cortex • Basal ganglia and cerebellum • Descending motor pathways Spinal circuits and reflexes; sensorimotor programs and learning
	Key theme: Neuroplasticity	
Motivated behaviors	How do motivated, or goal-directed, behaviors influence not only our survival but also our individual daily activities? Note the potential for neuroscience research to question common assumptions and conventional wisdom about these processes.	Positive-incentive perspective (also Core Concept 3): • Contrast with homeostatic perspectives • Describe dopaminergic reward pathway • Berridge's incentive sensitization Ingestive behavior/eating: • Digestion, homeostasis, and metabolism • Contrast the set-point assumption from the positive incentive perspective • Integration: Gut-brain neuropeptides, hypothalamus, higher brain regions • Obesity and eating disorders Sleep and biological rhythms: • Stages of sleep and circadian rhythms • Sleep disorders • Impact of drugs on sleep Sexual development and reproductive behavior: • Neuroendocrine system • Hormones and development of the brain and body • Sexual behavior: Brain and hormonal mechanisms • Sexual orientation and gender identity
	Key theme: Genetics and evolution	

(continued)

Table 4 (continued)

	Description	Recommended content
Emotion and stress	How do emotions and the stress response cycle complement motivational processes? Note the potential to apply information in this section for understanding the self and improving well-being. *Key theme: Neuroplasticity*	Emotional responses and communication: • Autonomic nervous system • Brain mechanisms • Facial expression • Fear, defense, and aggression Contrast theories and historical perspectives with the modern biopsychological view of constructed emotions Stress responses: • Sympathetic-adrenal-medullary (SAM) system and hypothalamic-pituitary-adrenal (HPA) axis • Chronic stress, inequality, the hippocampus • Psychoneuroimmunology
Language	How does human communication rely on other processes in this concept area? Distinguish between human and animal communication and the evidence for lateralization of function. *Key theme: Scientific literacy*	Cerebral lateralization of function and the split brain Cortical localization of language: • Evolutionary perspectives on lateralization • Evidence for and against the Wernicke-Geschwind model of language Cognitive neuroscience of language and functional imaging Disorders of reading and writing: Dyslexia

nervous system function. These applications include real-world phenomena that psychologists address in research and practice, including substance abuse, neurological disorders (e.g., dementia, head trauma, brain tumors, stroke), and psychological disorders like depression, anxiety, and schizophrenia. It is recommended that instructors select a couple of the recommended topics from Core Concept 3 (see Table 5) that best align with their course learning outcomes.

Teaching, Learning, and Assessment in Neuroscience and Psychology Courses: Approaches and Strategies

Similar to other science courses, traditional didactic approaches are commonly used to teach biopsychology content. Several scholars critique the effectiveness of these approaches and instead focus on accessibility of course content through active learning strategies (see Smith, Howard, & D'Alessandro, 2020; Willard & Brasier, 2014). The next section discusses the benefits of integrating active and self-regulated learning strategies. Here, example lessons that align with one of the three core concepts and themes plus additional resources and tools adaptable to face-to-face, hybrid, or online instruction are described.

Table 5 Recommended biopsychology content for Core Concept 3

	Description	Recommended content
Substance abuse and reward	How do psychoactive drugs impact our brain and behavior? Distinguish mechanisms of action and associated risks of commonly used drugs. Note the evidence for various theories of addiction in explaining drug abuse, relapse, and recovery.	Basic principles of drug action: • Pharmacokinetics • Pharmacodynamics • Behavioral/learning processes Commonly used drugs and their effects: • Distinguish legal and illicit substances • Note mechanism of action and associated risks Theories of addiction: • Physical dependence theories • Positive-incentive perspective (also Core Concept 2) • Reward pathways • How does each theory account for addiction, relapse, and recovery? How do they inform treatment?
	Key theme: Scientific literacy	
Neurological disorders	What are the range of events that cause brain damage and disease? Distinguish acute causes of brain damage and their lasting effects, plus types of neurological disease. Are these preventable and/or treatable? Describe the potential and limitations of brain repair and reorganization.	Causes of brain damage: • Head injury: Concussion, contusion, and chronic traumatic encephalopathy (CTE) • Brain tumors • Cerebrovascular disease • Infections and neurotoxins Neurological disease: • Epilepsy • Neurodegenerative diseases • Types of dementia and etiology • Types of amnesia and etiology Response to brain damage: • Degeneration, reorganization, recovery • Neurotrophic factors and neuroplasticity
	Key theme: Neuroplasticity	
Psychological disorders	How do we currently describe psychological disorders, and what perspectives are used for the categorization of these disorders? What does neuroscience research tell us about the etiology and genetic basis of these disorders? Describe the process of clinical trials research and the associated controversies.	Contrast approaches: • Historical perspectives through the *Diagnostic and Statistical Manual of Mental Disorders* (DSM–5) • Biopsychological explanations Describe categories of psychological disorders, including the symptoms, etiology of the disorder (known genetic contributions), treatment, and prognosis • Schizophrenia • Mood disorders • Anxiety disorders Clinical trials • How are new drugs developed? Note the stages in clinical trials research • Discuss controversies in clinical trials, e.g., representing subgroups, financial conflicts of interest, targets for pharmacotherapy
	Key theme: Genetics and evolution	

Lesson: Neuroanatomy Exploration through the Whole Brain Atlas

Aligns with:

- Core Concept 1: Foundational Knowledge of the Nervous System
- Theme: Scientific Literacy

The Whole Brain Atlas is a free repository of neuroimages of individuals with and without underlying conditions, including cerebrovascular diseases, tumors, and neurodegenerative diseases. This lesson, which typically follows lectures on neuroanatomy and neuroimaging techniques, asks students to use magnetic resonance images (MRIs) to explore several brain regions in a healthy individual as well as brain changes in an individual with Alzheimer's disease. Learning outcomes include reviewing anatomical planes (e.g., horizontal, coronal, sagittal), identifying brain regions across the different planes, exploring brain differences in someone with Alzheimer's disease, and contrasting noticeable brain changes between individuals with and without Alzheimer's disease.

1. Have students access the Whole Brain Atlas homepage (http://www.med.harvard.edu/AANLIB/home.html) and select the second link, *NEW: Normal Anatomy in 3-D with MRI/PET (JavaScript).*
2. Allow students to familiarize themselves with the interface (e.g., functions of the top panel, up and down arrows, "2x" option).
   a. Instructors may provide a walkthrough of these functions or implement screenshots into written instructions.
3. Once students are familiar with the interface, have them select common brain structures across all anatomical planes (e.g., transaxial, sagittal, coronal). Common brain regions include the thalamus, hypothalamus, structures of the limbic system, and structures of the basal ganglia.
   a. First and second dropdown menus should be set to "Brain-hemispheric" and "MR-T1," respectively.
4. Students may switch the first dropdown menu to "Brain-axial" to explore other brain regions, such as the hypothalamus, thalamus, pons, mammillary bodies, and inferior colliculus, or to "CSF/Vascular" to explore the ventricular system.
5. Finally, students can explore the case study titled *Alzheimer's Disease with a tour* to compare and contrast brain changes as a result of a neurological condition.

Additional Lesson Planning Resources for Core Concept 1

The following resources can be modified and adapted for face-to-face and online instruction, as well as lecture and lab-based courses.

- ***Models of the Nervous System.*** A common challenge for biopsychology students is being unable to visualize the microscopic elements of the nervous system, particularly neurons. Similarly, learning neuroanatomy without access to an actual brain can be challenging. Typically, introductory biopsychology instructors do not have access to microscopy equipment or dissection supplies to help students grasp these elements. Luckily, neurons can be modeled with simple and inexpensive supplies (e.g., Play-Doh, pipe cleaners, beads) and with creative 3D brain model alternatives. See modeling resources below:
  - The University of Washington's Neuroscience for Kids website (https://faculty.washington.edu/chudler/chmodel.html) provides several neuron model examples made from Play-Doh or clay, beads, and pipe cleaners. **Tip**: Advanced neuron modeling activities can ask students to build a network of neurons, instead of one neuron, and to describe how this network communicates, which can incorporate elements of chemical communication and postsynaptic cell activation.
  - The brain hemisphere hats by Ellen McHenry (http://ellenjmchenry.com/brain-hemisphere-hat/) can be used to understand cortical anatomy and associated functions. Students can also keep their brain hemisphere model and reference it for future content.
  - Latimer, Bergin, Guntu, Schulz, and Nair (2018) describe open-source software for teaching neuroscience courses.
  - Schettino (2014) outlines the use of NeuroLab graphical simulations.
- ***Action Potential Simulations***. The conduction of action potentials is by far one of the most challenging topics in biopsychology. For many students, this is their first exposure to molecular biology principles. Understanding action potentials is also difficult without additional, hands-on exploration. Fortunately, there are several easy-to-use action potential simulations.
  - The University of Colorado Boulder's PhET website (https://phet.colorado.edu/en/simulation/neuron) provides an easy-to-use, guided inquiry action potential simulation. Students can visualize the resting potential, the membrane permeability, and the refractory period.
  - A more advanced virtual stimulation using MetaNeuron (http://www.metaneuron.org) has students explore various aspects of action potentials such as resting potentials, refractory periods, and all-or-none responses. See Newman and Newman (2013) for additional information.
  - BrainU provides a narrated action potential animation (http://brainu.org/movies; select "Action Potential") that highlights ion concentration changes and the roles of voltage-gated ion channels and the sodium-potassium pumps.
- ***Understanding Neurotransmitters***. Cammack (2018) provides an interactive, "Mystery Neurotransmitter" activity where students determine the deactivation mechanisms for two mystery neurotransmitters and how drugs influence the chemical properties of neural communication.
- ***Comparative Neuroanatomy***. Providing students with comparative neuroanatomy tools can allow for a more thorough understanding of evolutionary brain

principles, an ability to observe structural brain differences and similarities across species, linking brain size and regional sophistication with abilities, and an understanding of experimental neuroanatomy methods. Grisham et al. (2018) use a comparative neuroanatomy approach to teach students quantitative skills. Resources can be found on the University of California Los Angeles Comparative Neuroanatomy webpage (https://mdcune.psych.ucla.edu/modules/cna).

Students can contrast mouse, primate, and human brain slices with the following atlases:

- Mouse brain atlas (http://developingmouse.brain-map.org/).
- Primate brain atlas (https://www.blueprintnhpatlas.org/).
- Human brain atlas (http://human.brain-map.org/).

Lesson: Are You a Supertaster?

Aligns with:

- Core Concept 2: Applications of Foundational Knowledge.
- Themes: Scientific Literacy, Genetics, and Evolutionary Influences.

Learning outcomes for this activity include review of sensory pathways for gustation and olfaction, hypothesis generation around taste preferences, and description of individual variability of gustatory experiences. In advance of the lesson, order taste test/n-propylthiouracil (PROP) strips from online retailer.

1. Have students reflect on their "palate" and taste preferences, including the foods they like, dislike but tolerate, and simply cannot eat. Have them compare with a classmate or a family member or roommate in the case of online/remote learning.
2. Allow students to explore what we know about taster status. To address the theme of scientific literacy, contrast coverage and style of writing in a popular source vs. a scientific article.
   a. Popular source options:
      i. Fadiman, A. (2017, September 30). How science saved me from pretending to love wine. The New Yorker. https://www.newyorker.com/tech/annals-of-technology/how-science-saved-me-from-pretending-to-love-wine
      ii. Rupp, R. (2014, September 30). Are you a supertaster? National Geographic. https://www.nationalgeographic.com/culture/article/are-you-a-supertaster
   b. Scholarly source options:
      i. Bartoshuk et al. (1994). PTC/PROP tasting: Anatomy, psychophysics, and sex effects. *Physiology & Behavior, 56*(6), 1165–1171.
      ii. Hayes et al. (2008). Supertasting and PROP bitterness depends on more than the TAS2R38 gene. *Chemical Senses, 33*(3), 255–265.

3. Provide a student collaboration opportunity by forming predictions and testing taster status.
   a. In groups or pairs, have students compose a set of questions to make a prediction of taster status for each student, and then administer those questions.
   b. Have students complete PROP test for taste status in class. The PROP substance is very safe, but is not advised for students who may be pregnant.
   c. Visualize distribution of class responses to both the survey administered and the PROP taste tests. Discuss reasons for any discrepancy (e.g., cultural determinants of food preferences, social desirability).

Lesson: College Success and Sleep

Aligns with:

- Core Concept 2: Applications of Foundational Knowledge.
- Themes: Genetics and Evolutionary Influences, Neuroplasticity, and Adaptability.

This activity is best completed in phases as the course moves through sleep content. Learning outcomes include understanding the impact of sleep deprivation on memory, behavior, and academic performance, applying content knowledge to own sleep hygiene, and exploring measures of sleep quality. Access a sleep quality questionnaire, such as the Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds III, Monk, Berman, & Kupfer, 1989), in advance of the activity.

1. During the first lesson on sleep, have students self-report hours slept each night for the past week and then complete a sleep quality questionnaire.
2. After a brief overview of biological rhythms and sleep, have students read literature on the impact of sleep deprivation on learning and memory. Example: Curicio et al. (2006). Sleep loss, learning capacity and academic performance. *Sleep Medicine Reviews, 10*(5), 323–337.
   a. Students may also explore the impact of sleep deprivation on prejudice and stereotyping as demonstrated by Ghumman and Barnes (2013).
3. Provide students with Scullin's (2019) Sleep Tips. Once students have reviewed the tips, have them to address the following prompts:
   a. What sleep tips do you currently do or have done in the past? Were these tips helpful?
   b. Next, consider tips that you can try that you haven't already and try to implement these tips during the next week. (Stick to one or two, as implementing all of these tips can be hard!)
4. Reassess self-reported sleep, PSQI, and inventory of tips in 3 weeks or at the end of the term. This can be done as an informal or formal (i.e., graded) assessment and as an individual reflection or class discussion.

Additional Lesson Planning Resources for Core Concept 2

- ***Evaluating Neuroscience Claims.*** Provide students with examples of valid *and* false claims about the brain (e.g., lateralization, targeted enrichment, the Mozart effect, gender differences). Use lesson to explain the allure of simple explanations for complex phenomena. Resource: Weisberg et al. (2008).
- ***Collaborative Journal Article Review.*** This activity follows the jigsaw method – each student in a small group (4–6) is assigned a different scholarly article on a topic central to the course (e.g., language, sleep, biological rhythms). Outside of class, students read their assigned article, write a summary, and prepare a brief (5–10-minute) presentation to describe their article to peers. On the due date, students join their group and hear the short presentation on the 4–6 different articles.
  - Resource: Chaffee, L. (2015). Collaborative journal article review. In M. Birkett (Ed.). *Teaching Neuroscience: Practical activities for an engaged classroom*. http://teachpsych.org/ebooks/teachingneuroscience
- ***Health and Stress.*** Students explore the impact of social factors on the development and reactivity of the stress response systems. Discussion topics include epigenetics, brain development, emotional responses, psychoneuroimmunology, and psychological disorders.
  - Resources on the impact of adverse childhood experiences (ACEs):
    - Burke Harris, N. (2014, September). *How childhood trauma affects health across a lifespan* [Video]. TED Conferences. https://www.ted.com/talks/nadine_burke_harris_how_childhood_trauma_affects_health_across_a_lifetime?language=en
    - Starecheski, L. (2015, March 2). Take the ACE quiz – and learn what it does and doesn't mean. NPR. https://www.npr.org/sections/health-shots/2015/03/02/387007941/take-the-ace-quiz-and-learn-what-it-does-and-doesnt-mean
  - Sources on the impact of discrimination on physiological stress responses:
    - Busse et al. (2017). Social context matters: Ethnicity, discrimination and stress reactivity. *Psychoneuroendocrinology*, *83*, 187–193.
    - Busse et al. (2017). Discrimination and the HPA axis: current evidence and future directions. *Journal of Behavioral Medicine*, *40*(4), 539–552.
    - Kaholokula, et al. (2012). Association between perceived racism and physiological stress indices in Native Hawaiians. *Journal of Behavioral Medicine*, *35*(1), 27–37.

Lesson: Understanding Epigenetics and Schizophrenia

Aligns with:

- Core Concept 3: Clinical/Social Impact.
- Theme: Genetics and Evolutionary Influences.

This lesson uses the case study titled *Identical Twins, Identical Fates?* from the National Center for Case Study Teaching in Science (https://sciencecases.lib.buffalo.edu/). The case study illustrates the influence of epigenetics on schizophrenia development in identical twins. The case can be modified to better fit the outcomes associated with the lesson. For instance, students in an introductory biopsychology course might only be assigned Parts 1–4, while students in an upper division biopsychology course could more easily navigate through Part 5. Students should work in small groups to address the discussion questions for each part; consider only providing one part at a time.

Additional Lesson Planning Resources for Core Concept 3

- ***Case Studies.*** Case studies are effective teaching tools, lending themselves to in-depth understanding of content. Meil (2007) provides three distinct recommendations of how students can use case studies in neuroscience courses and a list of case studies for a variety of disorders. The following are additional case study resources:
- National Center for Case Study Teaching in Science (https://sciencecases.lib.buffalo.edu/) is a repository of cases and lesson plans for multiple psychological and neurological conditions. Example case studies:
  - *Skinny Genes? An Interdisciplinary Look at a Complex Behavioral Disorder.*
  - *Are you Blue? What can you do? A Case Study on Treatment Options for Depression.*
  - *Anxiety doesn't Work: Treatment options for SAD.*
- The Journal of Undergraduate Neuroscience Education (JUNE) often contains a case study section in published issues. The case studies provide descriptions, learning outcomes, assessment techniques, and student data. Example: https://www.funjournal.org/2019-volume-18-issue-2/
- Virtual case studies on the Whole Brain Atlas (https://www.med.harvard.edu/AANLIB/home.html). The case studies include various neurodegenerative disorders like Alzheimer's disease and multiple sclerosis, including corresponding brain images and changes across disease progression.
- ***Research History and Harm***. Have students explore historical examples of biomedical and behavioral research harm, perpetuation of unsupported "research" claims, and connections to current research and clinical practices in neuroscience, psychology, and medicine, as well as conversations around the public's trustworthiness in medicine and science.
  - Eugenics Crusade Documentary: https://www.pbs.org/wgbh/americanexperience/films/eugenics-crusade/#part01
  - Garrison, N. A. (2013). Genomic justice for Native Americans: Impact of the Havasupai case on genetic research. *Science, Technology, & Human Values*, *38* (2), 201–223.
  - Skibba, R. (2019, May 20). The disturbing resilience of scientific racism. Smithsonian Magazine. https://www.smithsonianmag.com/science-nature/disturbing-resilience-scientific-racism-180972243/

  - Roberts, D. (2015, November). *The problem with race-based medicine* [Video]. TED Conferences. https://www.ted.com/talks/dorothy_roberts_the_problem_with_race_based_medicine/up-next?language=en
- ***Exploring Chronic Traumatic Encephalopathy (CTE)***. Many students are familiar with chronic traumatic encephalopathy (CTE) from its disproportionate impact on contact sport players (e.g., boxers and football players). Students can further explore CTE neuropathology, its application to contract sport policy, and overall social implications.
  - Overview of CTE-related brain changes from the Franklin Institute: https://www.fi.edu/your-brain/video/head-games
  - Video summary of Mez et al. (2017) findings: https://edhub.ama-assn.org/jn-learning/video-player/14591368
  - Barlow, R. (2017, November 9). Aaron Hernandez' CTE worst seen by BU experts in a young person. The Brink. http://www.bu.edu/articles/2017/aaron-hernandez-cte-worst-seen-in-young-person/

Opportunities, Challenges, and Lessons Learned

A significant reward in teaching neuroscience content within psychology courses is celebrating student's growing confidence throughout the quarter. This reward provides insight into the challenge of students' anxiety around the difficulty of course content and their initial intimidation of neuroscience.

In addition to anecdotal experiences of student anxiety around learning neuroscience, the phenomenon of "neurophobia" was first used to describe medical students' anxiety in Jozefowicz's, 1994 letter, attributing neurophobia to a lack of integration between coursework in basic sciences and clinical experiences. Subsequent research confirms that medical students and residents suffer a disconnect between basic neuroscience education and clinical expertise, undermining confidence in treating patients with neurological disease (Zinchuk, Flanagan, Tubridy, Miller, & McCullough, 2010). In the context of undergraduate biopsychology courses, neuroscience anxiety is a distinct form of apprehension experienced by students (Birkett & Shelton, 2011), which can prevent students from enrolling in biopsychology or neuroscience courses and hinder degree progress. Biopsychology course performance is predicted by a *positive attitude about science* and *science efficacy* (Moore & Foy, 1997 as cited by Sgoutas-Emch, Nagel, & Flynn, 2007).

How do instructors overcome the challenges of student anxiety, boost students' attitudes and self-efficacy for course material, and help students succeed in neuroscience coursework? Evidence-based teaching strategies, such as active learning and self-regulated learning, are recommended.

Active Learning An instructional approach to engage students in material through classroom involvement such as discussion, problem-solving exercises, collaboration with peers, and invited reflection to learn from mistakes. Best practices require advanced preparation by the instructor, authentic tasks for the student, and timely

feedback (Wieman, 2014). The evidence for active learning is robust; a meta-analysis showed that active learning improved performance and decreased student failure rates over traditional lecture courses (Freeman et al., 2014). Active learning reduces the achievement gap between traditional college students and students from systemically non-dominant groups (Haak, HilleRisLambers, Pitre, & Freeman, 2011). The benefits of active learning span the STEM disciplines, large and small courses, and introductory to advanced courses (Wieman, 2014). Active learning practices increase self-efficacy and classroom belongingness, particularly for students from systemically non-dominant groups (Ballen et al., 2017).

Self-Regulated Learning One type of active learning, where students monitor and adjust their progress through opportunities for practice and timely feedback. The ability to control our learning processes and environment includes cognitive and motivational processes. The cognitive skills required to encode and recall information are controlled and monitored through metacognition. Self-regulatory capacity includes the motivation to use and develop cognitive and metacognitive abilities (Schraw, Crippen, & Hartley, 2006). Metacognitive activity is related to student motivation and self-efficacy, so efforts to boost self-regulated learning may improve motivation (Bell & Kozlowski, 2008). Self-regulated learning is tied to beliefs about the value of the task (Pintrich, 1999); thus, we recommend instructors communicate the value of the process and material to students. One way to accomplish this is to incorporate the Transparency in Learning and Teaching (TILT) framework (Winkelmes et al., 2016) to explicitly outline the purpose of assignments, knowledge gained, skills practiced, and criteria for success (https://tilthighered.com/tiltexamplesandresources).

The Association of American Colleges and Universities (AAC&U; Kuh, 2008) recognizes a variety of **high-impact practices**, including learning communities, collaborative assignments, undergraduate research, diversity/global learning, and community-based learning, described below.

In addition to the concept-specific resources below, these references detail high-impact practices aimed at enhancing accessibility and student learning in biopsychology courses.

- Levit Binnun and Tarrasch (2014) provide evidence for the utility of contemplative exercises within biopsychology.
- McFarlane and Richeimer (2015) describe avenues for using perspectives from humanities for teaching neuroscience to nonmajors.
- Ramirez (2020) describes current challenges of neuroscience education, emphasizing lived experiences of college students and the influence of the COVID-19 pandemic on student success.
- Stevenson et al. (2016) provide practical tools for learning outcome assessment.

Online Learning While biopsychology courses are typically offered face-to-face, technologies for online teaching and learning can support remote instruction of courses in this area. Online learning is helpful for college students for whom scheduling

conflicts or other obligations make it difficult to attend a scheduled, on-campus course. We have seen an increase of online course offerings in psychology and the majority of other disciplines, likely in response to the changing needs of students (Hailstorks et al., 2019). At present, the transition to remote instruction is advantageous during public health efforts to combat a global pandemic. While some remain critical of the efficacy and equivalency of online classes, a robust meta-analysis sponsored by the US Department of Education (Means, Toyama, Murphy, Baki, & Jones, 2009) found *better* learning outcomes for online learning as compared to purely face-to-face instruction. Evidence-based techniques for high-quality instruction are essential in all learning environments, and the literature emphasizes interaction (student-faculty and student-peer), incorporating self-regulated learning practices to enhance motivation, and collaborative learning in the online classroom (Abrami, Bernard, Bures, Borokhovski, & Tamim, 2011). In fact, student motivation is predictive of success in online psychology courses (Waschull, 2005). Some courses, such as those with a hands-on or lab component, certainly pose challenges to online teaching. Virtual labs are available through a variety of textbook publishers, research institutes such as the Howard Hughes Medical Institute (HHMI), and Faculty for Undergraduate Neuroscience (FUN). The resources and lesson plans shared in this chapter are intentionally low-cost and accessible for instructors, whether in a brick-and-mortar or virtual classroom.

In sum, the challenge of neuroscience courses can sometimes undermine student confidence and thus success in the course. Evidence-based strategies for active learning and self-regulated learning improve student confidence, motivation, and self-efficacy and thus improve student performance in the course. Active and self-regulated learning are essential for bridging achievement gaps between students in neuroscience courses.

Teaching, Learning, and Assessment Resources

Tip 1: Be Clear, Concise, and Transparent

Given the potential challenges in teaching biopsychology courses outlined in this chapter, transparency and clarity are essential for the success of these courses, for students and faculty alike. Students may be hesitant or even fearful of these classes, given the perceived difficulty and technicality as compared to other psychology courses. A key recommendation is clear and transparent articulation of expectations, learning objectives, and purpose for course assessments. Note that for many biopsychology students, this course is the first time they are being exposed to natural science content. Instructors are encouraged to integrate scaffolding practices that gradually fade immediate support and increase student ownership/responsibility to assist students in this transition (see Van de Pol, Volman, & Beishuizen, 2010).

Integration of the neuroscientific approach complements and extends psychology curricula. The themes align with standard programmatic and departmental learning objectives within psychology. The inherent interdisciplinary nature of neuroscience

in psychology provides an opportunity for collaboration within and between academic disciplines, providing students a well-rounded perspective on the state of contemporary neuroscience.

Tip 2: Center Evidence-Based Strategies to Promote Student Success

Active learning is essential and can take various forms, from a dissection lab to computer simulation, case studies, and debates. The resources shared and referenced are accessible online and are useful in various teaching modalities. Active learning approaches can also help students see the "bigger picture." Neuroscience, as much as it is molecular, is more of a framework that can be applied to better understand complex behavioral phenomena and assess other influential factors, like the environmental or social settings.

Courses that integrate neuroscience in the psychology curriculum have a reputation for being challenging. However, active learning strategies and self-regulated learning boost student learning. Reflection and metacognitive monitoring are two techniques that are relatively easy to integrate and have a significant potential to boost student motivation and performance.

Tip 3: Use High-Impact Practices

The American Association of Colleges and Universities promotes a wide variety of educational practices, many of which are opportunities that extend beyond the classroom. Given the considerable commitment of resources and time, these opportunities are ideally integrated at a programmatic level to properly support faculty. The following are examples of two high-impact practices that could be implemented in biopsychology courses. See the Franklin Institute Neuroscience and Society website: https://www.fi.edu/your-brain/neuroscience-and-society-curriculum.

Course-based undergraduate research experiences (CUREs) provide students research opportunities in the classroom (see Sathy, Mahfuz, Strauss, & Hutson, 2020), centering use of the scientific method, student discovery, collaboration and agency, and science communication and impact. Traditional undergraduate research opportunities require students to seek limited faculty-led projects, commit to additional time on campus, or credit hours for independent study. These barriers can limit who participates in undergraduate research opportunities. Since CUREs occur in the classroom, their reach is broader and can provide similar benefits of undergraduate research participation. CUREs are especially beneficial for students of underrepresented groups, which could, in the long run, result in greater representation and diversity in STEM fields (Bangera & Brownell, 2014). See Sathy et al. (2020) for more on CUREs in psychology courses.

Project-based learning (PBL) is an inquiry-based instructional approach where students work toward an end product (e.g., a presentation, poster, portfolio, informational pamphlet), focusing on the knowledge and skills applied throughout the

process (Aditomo, Goodyear, Bliuc, & Ellis, 2013). PBL requires faculty to explicitly assess and align the project deliverables with content- and skill-focused outcomes.

CUREs and PBL are student-centered, active learning approaches that provide opportunities to engage in self-regulated learning by setting clear goals, being reflective at every step of the way, and maintaining motivation to meet the student-set goals (English & Kitsantas, 2013). These high-impact practices help students gain and foster marketable knowledge, skills, and characteristics needed to succeed in the workforce (Appleby, 2018; Bell, 2010).

Tip 4: Incorporate Professional Development Opportunities

The majority of baccalaureate psychology and biopsychology students do not attend graduate school. Thus, it is imperative to provide opportunities to gain marketable skills to benefit them post-graduation. The knowledge, skills, and characteristics expected by employers in the top occupations include critical thinking, time management, attention to detail, cooperation with coworkers, and communication (Appleby, 2018). Faculty can use alternative assessment techniques that center science communication, such as class presentations, college- or community-based presentations through research symposium participation, building publicly available websites, and poster presentations for classroom "conferences" (Flanagan-Cato, 2019; Schwartz, Obeid, & Powers, 2018; Schwartz, Obeid, Shane-Simpson, Powers, & Thompson, 2020). The majority of students in biopsychology courses will not pursue this field of study as a career; thus, teaching transferable, marketable skills can ensure that students excel in other areas of their academic or professional endeavors.

Annotated List of Recommended Further Readings

Readings for Additional Classroom Activities and Curriculum Development

- Franklin Institute. (n.d.). *Neuroscience & society curriculum*. https://www.fi.edu/your-brain/neuroscience-and-society-curriculum
- Simon-Dack, S. L. (2011). *Interactive Teaching Activities for Introductory Biopsychology.* Society for the Teaching of Psychology. http://teachpsych.org/resources/Documents/otrp/resources/simon-dack12.pdf
- Oswald. B. B. (2019). *Authentic assessments for biopsychology: Encouraging learning and retention by applying biopsychological knowledge in real-world contexts*. Society for the Teaching of Psychology. http://teachpsych.org/resources/Documents/otrp/resources/oswald19.pdf
- Birkett, M. (2015). *Teaching Neuroscience: Practical activities for an engaged classroom*. Society for the Teaching of Psychology: http://teachpsych.org/ebooks/teachingneuroscience

Pedagogy-Related Readings

- Schwartz, S. J., Lilienfeld, S. O., Meca, A., & Sauvigné, K. C. (2016). The role of neuroscience within psychology: A call for inclusiveness over exclusiveness. *American Psychologist*, *71*(1), 52–70.

  This article offers an analysis of the growing prominence of neuroscience in psychology programs.
- McKeachie, W. & Svinicki, M. (2013). *McKeachie's Teaching Tips.* Cengage Learning.

  This book provides practical tools plus evidence-based strategies for college and university teaching.
- Sensoy, O. & DiAngelo, R. (2017). *Is everyone really equal? An introduction to key concepts in social justice education*. Teachers College Press.

  This book provides an introduction to critical social justice literacy, including key concepts on critical thinking, group identity and dynamics, prejudice and discrimination, plus examples and vignettes to illustrate these terms.

Content-Focused Readings

The following recommendations focus on a variety of core concepts outlined in this chapter. These readings can be used as supplemental to textbook readings.

- Sapolsky, R. M. (2017). *Behave: The biology of humans at our best and worst*. Penguin.
- Grisel, J. (2020). *Never enough: The neuroscience and experience of addiction*. Anchor Books.
- Kandel, E. R. (2018). *The disordered mind: What unusual brains tell us about ourselves*. Farrar, Straus and Giroux.
- Barrett, L. F. (2017). *How emotions are made: The secret life of the brain*. Houghton Mifflin.
- Roach, M. (2013). *Gulp: adventures on the alimentary canal*. W.W. Norton & Company.
- Roach, M. (2009). *Bonk: The curious coupling of science and sex*. W.W. Norton & Company.
- Kuhn, C., Swartzwelder, S., & Wilson, W. (2019). *Buzzed: The straight facts about the most used and abused drugs from alcohol to ecstasy*. W.W. Norton & Company.

Cross-References

► Inquiry-Based Learning in Psychology
► Problem-Based Learning and Case-Based Learning
► Sensation and Perception

► Teaching Introductory Psychology
► Teaching Physiological Psychology
► Teaching Psychopharmacology for Undergraduates

References

Abrami, P. C., Bernard, R. M., Bures, E. M., Borokhovski, E., & Tamim, R. M. (2011). Interaction in distance education and online learning: Using evidence and theory to improve practice. *Journal of Computing in Higher Education, 23*, 82–103.

Adedokun, O. A., Bessenbacher, A. B., Parker, L. C., Kirkham, L. L., & Burgess, W. D. (2013). Research skills and STEM undergraduate research students' aspirations for research careers: Mediating effects of research self-efficacy. *Journal of Research in Science Teaching, 50*(8), 940–951.

Aditomo, A., Goodyear, P., Bliuc, A. M., & Ellis, R. A. (2013). Inquiry-based learning in higher education: Principal forms, educational objectives, and disciplinary variations. *Studies in Higher Education, 38*(9), 1239–1258.

Akil, H., Balice-Gordon, R., Cardozo, D. L., Koroshetz, W., Norris, S. M. P., Sherer, T., . . . Thiels, E. (2016). Neuroscience training for the 21st century. *Neuron, 90*(5), 917–926.

American Psychological Association. (2018). Guidelines for the undergraduate psychology major, 2.0. https://www.apa.org/ed/precollege/about/undergraduate-major

Appleby, D. C. (2018). Preparing psychology majors to enter the workforce: Then, now, with whom, and how. *Teaching of Psychology, 45*(1), 14–23.

Ballen, C. J., et al. (2017). Enhancing diversity in undergraduate science: Self-efficacy drives performance gains with active learning. *CBE-Life Sciences Education, 16*(56), 1–6.

Bangera, G., & Brownell, S. E. (2014). Course-based undergraduate research experiences can make scientific research more inclusive. *CBE—Life Sciences Education, 13*(4), 602–606.

Bell, B. S., & Kozlowski, S. W. (2008). Active learning: Effects of core training design elements on self-regulatory processes, learning, and adaptability. *Journal of Applied Psychology, 93*(2), 296–316.

Bell, S. (2010). Project-based learning for the 21st century: Skills for the future. *The Clearing House, 83*(2), 39–43.

Betancur, L., Rottman, B. M., Votruba-Drzal, E., & Schunn, C. (2019). Analytical assessment of course sequencing: The case of methodological courses in psychology. *Journal of Educational Psychology, 111*(1), 91–103.

Birkett, M., & Shelton, K. (2011). Decreasing neuroscience anxiety in an introductory neuroscience course: An analysis using data from a modified science anxiety scale. *Journal of Undergraduate Neuroscience Education, 10*(1), A37–A43.

Bowers, J. S. (2016). The practical and principled problems with educational neuroscience. *Psychological Review, 123*(5), 600–612.

Brownell, S. E., Price, J. V., & Steinman, L. (2013). Science communication to the general public: Why we need to teach undergraduate and graduate students this skill as part of their formal scientific training. *Journal of Undergraduate Neuroscience Education, 12*(1), E6–E10.

Buysse, D. J., Reynolds, C. F., III, Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh sleep quality index: A new instrument for psychiatric practice and research. *Psychiatry Research, 28*(2), 193–213.

Cammack, K. M. (2018). Mystery neurotransmitters! An active learning activity on synaptic function for undergraduate students. *Journal of Undergraduate Neuroscience Education, 17*(1), A26–A33.

Carnevale, A. P., Strohl, J., & Melton, M. (2013). What's it worth?: The economic value of college majors. *Georgetown University Center on Education and the Workforce*. https://1gyhoq479ufd3yna29x7ubjn-wpengine.netdna-ssl.com/wp-content/uploads/2014/11/whatsitworth-complete.pdf

English, M. C., & Kitsantas, A. (2013). Supporting student self-regulated learning in problem-and project-based learning. *Interdisciplinary Journal of Problem-Based Learning, 7*(2), 128–150.
European Higher Education Area. (2005). The framework qualifications. http://www.ehea.info/page-qualification-frameworks
Flanagan-Cato, L. M. (2019). Everyday neuroscience: A community engagement course. *The Journal of Undergraduate Neuroscience Education, 18*(1), A44–A50.
Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *PNAS, 111*(23), 8410–8415.
Ghumman, S., & Barnes, C. M. (2013). Sleep and prejudice: A resource recovery approach. *Journal of Applied Social Psychology, 43*, E166–E178.
Goswami, U. (2006). Neuroscience and education: From research to practice? *Nature Reviews Neuroscience, 7*(5), 406–413.
Grisham, W., Greta, S., Burre, A., Tomita, W., Rostamian, D., Schottler, N., & Krull, J. L. (2018). Using online images to teach quantitative skills via comparative neuroanatomy: Applying the directives of vision and change. *Journal of Undergraduate Neuroscience Education, 16*(3), A236–A243.
Gurung, R. A., Hackathorn, J., Enns, C., Frantz, S., Cacioppo, J. T., Loop, T., & Freeman, J. E. (2016). Strengthening introductory psychology: A new model for teaching the introductory course. *American Psychologist, 71*(2), 112–124.
Haak, D. C., HilleRisLambers, J., Pitre, E., & Freeman, S. (2011). Increased structure and active learning reduce the achievement gap in introductory biology. *Science, 332*, 1213–1216.
Hailstorks, R., Stamm, K. E., Norcross, J. C., Pfund, R. A., & Christidis, P. (2019). 2016 undergraduate study in psychology: Faculty characteristics and online teaching. *Scholarship of Teaching and Learning in Psychology, 5*(1), 52–60.
Homa, N., Hackathorn, J., Brown, C. M., Garczynski, A., Solomon, E. D., Tennial, R., . . . Gurung, R. A. (2013). An analysis of learning objectives and content coverage in introductory psychology syllabi. *Teaching of Psychology, 40*(3), 169–174.
Hong, B. (2012, August). *The teaching of psychology and the new MCAT*. American Psychological Association. https://www.apa.org/ed/precollege/ptn/2012/08/mcat
Jozefowicz, R. F. (1994). Neurophobia: The fear of neurology in medical students. *Archives of Neurology, 51*(4), 328–329. https://doi.org/10.1001/archneur.1994.00540160018003.
Kerchner, M., Hardwick, J. C., & Thornton, J. E. (2012). Identifying and using 'core competencies' to help design and assess undergraduate neuroscience curricula. *Journal of Undergraduate Neuroscience Education, 11*(1), A27–A37.
Kuh, G. D. (2008). High-impact educational practices: What they are, who has access to them, and why they matter. *AAC&U Report*, Washington D. C. https://www.aacu.org/node/4084
Latimer, B., Bergin, D., Guntu, V., Schulz, D., & Nair, S. (2018). Open source software tools for teaching neuroscience. *Journal of Undergraduate Neuroscience Education, 16*(3), A197–A202.
Levit Binnun, N., & Tarrasch, R. (2014). Relation between contemplative exercises and an enriched psychology students' experience in a neuroscience course. *Frontiers in Psychology*, 5. https://doi.org/10.3389/fpsyg.2014.01296.
Lindell, A. K., & Kidd, E. (2011). Why right-brain teaching is half-witted: A critique of the misapplication of neuroscience to education. *Mind, Brain, and Education, 5*(3), 121–127.
Lloyd, S. A., Shanks, R. A., & Lopatto, D. (2019). Perceived student benefits of an undergraduate physiological psychology laboratory course. *Teaching of Psychology, 46*(3), 215–222.
McFarlane, H. G., & Richeimer, J. (2015). Using the humanities to teach neuroscience to non-majors. *Journal of Undergraduate Neuroscience Education, 13*(3), A225–A223.
Means, B., Toyama, Y., Murphy, R., Baki, M., & Jones, K. (2009). Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies. *U. S. Department of Education.* www.ed.gov/about/offices/list/opepd/ppss/reports.html.
Meil, W. M. (2007). The use of case studies in teaching undergraduate neuroscience. *Journal of Undergraduate Neuroscience Education, 5*(2), A53–A62.

Mez, J., Daneshvar, D. H., Kiernan, P. T., Abdolmohammadi, B., Alvarez, V. E., Huber, B. R., … Cormier, K. A. (2017). Clinicopathological evaluation of chronic traumatic encephalopathy in players of American football. *JAMA, 318*(4), 360–370. https://doi.org/10.1001/jama.2017.8334.

Moore, R. W., & Foy, R. L. H. (1997). The scientific attitude inventory: A revision (SAI II). *Journal of Research in Science Teaching, 34*(4), 327–336.

Newman, M. H., & Newman, E. A. (2013). MetaNeuron: A free neuron simulation program for teaching cellular neurophysiology. *Journal of Undergraduate Neuroscience Education, 12*(1), A11–A17.

Norcross, J. C., Hailstorks, R., Aiken, L. S., Pfund, R. A., Stamm, K. E., & Christidis, P. (2016). Undergraduate study in psychology: Curriculum and assessment. *American Psychologist, 71*(2), 89–101.

Palermo, S., & Morese, R. (2019). Introductory chapter: Neuroscience wants behavior. In S. Palermo (Ed.), *Behavioral Neuroscience*. https://www.intechopen.com/books/behavioral-neuroscience

Parada, J. C., & Birkett, M. A. (2020). In defense of labs: Maximizing academic, cognitive, and interpersonal skills through the teaching of psychology labs. In T. Ober, E. Che, J. Brodsky, C. Raffaele, & P. J. Brooks (Eds.), *How we teach now (Vol 2): The GSTA guide to transformative teaching*. http://teachpsych.org/ebooks/howweteachnow-transformative.

Peterson, J. J., & Sesma, A., Jr. (2017). Introductory psychology: What's lab got to do with it? *Teaching of Psychology, 44*(4), 313–323.

Pintrich, P. R. (1999). The role of motivation in promoting and sustaining self-regulated learning. *International Journal of Educational Research, 31*, 459–470.

Ramirez, J. J. (2020). Undergraduate neuroscience education: Meeting the challenges of the 21st century. *Neuroscience Letters, 739*. https://doi.org/10.1016/j.neulet.2020.135418.

Sathy, V., Mahfuz, N., Strauss, C., & Hutson, B. (2020). The CURE for broadening participation in undergraduate research. In T. Ober, E. Che, J. Brodsky, C. Raffaele, & P. J. Brooks (Eds.), *How we teach now (Vol 2): The GSTA guide to transformative teaching*. http://teachpsych.org/ebooks/howweteachnow-transformative.

Schettino, L. F. (2014). NeuroLab: A set of graphical computer simulations to support neuroscience instruction at the high school and undergraduate level. *Journal of Undergraduate Neuroscience Education, 12*(2), A123–A129.

Schraw, G., Crippen, K. J., & Hartley, K. (2006). Promoting self-regulation in science education: Metacognition as part of a broader perspective on learning. *Research in Science Education, 36*, 111–139.

Schwartz, A., Obeid, R., & Powers, K. (2018, May 15). *Teaching APA format in experimental psychology through poster design* [Blog post]. GSTA blog. https://teachpsych.org/page-1784686/6205676

Schwartz, A., Obeid, R., Shane-Simpson, C., Powers, K. L., & Thompson, L. (2020). Turning the undergraduate classroom into a research conference: Using poster presentations to target the APA guidelines 2.0. In T. Ober, E. Che, J. Brodsky, C. Raffaele, & P. J. Brooks (Eds.), *How we teach now (Vol 2): The GSTA guide to transformative teaching*. http://teachpsych.org/ebooks/howweteachnow-transformative.

Schwartz, S. J., Lilienfeld, S. O., Meca, A., & Sauvigné, K. C. (2016). The role of neuroscience within psychology: A call for inclusiveness over exclusiveness. *American Psychologist, 71*(1), 52–70.

Scullin, M. K. (2019). The eight-hour sleep challenge during finals exam week. *Teaching of Psychology, 46*(1), 55–63.

Sgoutas-Emch, S. A., Nagel, E., & Flynn, S. (2007). Correlates of performance in biological psychology: How can we help? *Journal of Instructional Psychology, 34*(1), 46–53.

Smith, P. L., Howard, J. R., & D'Alessandro, M. (2020). The use of magazine spreads as a tool in neuroscience pedagogy. *Psychology and Education, 57*(3), 191–197.

Stead, J., Wiseman, A., & Hellemans, K. (2019). Neuroscience and careers. In M. Norris (Ed.), *The Canadian handbook for careers in psychological science*. https://ecampusontario.pressbooks.pub/psychologycareers/.

Stevenson, J. L., Shah, S., & Bish, J. P. (2016). Use of structural assessment of knowledge for outcomes assessment in the neuroscience classroom. *Journal of Undergraduate Neuroscience Education, 15*(1), A38–A43.

Stoloff, M., McCarthy, M., Keller, L., Varfolomeeva, V., Lynch, J., Makara, K., … Smiley, W. (2009). The undergraduate psychology major: An examination of structure and sequence. *Teaching of Psychology, 37*(1), 4–15.

Thieman, T. J., Clary, E. G., Olson, A. M., Dauner, R. C., & Ring, E. E. (2009). Introducing students to psychological research: General psychology as a laboratory course. *Teaching of Psychology, 36*(3), 160–168.

Van de Pol, J., Volman, M., & Beishuizen, J. (2010). Scaffolding in teacher–student interaction: A decade of research. *Educational Psychology Review, 22*(3), 271–296.

Waschull, S. B. (2005). Predicting success in online psychology courses: Self-discipline and motivation. *Teaching of Psychology, 32*(3), 190–192.

Weisberg, D. S., Keil, F. C., Goodstein, J., Rawson, E., & Gray, J. R. (2008). The seductive allure of neuroscience explanations. *Journal of Cognitive Neuroscience, 20*(3), 470–477.

Wieman, C. E. (2014). Large-scale comparison of science teaching methods sends clear message. *PNAS, 111*(23), 8319–8320.

Willard, A. M., & Brasier, D. J. (2014). Controversies in neuroscience: A literature-based course for first year undergraduates that improves scientific confidence while teaching concepts. *Journal of Undergraduate Neuroscience Education, 12*(2), A159–A166.

Winkelmes, M. A., Bernacki, M., Butler, J., Zochowski, M., Golanics, J., & Weavil, K. H. (2016). A teaching intervention that increases underserved college students' success. *Peer Review, 18*(1/2), 31–36.

Yeung, A. W. K., Goto, T. K., & Leung, W. K. (2017). The changing landscape of neuroscience research, 2006–2015: A bibliometric study. *Frontiers in Neuroscience, 11*. https://doi.org/10.3389/fnins.2017.00120.

Zinchuk, A. V., Flanagan, E. P., Tubridy, N. J., Miller, W. A., & McCullough, L. D. (2010). Attitudes of US medical trainees toward neurology education: "Neurophobia" – a global issue. *BMC Medical Education, 10*, 49–56.

Teaching the Foundations of Psychological Science

17

Basic Research Methods and Statistics

Regan A. R. Gurung and Andrew Christopher

Contents

Abstract

In this chapter, we detail a number of considerations for teachers of research methods and statistics courses at the undergraduate level, particularly introductory courses on these topics. In particular, we provide a rationale for why students need to learn the information in these courses, address challenges we as teachers face in teaching this information, and provide suggestions for overcoming these challenges and turning them into opportunities for students to understand the importance of this material. We also provide ideas for organizing the material in each of these two courses, discuss the benefits and pitfalls of teaching this material in an integrated course sequence, and highlight resources to help teachers teach this difficult material.

R. A. R. Gurung (✉)
Psychological Science, Oregon State University, Corvallis, OR, USA
e-mail: Regan.Gurung@OregonState.edu

A. Christopher
Albion College, Albion, MI, USA
e-mail: achristopher@albion.edu

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Introduction

There has been a marked increase in global conversations about teaching psychology (Cranney & Dunn, 2011; Hanna, 2013). Finding optimal ways to teach students research methods and statistics in particular is a large part of the global conversation in higher education (Allen & Baughman, 2016; Roberts, 2016; Roberts & Allen, 2012; Sümer, 2016). In the United States, the American Psychological Association's (APA) Guidelines for the Undergraduate major (*Guidelines 2.0,* APA, 2013) and the National Standards for High School Psychology (APA, 2012) both stress the importance of research design and statistical knowledge and ability and provide useful language for shaping a focus on these two areas. The *Guidelines 2.0* lists "scientific inquiry and critical thinking," as one of the learning goals for an undergraduate psychology degree. Similarly, scientific inquiry is one of seven domains of the *Standards* for secondary education (APA, 2012). To accomplish this goal of fostering scientific inquiry and critical thinking ability requires, "the development of scientific reasoning and problem solving, including effective research methods," "applying research design principles to drawing conclusions about psychological phenomena," and "designing and executing research plans" (APA, 2013, p. 15).

Knowledge of basic research methods and statistical concepts are also foundational elements of the introductory psychology course (Gurung et al. 2016) and are featured explicitly in new student learning outcomes for the course developed for global implementation (APA, 2019). Consequently, research methods and statistics courses are the bedrock of education in psychological science (Dunn et al. 2010). Both courses hold a prominent position in the undergraduate psychology curriculum in the United States. Nearly every undergraduate psychology program offers introductory-level research methods and statistics courses (Norcross et al., 2016; Stoloff et al., 2010). Research Methods and Statistics, besides Introductory Psychology, are the most universally required courses of a psychology major in the United States (Friedrich, Childress, & Cheng, 2018) and are an important part of courses worldwide (Roberts, 2016).

In this chapter, we outline the rationale for teaching these courses, explore challenges teachers face when teaching this information to most undergraduates, and provide suggestions for turning pedagogical challenges into learning opportunities with undergraduate students. Furthermore, we provide resources for teaching these courses, suggestions on organizing course material, and a discussion of the trend to teach these courses in an integrated sequence. Throughout, we offer key recommendations for teaching and learning the content and skills in both of these interrelated areas, ones that most undergraduate students are anxious about and dreading.

Rationale for Learning Research Methods and Statistics

One of the most common complaints we hear from our undergraduate psychology majors amounts to "Why do we have to take these boring research methods and statistics classes when there are so many more interesting psychology classes we could be taking?" Of course, as teachers of these subject matters, we often roll our eyes (at least figuratively) when we hear such reactions. Having gone on for advanced study in psychology, we fully understand the importance of these courses. In addition to being foundational for the science of psychology, stronger research training correlates with self-reported research self-efficacy, a greater willingness to engage in additional research, and better critical thinking and analytical skills (Burke & Prieto, 2019), attributes that graduate schools seek in new students. However, many of our students may not have the same professional aspirations or be financially able to attend graduate school. Thus, although the rationale for these courses may be clear to us as teachers, we need to convey that importance to our students on their terms. For many students, the rationale for taking any course may boil down to one question: how can taking a course help them get a job? Although we as teachers may cringe at hearing this question, the reality is that our students, particularly traditional-age undergraduates, are dealing with the "How can that help you get a job" question from others (e.g., parents). We need to help them answer it, remembering that we as their teachers already have jobs that we love.

What do faculty members see as the main reasons why students should take Research Methods and Statistics? Faculty in one survey saw the most important reason for the course as developing scientific thinking skills (79%), followed by increasing engagement in the research process (28%), and preparing for higher-level courses (22%) (Ciarocco, Strohmetz, & Lewandowski, 2017). Indeed, as mentioned previously, students themselves tend to see these courses as geared toward preparing them for graduate school, regardless of whether they intend to pursue advanced study. Although these courses are certainly relevant to our graduate-school-bound students, we argue that these courses offer wonderful opportunities to help all students develop skills and have experiences that employers (and graduate schools) value (see Gardner, 2007; Hart Research Associates, 2015). For instance, Hart Research Associates (2015) found that the six most important outcomes of an undergraduate education are: (1) the ability to effectively communicate orally; (2) the ability to work effectively with others in teams; (3) the ability to effectively communicate in writing; (4) ethical judgment and decision-making; (5) critical thinking and analytical reasoning skills; and (6) the ability to apply knowledge and skills to real-world settings. As Christopher and Batsell (2019) detailed, the research methods and statistics courses offer ample opportunities to design assignments that allow students to develop some of these desired outcomes. For example, the fairly traditional project of having students do some combination of designing a study, submitting a research ethics proposal, collecting data, analyzing those data with software, and presenting the data (in a paper and/or poster or platform format) inherently requires students to use many of these skills. Making that fact explicit to students will help them understand the importance of such a project, even if they are

not aiming for a research-oriented graduate school program. Even more specific to making skill develop explicit to students, we ask our students to keep a journal that details how they developed these employer-desired skills so that they can draw on them in later endeavors, such as in constructing a resume, answering questions on an interview, or preparing a personal statement for a graduate school application. Every student, regardless of ability or motivational level, is interested in making or finding a job. Tying these courses (and all others) to this ultimate outcome can only serve to heighten students' interest in the material.

In addition to the skills that we can help students develop in these courses, we love teaching research methods and statistics because of the information in these classes. Of course, most of our students are not, at least initially, interested in research. Many of our best research students who go on to research-focused graduate programs found that passion only after enrolling in a research methods and statistics course. We try to start with something that students are actually interested in or at least can relate to before diving into anything technical, especially with statistics (Lawson, Schwiers, Doellmann, Grady, & Keinhofer, 2003). Indeed, likely one reason we as teachers find this information so appealing is because of how widely applicable it is. We need to convey that applicability to all of our students. For instance, one might introduce the topic of one-way analysis of variance (ANOVA) by asking students which wireless service they use. From there, you can ask which service is "the best," leading into a discussion of constructs and operational definitions. Once the class decides on a construct and its operational definition, discussion can lead into how to compare the three (or more) wireless services on that dimension. Typically, in our classes, students choose "customer satisfaction" as the construct of interest, leading into the one-way between-subjects ANOVA. From there, we do a conceptual example of what this analytic technique allows us to learn and the conditions necessary to use it. We then dive into conceptual discussions of the components of this analytic technique, such as between-group variability and within-group variability.

Key Challenges in Teaching Research Methods and Statistics

Every course has unique challenges that teachers must help students overcome. For instance, in abnormal psychology courses, teachers must help students overcome potential "medical student syndrome," in which students perceive that they see every psychological illness they read about appearing in themselves or someone they know. But what about the challenges teachers face in in the scholarship of teaching and learning suggests that faculty believe that the most common challenge in teaching these courses involves course design issues. Specific challenges included struggling with the balance between the different types of material, the available time to teach "everything," and making the material engaging. Other challenges involved teaching students how to conduct research, teaching data analysis, and teaching writing (Ciarocco et al., 2017). Perhaps one of the most salient challenges to teaching research methods and statistics is the students' perceptions of the course.

Boring/Irrelevant Content. One of our students once told us, "Psychology would be a perfect major if we didn't have to take these two classes" (or something close to that effect). Indeed, some – and perhaps most – psychology students may see research methods and statistics requirements as some sort of conspiracy that prevents them from taking other classes they would rather take. Indeed, these anecdotes are well-supported in empirical work. Research shows most students (75%) are not enthusiastic about taking research methods (Rajecki, Appleby, Williams, Johnson, & Jeschke, 2005), prefer to passively read or hear about research over actively conducting research individually or with a team (Rottinghaus, Gaffey, Borgen, & Ralston, 2006; Vittengl et al., 2004), hold negative attitudes towards research methods (Addison et al., 2015; Murtonen, 2005; Sizemore & Lewandowski, 2009), and fail to see the future relevance or utility of methods and statistics courses (Ciarocco, Lewandowski, & Van Volkom, 2013; Earley, 2014; Murtonen, 2015).

Research methods and statistics are the "core" tools of scientific psychology that allow researchers to draw conclusions about their work. As teachers, we appreciate this state of affairs. Our students, however, do not have this level of appreciation, and in many cases, have no desire to acquire it. Instead, they see these courses as barriers to what is otherwise a wonderful major! Thus, it is incumbent on us to demonstrate the importance of these courses to our students. For those aiming for graduate school, and particularly research-oriented programs, that is relatively easy to do. It is much more difficult to elucidate the importance of statistical knowledge to students who are taking the class because it is required in what is an otherwise interesting major.

Teacher-Student Enthusiasm Gap. A related challenge in teaching research methods and statistics courses is that students and instructors may not perceive the information in the same way. Strohmetz, Ciarocco, and Lewandowski (2018) reported students see learning to think scientifically and learning to do research as equally important, whereas their instructors place a higher value on learning to think scientifically. Students also saw these courses as preparation for graduate school more than as opportunities to cultivate employable skills. Whereas students worried about writing problems and learning how to design/conduct their own study, instructors were more likely to list student problems (e.g., lack of motivation and inability to engage in higher order thinking), as the most challenging aspects of the course. Students saw learning how to engage in research as a less important goal than their instructors did.

Given this enthusiasm gap, it is not entirely surprising that exposure to research methods and statistics courses can solidify attitudes that were already negative. After taking these courses, some students report seeing statistics and research knowledge as less useful (Sizemore & Lewandowski, 2009) and having less interest in scientific activities (Manning, Zachar, Ray, & LoBello, 2006).

Inherently Difficult and Abstract Content. Of course, in any given psychology course, there are some topics that students find particularly difficult, but in research methods and stats courses, the list of difficult topics seems much, much longer. Indeed, many of these topics serve as "potholes" or impediments to learning (Stoa,

Chu, & Gurung, in press). In a recent attempt to uncover potholes and repave the street in the United States, Stoa and colleagues asked undergraduate students to identify their challenges in research methods and statistics. The students could list up to five concepts that they found challenging, and then were asked to rate the difficulty of 63 research methods concepts (e.g., confound, effect size) derived from past research (Gurung & Landrum, 2013). The topics most often mentioned as challenging included types of validity (21%), quasi-experiments (5.8%), general knowledge of statistics (4.8%), and operational definition (4%).

A principle components analysis of difficulty ratings of the 63 concepts revealed five underlying factors: (a) Factor 1: items related to *Samples and Variables* (e.g., random assignment and confounds), (b) Factor 2: items related to *Ethics and Theory Data Cycle* (e.g., debriefing and informed consent), (c) Factor 3: items related to *Threats to Internal Validity* (e.g., attrition and demand characteristics), (d) Factor 4: items related to *Design Confounds* (e.g., systematic variability and third-variable problem), and (e) Factor 5: items related to *Scale Measurements* (e.g., Cronbach's alpha, and correlation coefficient). Do students in different educational systems across the globe find the same factors difficult? Research to answer this question is currently underway.

Overcoming Challenges to Teaching Research Methods and Statistics

Instructors have tried differing ways to address the challenges we have listed here, ranging from changing course design, to directly addressing how research methods and statistics classes are viewed by students.

Make the Course Applicable to Life. One of the biggest barriers is changing how students view the course. The good news is research methods and statistics are perhaps the classes in which we teach the most practical information in the major. The content is not only vital to our students' academic and professional development as discussed previously, but it is inherently interesting as well! We need to do a better job of highlighting the pragmatic value of the courses, and we can use the interesting content. Teachers can and should incorporate into these courses many "everyday" experiences that utilize core information about psychological science.

When teaching research methods, we suggest aiming to provide students with skills they can use in daily life and in the workforce, even if your course is aimed mainly at those bound for graduate school. Whereas most courses on the surface seem to be designed as preparation for graduate school (Lewandowski, Ciarocco, & Strohmetz, 2017), only a small portion of students will go on to graduate school. Consequently, start the course with many illustrations of how research design and analysis can be used in daily life can build student motivation for the course. For instance, to refer to a previous "real life" example from the one-way between-subjects ANOVA of phone service customer satisfaction, a research methods teacher could illustrate a variety of methodological designs. For instance, one could use

survey research to gather customer ratings of different restaurants and compare value and meal quality. In fact, although we have not done so ourselves, teachers could have students construct such a survey themselves, using principles of good survey construction (Berk, 2009). Doing so not only teaches them basic methodological information, but it provides a great chance to do a "real world" project.

One significant way to change how the course is perceived is to include many opportunities for students to interact with the material in an active way with the guidance of the instructor. One study tested the efficacy of a multifaceted approach that included both active learning and a form of scaffolding in which the instructor provided a temporary structure to guide the student towards learning (Ciarocco et al., 2013). Students do better in the presence of the knowledge expert (the instructor) than if they were learning independently. As the student learns the new skills, the instructor slowly removes the guidance and structures. For example, students first read a published psychological study and wrote an in-class summary. The instructor provided scaffolding by discussing the article with the class and asking specific questions about the procedure and analyses, and giving feedback on the students' critiques. The instructor then did an in-class demonstration of the same research design as featured in the paper the students read, and where the students served as participants. Students then discussed the study results and design in small groups, finally writing up their results. US students exposed to this approach showed improved ability to write in accordance with APA style, higher perceived utility of research and statistics, more positive attitudes toward statistics, and higher perceived skills/abilities in statistics.

Other possible solutions to alleviate students' negative attitudes about these courses include arranging for students to collect their own data rather than have data handed to them. Students who actively design and conduct research as part of their methods course report more interest in doing research, feel more prepared to conduct their own research, and have more favorable impressions of the course overall (Roberts & Allen, 2012, 2013). One note of warning, there is evidence that even when students collect their own data, if they do so in an online course they score significantly lower on measures of quantitative mastery of statistical concepts than students who collect data in a face-to-face class (Goode et al., 2018).

Pay Attention to Course Design. A major consideration in teaching research methods in particular is whether the course will stress experimental methodology or balance that material with coverage of correlational and descriptive designs. Given the extent to which most workplaces utilize survey data collection, it may be prudent to train students in descriptive data collection methodologies, as this skill can be built on in the discussion of correlational and experimental designs. If the course is designed to prepare students for a wide array of careers, you may want to build in a discussion of qualitative methods and quasi-experimental methods, a common need identified by instructors (Gurung & Stoa, 2020). Again, doing so increases the perceived value of the course by demonstrating its real-life utility.

A related consideration in course planning is the order in which to present information. If you will be using a textbook, you will likely find that most books

start with nonexperimental methods and progress through experimental designs. Therefore, it makes sense to organize the course in this order. However, we have found that students often have trouble understanding the limitations of various nonexperimental work without understanding the insights that experimental designs allow. Therefore, it might be a good idea to first introduce students to the basic two-group experiment, with a manipulated independent variable and random assignment to conditions, then address nonexperimental designs, including their strengths and weaknesses in relation to experiments. We know of no research that suggests incremental benefits of this topic organization, but we have found it useful.

Course organization is particularly important for statistics classes as well. Most statistics courses start with descriptive statistics, then present material on probability, hypothesis testing, and specific inferential techniques. Indeed, it would seem difficult for students to understand the latter areas without a foundation in the former. Within the realm of inferential statistics, however, there are a number of organizational options, depending on your teaching goals. You might want to link particular inferential statistics to the research designs with which they are typically associated. For instance, you could cover statistics such as correlations, univariate and perhaps multivariate regression, and nonparametric techniques such as chi-square in relation to analyzing data from nonexperimental research, and covers statistics such as one-way analysis of variance in relation to analyzing data from experimental research. One significant advantage of organizing the discussion of inferential techniques in this manner is that it allows students to see the connection between research methods and the statistical techniques needed to analyze the results of those methods. This organizational structure is especially easy to implement if you are teaching in a department in which research methods and statistics courses are combined or presented in a fixed sequence (see Christopher, Walter, Horton, & Marek, 2007, and our discussion to follow).

Another organizational decision involves whether and how to address "between-subjects" analyses vs. "repeated-measures" analyses. For example, one could cover the independent samples t test followed immediately by the paired samples t tests. This organization makes intuitive sense, as both analyses deal with comparing two means. However, it is equally sensible to follow the independent samples t test with the one-way between-subjects analysis of variance, as both analyses involve between-subject designs. We do not know of any empirical work that has assessed the relative effectiveness of these two approaches.

There are still other ways of organizing your presentation of inferential statistics tools. One of these is to start with the simplest ones. For most students, these would be the independent samples t test or possibly the Pearson correlation coefficient. You could start with the Pearson correlation, then extend that discussion into univariate (and perhaps multivariate) regression. You could next present the independent samples t test, followed by other mean-comparison tools as noted previously. Here again, we know of no empirical evidence that evaluates the effects of this plan on student learning.

Resources for Teaching Research Methods and Statistics

No matter how you chose to organize your course in research methods or statistics, we urge you to take advantage of the vast array of resources available to help you teach it well. Included in this array is a dense network of supportive colleagues who are eager to share their experiences and pedagogical ideas through listservs, blogs, and other social media such as twitter and Facebook. Here, we highlight only a few of the many books, websites, and other resources available to you.

An excellent starting source of ideas for both research methods and statistics is *Activities for Teaching Statistics and Research Methods* (Stowell & Addison, 2017). This compendium of 26 activities comes from a variety of teachers and includes, for example, having students repeatedly toss a pair of dice to create a frequency distribution table and bar graph (McEntarffer & Vita, 2017). We have found that this activity helps students to understand and appreciate the importance of large sample sizes by comparing the bar graph that results from 15 rolls of the dice compared with 75 rolls. The book includes another remarkably simple demonstration in which students draw slips of paper out of a container. It serves as the foundation for a useful discussion of sampling distributions and central limit theorem, two topics that, because of their hypothetical nature, tend to be among the most difficult for students to understand. These and other activities in this compendium can be used and/or adapted easily for classroom presentations or laboratory experiences.

Still other resources are to be found in the form of journals devoted to the scholarship of teaching and learning in psychology, especially *Teaching of Psychology* (http://teachpsych.org/top/index.php), the *Scholarship of Teaching and Learning in Psychology*, (https://www.apa.org/pubs/journals/stl/), *Psychology Teaching and Learning* (PLAT) (https://uk.sagepub.com/en-gb/eur/journal/psychology-learning-teaching). Each of these journals tends to publish a relatively large number of articles about teaching research methods and statistics material. For instance, in just one recent issue of *PLAT,* there were articles about managing statistics anxiety among undergraduates and student attitudes toward research. Indeed, it is the rare issue of these outlets that does not include information useful to teachers of these two classes.

Consider also the journal *Teaching Statistics* (https://onlinelibrary.wiley.com/journal/14679639) which, though not aimed specifically at teachers in psychology, provides a wide variety of ideas and activities for statistics teachers in any discipline. For instance, one recent issue contained a wonderful activity, using data about lead levels in the water supply in Flint, Michigan, USA, to illustrate descriptive statistics and the potentially life-altering effects they can reveal. The scholarly society associated with this journal, the Teaching Statistics Trust, also provides free resources to statistics teachers (http://teachingstatisticstrust.org.uk/).

In addition to scholarly journals, there are also conferences devote specifically to the teaching of psychology, and typically, there are numerous presentations on the teaching of research methods and statistics at these meetings. There are three such conferences in particular that we enjoy. First, there is the National Institute on the

Teaching of Psychology (NIToP: https://nitop.org/), which is held during the first week of January each year in St. Petersburg Beach, Florida USA. This conference provides 3.5 days of opportunities to learn about teaching in all areas of psychology, including platform presentations, poster sessions, idea exchanges, and numerous planned opportunities for informal interactions with other conference attendees who share similar teaching interests and responsibilities. Second, there is the Annual Conference on Teaching of Psychology (ACT: https://teachpsych.org/conferences/act.php), which is held each October in a different location in the United States. Typically, two full days, this meeting offers many opportunities similar to those offered at NIToP. Finally, the Association for Psychological Science holds a Teaching Institute as part of its annual convention, which is typically held in the USA or Canada during the last weekend each May (https://www.psychologicalscience.org/conventions/annual/teachinginstitute).

If you want to incorporate standard academic research into your methods and statistics classes, we suggest using primary sources on topics that tend to be of strong interest to students. A list of examples from clinical psychology is especially appropriate for use in research methods and statistics courses (Sizemore & Lewandowski, 2011). If you are interested in incorporating interdisciplinary issues into your courses, Christopher, Marek, and Benigno (2003) provided numerous examples, albeit somewhat dated now, of methodological and statistical exemplars from economic psychology.

We have found in both courses that the more we design assignments that are applicable to students' lives, the more likely it is that students will be motivated to learn the material. For example, on the first day of a research methods course, consider asking students answer a simple question such as: Is happiness relate to sleep? Ask each student to list how happy they are on a 10-point scale and to write down how much sleep they got the previous night. Open a statistical program such as SPSS or, for free easy-to-use software, JAMOVI, and enter all the data. Then calculate a correlation to answer the question. In one fell swoop, you have modeled the research process, namely, asking a question, collecting data, and analyzing it. This simple exercise can make the research process real while simultaneously demystifying statistics, software, and research design. It also provides the jumping off point for discussing shortcomings (e.g., why correlation does not establish causation) and proposing fixes (i.e., through designing an experiment). In short, take advantage of any and all activities and assignments that help demonstrate the importance of using statistics in ways that are relevant to the students' lives and to understanding psychological research.

Finally, using the previously discussed research on potholes and challenges, instructors should plan on covering the "hard" stuff together in class, in a low-stakes fashion. What are the concepts that your students find most problematic? Developing extra examples and applications for the most difficult concepts and allocating time in class for students to work together on assessing their comfort and knowledge of such concepts is critical. Explicitly signaling concepts proven to be difficult in advance may make students more likely and comfortable to ask for help when they have problems with the material.

Assessment of Learning in Research Methods and Statistics

Evaluation of the outcomes of research methods and statistics courses typically involves assessment of either student attitudes towards the material or their knowledge of that material. One measure of the former consists of a 30-item scale whose six subscales assess students' attitudes toward research, attitudes toward statistics, perceived utility of research, perceived utility of statistics, perceived ability in research, and perceived ability in statistics (Sizemore & Lewandowski, 2009). The scale includes items such as, "Reading articles about research in psychology is something that I enjoy" and "The concepts learned in a research class will be helpful to me in the future." Another scale (Allen & Baughman, 2016) measures students' confidence in seven different research methods skills, including, for example, their ability to "correctly identify the independent and dependent variables in an experiment," or to "run and interpret an independent samples t-test using SPSS."

Students' knowledge of research methods content can be measured in a number of ways, including total scores on the *Psychological Research Methods Survey* (Amsel, Allen, & Bauer 2014), a 10-item multiple-choice test about psychological research methods. One item, for example, reads as follows: "The part of an experiment that the experimenter deliberately manipulates is the: (a) hypothesis; (b) control group; (c) dependent variable; (d) independent variable." There is also a 20-item *Psychological Research Inventory of Concepts* (Veilleux & Chapman, 2017). It was developed using Item Response Theory, such that the multiple-choice items were derived from longer vignettes and validated on a diverse sample of students and Amazon Mechanical Turk workers.

Additional Considerations in Teaching Research Methods and Statistics

We once heard a colleague say that she had not really changed her research methods and statistics classes much during the past 20 years. On the surface, it may be true that a lot of the material that was important in these courses decades ago is still important today. However, the students enter higher education for a wide variety of reasons. Might these diverse goals affect what and how these courses will be taught in the future? We think so.

What Is Taught? There are five main factors that instructors in the USA believe are most important when teaching research methods and statistics: Basic Knowledge, Design, Skills, Statistics, and Other topics (Gurung & Stoa, 2020). In statistics classes, topics related to null hypothesis testing to be among the most essential (e.g., Giesbrecht, Sell, Scialfa, Sandals, & Ehlers, 1997). In fact, instructors of undergraduate statistics courses rated "statistical significance," "significance level," and "hypothesis testing" as among the seven most important terms (out of 374 examined) students needed to understand (Landrum, 2005). There was no mention of what are now called the "new statistics," such as effect sizes, confidence intervals, or meta-analytic techniques. Although these two particular studies are now relatively dated,

they do point to the need for statistics teachers to rethink precisely what information undergraduates need to know about this subject matter, particularly at an introductory level.

As noted previously, discussions of hypothesis testing are still the norm in undergraduate statistics classes (Friedrich et al., 2018), despite calls to abandon hypothesis testing results in favor of reporting other statistics, such as effect sizes and confidence intervals (e.g., Cummings, 2014). Though effect sizes are now commonly reported in the results sections of psychology journal articles, the reporting of "new statistics" feels to us to be inconsistent not only across journals but sometimes even within the same journal. Indeed, hypothesis testing remains a staple, so teachers of research methods and statistics are more or less obligated to continue emphasizing both, lest students not understand what they are reading in those journals.

How Is it Taught? A recent survey of undergraduate psychology programs in the United States (Friedrich et al., 2018) found that large majorities of departments require statistics courses (80% of general schools, and 79% of top-ranked schools) and/or research methods courses (85% of general schools, and 65% of top-ranked schools). In the subset of 83/385 departments requiring both research methods and statistics, most (71%) required that statistics be taken first; 11% required that research methods be taken first. A little less than a third of the departments required an integrated research methods and statistics course (28% of general schools, and 24% of top-ranked schools).

Because there are many reasons to integrate research methods and statistics, we think combined courses are likely to become more common than they are now. Integrated courses provide a context for students to learn statistics, enhance the transfer of learning from one course to the other, and illustrate how science actually works (Christopher et al., 2007). In the life of most academics, research methods and statistics go hand-in-hand, and it is actually quite difficult to separate them. Furthermore, whereas many of the textbooks available to the instructor are dedicated exclusively to research methods or statistics, there is a growing number of books that integrate both topics.

Knowledge of research methods and statistics form the core foundation of the discipline of psychology. Having a basic understanding of both these areas can make for a psychological literate global citizen. Both classes have their challenges as outlined previously; however, the effort to teach them well can pay off with a better functioning citizenry. Our solutions do not cover all bases, and there is work to be done. We trust the resources and opportunities suggested will also stimulate significant reflection and potentially a range of systematic, intentional modifications to teaching research methods and statistics.

Cross-References

► Qualitative Methodology
► Teaching the Foundations of Psychological Science

References

Addison, W. E., Stowell, J. R., Reab, M. D. (2015). Attributes of introductory psychology and statistics teachers: Findings from comments on RateMyProfessors.com. *Scholarship of Teaching and Learning in Psychology, 1*, 229–234. https://doi.org/10.1037/stl0000034.

Allen, P. J., & Baughman, F. D. (2016). Active learning in research methods classes is associated with higher knowledge and confidence, though not evaluations or satisfaction. *Frontiers in Psychology, 7*, Article 279. https://doi.org/10.3389/fpsyg.2016.00279.

American Psychological Association (APA). (2012). Guidelines for preparing high school psychology teachers: Course-based and standards-based approaches. Retrieved from https://www.apa.org/education/k12/teaching-guidelines.pdf

American Psychological Association (APA). (2013). APA guidelines for the undergraduate psychology major: Version 2.0. Retrieved from http://www.apa.org/ed/precollege/undergrad/index.aspx

American Psychological Association (APA). (2019). The APA introductory psychology initiative: Envisioning the future: Charting new directions for introductory psychology. Retrieved from https://www.apa.org/ed/precollege/undergrad/introductory-psychology-initiative

Amsel, E., Allen, L., & Bauer, R. (2014, August). *Psychological literacy: Its nature, acquisition, and application*. Presented at the 6th international conference on psychology education, Flagstaff.

Berk, R. A. (2009). Using the 360-degree multisource feedback model to evaluate teaching and professionalism. *Medical Teacher, 31*, 1073–1080.

Burke, K. S., & Prieto, L. R. (2019). High-quality research training environments and undergraduate psychology students. *Scholarship of Teaching and Learning in Psychology, 5*(3), 223–235. https://doi.org/10.1037/stl0000156.

Christopher, A. N., & Batsell, W. R., Jr. (2019). Mentoring students in professional development. In R. Harnish (Ed.), *What I wish my mentor had told me* (pp. 87–102). Retrieved from: https://teachpsych.org/resources/Documents/ebooks/mentortoldme.pdf. Society for the Teaching of Psychology.

Christopher, A. N., Marek, P., & Benigno, J. (2003). Economic psychology: Its connections with research-oriented courses. *Teaching of Psychology, 30*(3), 209–215. https://doi.org/10.1207/S15328023TOP3003_02.

Christopher, A. N., Walter, M. I., Horton, R. S., & Marek, P. (2007). Benefits and detriments of teaching an integrated research methods and statistics course. In D. S. Dunn, R. A. Smith, & B. Beins (Eds.), *Best practices in the teaching of statistics and research methods in the behavioral sciences* (pp. 215–232). Mahwah, NJ: Lawrence Erlbaum.

Ciarocco, N. J., Lewandowski, G. W., & Van Volkom, M. (2013). The impact of a multifaceted approach to teaching research methods on students attitudes. *Teaching of Psychology, 40*(1), 20–23. https://doi.org/10.1177/0098628312465859.

Ciarocco, N. J., Strohmetz, D. B., & Lewandowski, G. W., Jr. (2017). What's the point? Faculty perceptions of research methods courses. *Scholarship of Teaching and Learning in Psychology, 3*(2), 116–131. https://doi.org/10.1037/stl0000085.

Cranney, J., & Dunn, D. S. (Eds.). (2011). *Educating the psychologically literate citizen: Global perspectives*. New York, NY: Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199794942.001.0001.

Cummings, G. (2014). The new statistics: Why and how. *Psychological Science, 25*, 7–29. https://doi.org/10.1177/0956797613504966.

Dunn, D. S., Brewer, C. L., Cautin, R. L., Gurung, R. A. R., Keith, K. D., McGregor, L. N., … Voigt, M. J. (2010). The undergraduate psychology curriculum: Call for a core. In D. F. Halpern (Ed.), *Undergraduate education in psychology: A blueprint for the future of the discipline; undergraduate education in psychology: A blueprint for the future of the discipline* (pp. 47–61, Chap xvi, 227 p) Washington, DC: American Psychological Association. https://doi.org/10.1037/12063-003.

Earley, M. A. (2014). A synthesis of the literature on research methods education. *Teaching in Higher Education, 19*, 242–253. https://doi.org/10.1080/13562517.2013.860105.

Friedrich, J., Childress, J., & Cheng, D. (2018). Replicating a national survey on statistical training in undergraduate psychology programs: Are there 'new statistics' in the new millennium? *Teaching of Psychology, 45*, 312–323.

Gardner, P. (2007). *Moving up or moving out of the company? Factors that influence the promoting or firing of new college hires* (CERI research brief 1-2007). East Lansing, MI: Michigan State University, Collegiate Employment Research Institute. Retrieved from http://ceri.msu.edu/publications/pdf/brief1-07.pdf.

Giesbrecht, N., Sell, Y., Scialfa, C., Sandals, L., & Ehlers, P. (1997). Essential topics in introductory statistics and methodology courses. *Teaching of Psychology, 24*(4), 242–246. https://doi.org/10.1207/s15328023top2404_2.

Goode, C. T., Lamoreaux, M., Atchison, K. J., Jeffress, E. C., Lynch, H. L., & Sheehan, E. (2018). Quantitative skills, critical thinking, and writing mechanics in blended versus face-to-face versions of a research methods and statistics course. *Teaching of Psychology, 45*, 124–131. https://doi.org/10.1177/0098628318762873.

Gurung, R. A. R., Hackathorn, J., Enns, C., Frantz, S., Cacioppo, J. T., Loop, T., & Freeman, J. E. (2016). Strengthening introductory psychology: A new model for teaching the introductory course. *American Psychologist, 71*(2), 112–124. https://doi.org/10.1037/a0040012.

Gurung, R. A. R., & Landrum, R. E. (2013). Bottleneck concepts in psychology: Exploratory first steps. *Psychology Learning & Teaching, 12*(3), 236–245. https://doi.org/10.2304/plat.2013.12.3.236.

Gurung, R. A. R., & Stoa, R. (2020). A national survey of teaching and learning research methods: Important concepts and faculty and student perspectives. *Teaching of Psychology, 47*(2), 111–120. https://doi.org/10.1177/0098628320901374.

Hanna, B. (2013). Toward psychological literacy: A snapshot of evidence-based teaching and learning. *Australian Journal of Psychology, 65*(1), 1–4.

Hart Research Associates. (2015). *Falling short? College learning and career success*. Association of American Colleges and Universities. Retrieved from https://www.aacu.org/sites/default/files/files/LEAP/2015employerstudentsurvey.pdf

Landrum, R. E. (2005). Core terms in undergraduate statistics. *Teaching of Psychology, 32*, 249–251.

Lawson, T. J., Schwiers, M., Doellmann, M., Grady, G., & Keinhofer, R. (2003). Enhancing students' ability to use statistical reasoning with everyday problems. *Teaching of Psychology, 30*(2), 107–110. https://doi.org/10.1207/S15328023TOP3002_04.

Lewandowski, G. W., Jr., Ciarocco, N. J., & Strohmetz, D. B. (2017). Research methods 2.0: A new approach for today's students. In R. Obeid, A. Schwartz, C. Shane-Simpson, & P. J. Brooks (Eds.), *How we teach now: The GSTA guide to student-centered teaching* (pp. 329–339). Society for the Teaching of Psychology.

Manning, K., Zachar, P., Ray, G., & LoBello, S. (2006). Research methods courses and the scientist and practitioner interests of psychology majors. *Teaching of Psychology, 33*, 194–196.

McEntarffer, R., & Vita, M. (2017). Getting dicey: Thinking about normal distributions and descriptive statistics. In J. R. Stowell and W. E. Addison (Eds.), *Activities for teaching statistics and research methods: A guide for psychology instructors* (pp. 28–32). Washington, DC: American Psychological Association.

Murtonen, M. (2005). University students' research orientations: Do negative attitudes exist toward quantitative methods? *Scandinavian Journal of Educational Research, 49*, 263–280. https://doi.org/10.1080/00313830500109568.

Murtonen, M. (2015). University students' understanding of the concepts empirical, theoretical, qualitative and quantitative research. *Teaching in Higher Education, 20*, 684–698. https://doi.org/10.1080/13562517.2015.1072152.

Norcross, J. C., Hailstorks, R., Aiken, L. S., Pfund, R. A., Stamm, K. E., & Christidis, P. (2016). Undergraduate study in psychology: Curriculum and assessment. *American Psychologist, 71*(2), 89–101.

Rajecki, D. W., Appleby, D., Williams, C. C., Johnson, K., & Jeschke, M. P. (2005). Statistics can wait: Career plans activity and course preferences of American psychology undergraduates. *Psychology Learning & Teaching, 4*, 83–89. https://doi.org/10.2304/plat.2004.4.2.83.

Roberts, L. D. (2016). Editorial: Research methods pedagogy: Engaging psychology students in research methods and statistics. *Frontiers in Psychology, 7*, 3.

Roberts, L. D., & Allen, P. J. (2012). Student perspectives on the value of research participation. In S. McCarthy, K. L. Dickson, J. Cranney, A. Trapp, & V. Karandashev (Eds.), *Teaching psychology around the world* (Vol. 3, pp. 198–211). Newcastle, UK: Cambridge Scholars.

Roberts, L. D., & Allen, P. J. (2013). A brief measure of student perceptions of the educational value of research participation. *Australian Journal of Psychology, 65*, 22–29. https://doi.org/10.1111/ajpy.12007.

Rottinghaus, P. J., Gaffey, A. R., Borgen, F. H., & Ralston, C. A. (2006). Diverse pathways of psychology majors: Vocational interests, self-efficacy, and intentions. *The Career Development Quarterly, 55*, 85–93. https://doi.org/10.1002/j.2161-0045.2006.tb00007.x.

Sizemore, O. J., & Lewandowski, G. W. (2009). Learning might not equal liking: Research methods course changes knowledge but not attitudes. *Teaching of Psychology, 36*, 90–95. https://doi.org/10.1080/00986280902739727.

Sizemore, O. J., & Lewandowski, G. W. (2011). Lessons learned: Using clinical examples for teaching research methods. *Psychology Learning & Teaching, 10*(1), 25–31. https://doi.org/10.2304/plat.2011.10.1.25.

Stoa, R., Chu, A., & Gurung, R. A. R. (in press). *Potential potholes: Predicting challenges and learning outcomes in research methods in psychology courses*. Teaching of Psychology.

Stoloff, M., McCarthy, M., Keller, L., Varfolomeeva, V., Lynch, J., Makara, K., … Smiley, W. (2010). The undergraduate psychology major: An examination of structure and sequence. *Teaching of Psychology, 37*(1), 4–15. https://doi.org/10.1080/00986280903426274.

Stowell, J. R., & Addison, W. E. (2017). *Activities for teaching statistics and research methods: A guide for psychology instructors*. Washington, DC: American Psychological Association.

Strohmetz, D. B., Ciarocco, N. J., & Lewandowski, G. W., Jr. (2018). *Getting on the same page: Aligning student and instructor perception to facilitate learning in methods classes.* Presentation at the society for the teaching of psychology's annual conference on teaching, Phoenix.

Sümer, N. (2016). Rapid growth of psychology programs in Turkey: Undergraduate curriculum and structural challenges. *Teaching of Psychology, 43*(1), 63–69. https://doi.org/10.1177/0098628315620886.

Veilleux, J. C., & Chapman, K. M. (2017). Development of a research methods and statistics concept inventory. *Teaching of Psychology, 44*(3), 203–211. https://doi.org/10.1177/0098628317711287.

Vittengl, J. R., Bosley, C. Y., Brescia, S. A., Eckardt, E. A., Neidig, J. M., Shelver, K. S., & Sapenoff, L. A. (2004). Why are some undergraduates more (and others less) interested in psychological research? *Teaching of Psychology, 31*, 91–97. https://doi.org/10.1207/s15328023top3102_3.

The Methodology Cycle as the Basis for Knowledge

18

Teaching Basic Epistemological Thinking

Jaan Valsiner and Angela Uchoa Branco

Contents

Abstract

Teaching *methodology* in various social sciences is a complex problem that starts from the ambiguity about what is meant by the notion of methodology. In contemporary practices, the meaning of the terms has usually been associated with the notion of *methods* that are viewed as discrete tools applicable in research in their own terms. This is inadequate on epistemological grounds. We have introduced the system of methodology – the Methodology Cycle back in 1997. In this chapter, we examine the implications of different ways of using the cycle for research purposes and show how it is the necessary basis for teaching methodology at all levels of education.

Keywords

Epistemology · Methodology · Knowledge · Educated intuition

J. Valsiner (✉)
Centre of Cultural Psychology, Department of Communication and Psychology, Aalborg University, Aalborg, Denmark

Sigmund Freud Privatuniversität, Vienna, Austria
e-mail: jvalsiner@gmail.com

A. U. Branco
Department of Psychology, University of Brasilia, Brasilia DF, Brazil

J. Zumbach et al. (eds.), *International Handbook of Psychology Learning and Teaching*, Springer International Handbooks of Education,
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Introduction

More than two decades ago, in despair about the proliferating practices of unreflective application of various specific methods in psychology and educational research Worldwide, we introduced a message of caution to the never-ending quest for "more data!". The message was simple:

> It is not the issue of "application" of different methods (as separate tools—chosen from the "toolbox" because of their convenience, current social fashion, or researchers' ideological inclinations) to the phenomena we study. Instead, the combination of methods of data acquisition has to represent the theoretical assumptions of the researcher. (Branco & Valsiner, 1997, p. 38)

The result of our critique of the equation of "methodology" with "methods" – and the consumerist attitude to the latter – was the introduction of the Methodology Cycle (Fig. 1).

The crucial feature of the Cycle is the dynamic unity of all four components that are involved in any research effort: PHENOMENA, BASIC ASSUMPTIONS (axioms, META-CODE), THEORY, and – last in the line – METHODS, the work of all of which is made productive by the researcher. Within the exposition of the Methodology Cycle, the researcher is similar to an artist who unifies the four components and builds one's knowledge constructive efforts. This is both based on – and leads further into – EDUCATED INTUITION about how the process of research through the Cycle needs to proceed.

The whole move through the Cycle is an act of positioning by the researcher – looking for an access route to the phenomena of interest by constructing appropriate methods. The frequently asked question of priorities – *what kind of methods to use* (quantitative, qualitative or "mixed")? – is replaced by another question – *what kinds of methods need to be created* given the specific parameters selected through the Methodology Cycle.

The DATA have a special role as an outcome of the intellectual work through the Cycle. The date are not "facts" about the phenomena but *derived signs* that represent the phenomena in some – META-CODE and THEORY based – capacity. Their *derivation from* the phenomena was equated to sign-making in semiotic sense (Valsiner, 1995, 2000, 2018). As such, *data are always partial representations of the phenomena and therefore not "objective" by themselves*. Instead, objectivity in research is a result of coordination of the whole of the Cycle in a counter-clockwise process that needs to begin from the researcher's intuitive feeling-in (*Einfühlung*) into the PHENOMENA that is socially positioned by the BASIC ASSUMPTIONS on which the researcher sets up one's epistemological efforts.

Why Is the Methodology Cycle Necessary? Countering Pseudo-empiricism

We felt the need to provide an epistemological framework for methodology in the middle of the 1990s as we saw the proliferation of empirical research of pseudo-empirical kind (Smedslund, 1991, 1995) going on in child and developmental

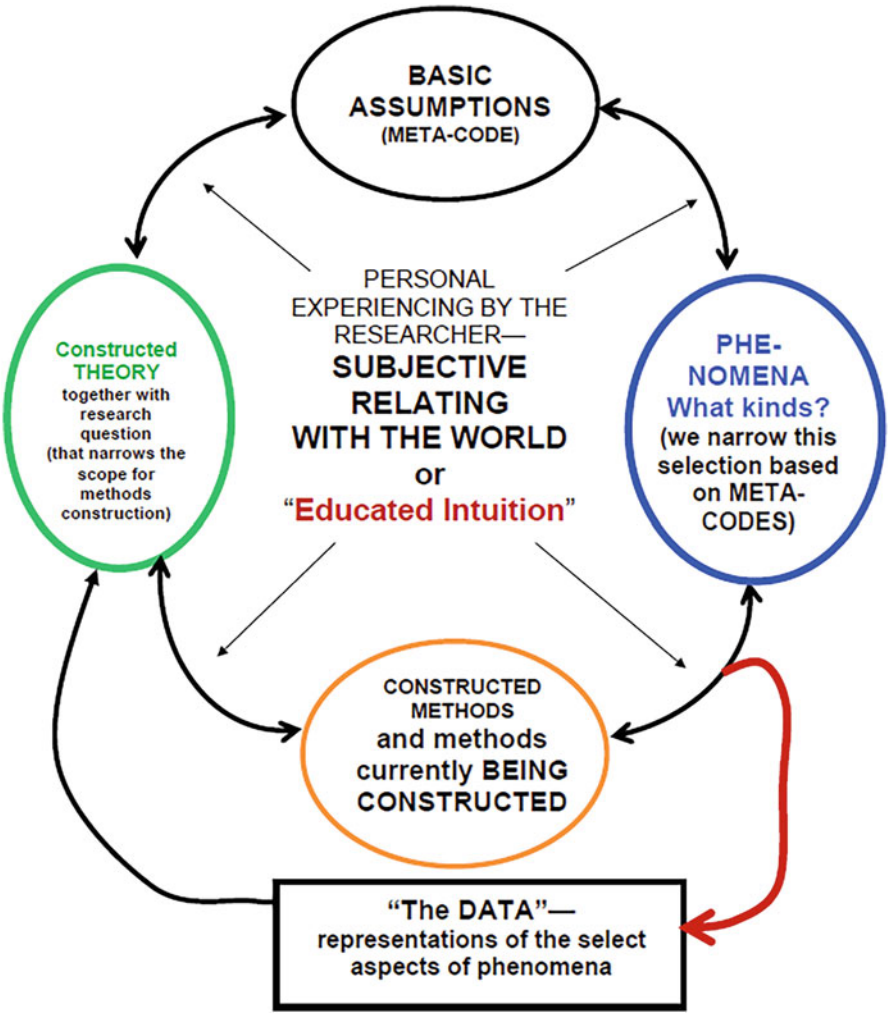

Fig. 1 The methodology cycle

psychology (Branco & Valsiner, 1997). The prevailing reality of the social practices in educational and psychological research was then – in the end of the 1990s – and continues to be now, deeply empiricist. DATA are still viewed as "objective" as they are "collected" – with the assumption that they are objectively given. Our current fascination with computer-collected "big data" has only fortified that illusion. The belief that data are granted objectivity if "collected" by consensually legitimized METHODS that are loosely linked with THEORIES prevails. Theories at worst are used as "conceptual umbrellas" for the inductive generalizations from the DATA or at best might prove or disprove some set hypothesis about the local knowledge

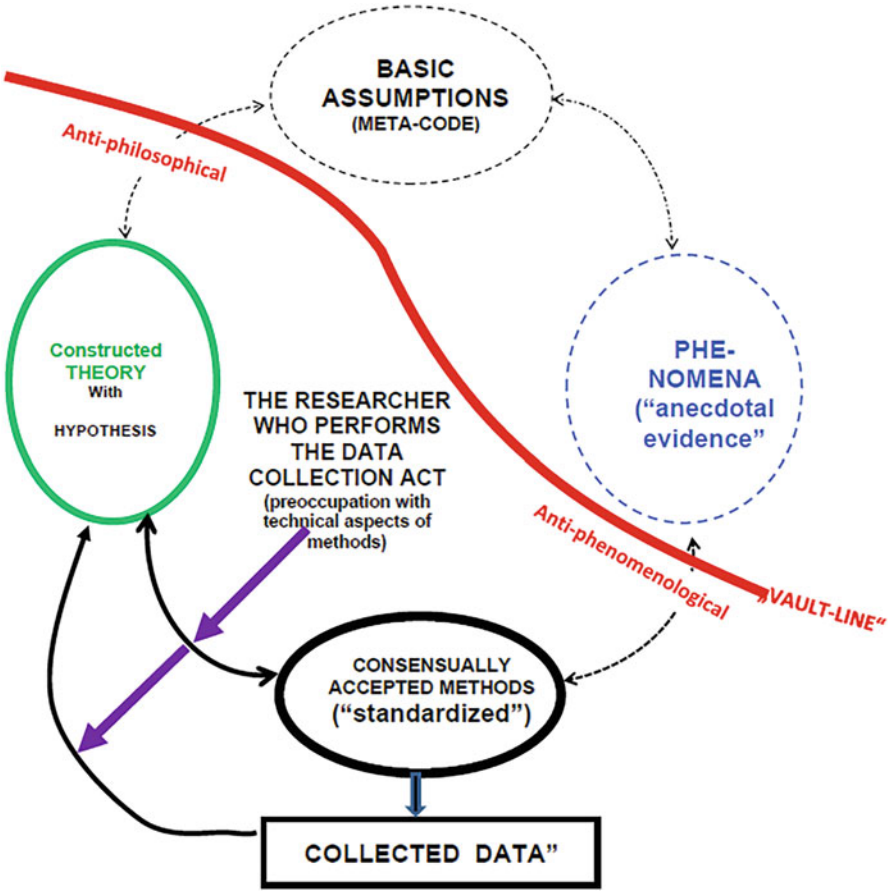

Fig. 2 The regular empirical practice of eliminating the cycle

presentable in the DATA. This reduction of the Methodology Cycle is depicted in Fig. 2.

The introduction of the exclusive barrier ("anti-philosophical and anti-phenomenological epistemic vault" – in Fig. 2) defines the *science* of psychology as if it is limited to never-ending data accumulation with episodically changing general frameworks ("theories"). Nothing can be further from reality of science (as *Wissenschaft*) – purely "empirical science" is a contradiction in terms, and empirical work that is philosophy-blind and phenomenology-aversive provides no new scientific knowledge.

The implications of such linearizing act for science are formidable. First, it creates the basis for pseudo-empiricism (Smedslund, 1991, 1992, 2012) – the collection of data that "prove" empirically that what we know already (as encoded in our common language) is "true." This is possible because of the exclusion of the META-CODE

from consideration as shown in Fig. 2. The result of such exclusion is that one's hidden assumptions are not considered as part of the empirical research efforts. As a result, some empirical research projects may continue as social practices for a century or less—simply by the inertia that "this is the way we do things" in our field. In the early 2020s, it is about hundred years since the researchers of intelligence consensually agreed that this concept is what the IQ tests measure. The practice of continuous use of the intelligence notion is based on that test and its extensions to adjacent fields ("emotional intelligence," etc.). This leads to a paradoxical situation, that is, the accumulation of increasing sizes of data bases – now enabled by the computer technologies – need not enhance scientific progress but would camouflage its absence by way of changes of meta-theoretical fashions. There is no breakthrough in our understanding, for example, when the prevailing fashion leads to change from cognitive to positive psychology – with the focus on the data remaining the same.

Need to Restore the Role of the Experiencing Researcher: Educated Intuition
In the practices depicted in Fig. 2, the role of the researcher in this empirical data collection game has been reduced to that of the administrator of the selected METHODS. There is a general social tendency in social science research of the last half-century behind this reduction – that of administrative institutional control effort over the social and educational sciences. This is exemplified by increasing reliance of technical acts of research based on institutionally approved manuals. While the latter is not surprising in the *application* of scientific knowledge, it cannot be productive in the *production* of new knowledge.

The tendency toward manualization – using guidelines to act in one's profession – has been transposed from "evidence-based" medicine to psychology practices and research. It is believed that the data in and by themselves (and by some magical features –"standardization") would create our "objective knowledge" if enough data are collected. This clockwise move in the Cycle – starting from METHODS moving through DATA and ending in some discourse about THEORIES – is a deeply impoverished version of the Cycle that fits the inductive ideology that prevails in psychology and in the educational and social sciences. The general philosophical background of the social sciences (Valsiner, 2020) becomes reduced to the inductive imperative of "empirical science." Then the Cycle becomes eliminated by linearizing it, and the result of such impoverished approach can be summarized as follows:

> RESEARCHER ➔ formulates a specific Hypothesis➔ selects a couple of tools (METHOD)➔ to reach out for a slice of PHENOMENA that manifests as DATA (considered as ultimate evidence) ➔ which reifies or not the initial Hypothesis, all leading to an accumulation of scientific "evidence"

Note that the epistemological framework (BASIC ASSUMPTIONS) that allows for the elaboration of a specific THEORY is left out of the picture. In addition, the THEORY itself is almost irrelevant from a perspective that considers the

"objectivity" of DATA, assumed from a positivistic framework that is taken for granted. Neither the quality of the basic assumptions (epistemology) and their role in theory construction nor the quality of the "data" produced by the utilization of specific methods (which operate, in fact, as selective lens to "reveal" the PHENOMENA) is taken into account with the adoption of this linear process.

The second major deficiency that the linearization of the Cycle brings with it is the alienation of research from the phenomena. As the PHENOMENA in Fig. 2 are considered objective and not linked with the METHOD selection and "use" in the DATA obtaining act, it is the representational nature of the data [that] becomes eliminated. Such data alienation has devastating effects on bringing the accumulated data to the practical fields of clinical (Smedslund & Ross, 2014) or sports psychology (Lykkeskov, Askildsen, & Eckerdal, 2019). Professional institutional decisions, rather than the fit of the empirical research results with phenomena, replace the focus on the phenomena and limit the applicability of our knowledge to the needs of practices. Most of the data in the educational and social sciences represent the outcomes of inherent process of thinking, feeling or acting, while for practical intervention (i.e., therapies) it is the knowledge of the processes that lead to such outcomes that are needed. Outcome data do not inform about the needs of process change, or about the characteristics of the processes' dynamics.

Thirdly, the role of the researcher becomes reduced from an active constructor of knowledge – a creative person similar to an artist – into a kind of "research executive" whose role is to carry out the data collection act in accordance with existing rules and regulations, rather than think together with the unfolding encounters with the research participants. This pseudo-neutral, standardized role given to the researcher, as well as the "slave role" given to graduate and undergraduate research assistants, do not encourage them to become creative researchers. Everybody ends up in academic jobs but tends to be mere followers of the prevailing fashions in their disciplines.

History of developmental psychology provides a good example of how to de-standardize a method, young Jean Piaget's turning away from the META-CODE of "intelligence testing" to replace that with another one, the cognitive adaptation to the problem-solving tasks. Young Piaget was given as his first task the standardization of a British "intelligence test" to French school children in a Parisian suburb. In giving the tests, he became fascinated by the phenomena of how young children were *trying* – independently of whether they succeeded or failed – to solve the problems that the test items posed to them. Each test "item" (which, as such, would lead to becoming summarized into a "score") could be seen as a cognitive problem to solve. Piaget abandoned his given task and began his lifelong inquiry into development of cognitive processes. The "intelligence test" was left behind as a useless carcass of a method that no longer was productive – while its items creatively served as basis for Piaget's following work. His employers were obviously not amused by Piaget's youthful rebellion.

The idea that certain questions demand the use of specific tools – such as correlational, experimental or quasi-experimental designs, interviews, or naturalistic observations – is naively simplistic, unrealistic, and, ultimately, non-productive. The

problem faced by such fast lane to carry out research projects is derived from a basic requirement that is *not* adequately fulfilled: all components of the Methodology Cycle, presented in Fig. 1, need to be well articulated with each other to maintain a strong coherence when adopted to respond to the research questions to be investigated. If such coherence is not achieved, the informative power of the data constructed is poor, and the theoretical relevance of the produced results either become substantively questioned, or simply does not exist. Pseudo-empiricism in psychology (Smedslund, 1991, 1995, 2016) is an inevitable result from the "cutting" of the Cycle as depicted in Fig. 2.

It is important to point out that our introduction of the Methodology Cycle in 1997 (Branco & Valsiner, 1997) was no news – at least when seen through the prism of the history of science. It merely represents – in a cyclical form – the basic science methodology that has been in place over the past three centuries, only forgotten in the twentieth-century psychology for historically particular extra-scientific reasons (Toomela & Valsiner, 2010; Valsiner, 2014). The META-CODE of the "Law of Large Numbers" – belief that the particular phenomena remain represented in populational aggregates – may have fitted the democratic representation models of politics in the Occidental societies, but it fails to provide evidence about the reconstructive uniqueness of ever new emerging persons in a society.

Examples of Use of the Cycle

Let us illustrate how the Methodology Cycle operates as a heuristic orientation to produce scientific knowledge concerning psychological phenomena. First, we make explicit the nature of our epistemological (BASIC ASSUMPTIONS) and theoretical (THEORY) approaches, and then, we describe the guiding questions of the research project and how such questions orient the selection and creation of specific innovative procedures (METHODS) to reach out for those aspects of the PHENOMENA under study, according to the theory.

Our major topic of investigative interest consists in making sense of human development as a whole. Here we depart from the axiomatic assumption that all human phenomena are developmental, systemic, complex, and dynamic. From this *epistemological* perspective, characterized by a qualitative, sociogenetic, and dialogical paradigm, active individuals continuously coconstruct each other as they interact within culturally structured contexts. To investigate the developmental nature of those complex processes involved in human phenomena, we have carried out many empirical research projects from a cultural psychology *theoretical* perspective, which stresses the mutual constitution of person and context along the irreversible time. For cultural psychology, the focus of any investigation concerning human psyche must concentrate on those *meaning-construction processes* (semiosis) occurring at both inter- and intra-individual levels as people relate to each other. Furthermore, any investigation should take into account practices and processes involving interactions among people occurring at micro, meso, and macro levels.

Cultural psychology highlights the fundamental role played in hypergeneralized affective-semiotic fields – situated at intra-individual level – that lie at the basis of internalization/externalization processes along individuals' life trajectories (Branco, 2016; Valsiner, 2014). Affective semiotic fields, coconstructed throughout life experiences with others, operate together with cultural canalizations and guide each person's perceptions, feelings, thoughts, and actions toward goals in the imagined future. According to this theoretical perspective, past experiences are continuously constructed and reconstructed under the influence of the imagined future, and those affective semiotic fields of particular relevance for the developing individual acquire a significant guiding function of her psyche. As they become hypergeneralized, we designate them as the person's *values*. Values, henceforth, orient individual psychological functioning and everyday interactions with self, others, and the world.

Cultural values and personal values are dynamic and constitute each other as much as the active subject and cultural contexts engage in mutual constitution along time. Therefore, to make sense of psychological processes and experiences, we need to identify and analyze aspects of the structured quality of sociocultural contexts as well as characteristics of individual's self-configurations, which, in the following example, were aspects of self-development as expressed by changes in the participants' self-positionings and values.

Example # 1

The brief description of our epistemological and theoretical grounds above was necessary to explain the two research projects we present next, in our effort to articulate all components of the Methodology Cycle (MC). The first empirical project (Roncancio-Moreno, 2015; Roncancio-Moreno & Branco, 2017) was carried out from two compatible frameworks: cultural psychology and dialogical self theory (Hermans, 2001; Hermans & Hermans-Konopka, 2010). Here we focus on its basic methodological characteristics due to the specific purpose of this chapter. The study's goal was to investigate possible dialogical self-developments in 5- to 6-year-old children during their transition from a public preschool to elementary schools located in the city of Brasilia, Brazil. As we conducted the research, we developed specific procedures (see Table 1) to obtain relevant information concerning the study's objectives. By bringing together all information, we were able to construct significant DATA, as we identified and analyzed indicators of each investigated child's self-development, revealed by changes observed in their self-positionings along the longitudinal study. However, how specific methods were constructed and used, in order to provide meaningful information for data construction and analysis?

The study took place during a period of 1 year (phase 1 in preschool and phase 2 in elementary school). After accepted in the school context, the researcher initiated an ethnographic approach, which allowed her to become familiar and accepted by children and adults within the educational context. During this time, she observed

Table 1 Procedures included in the study

1. Naturalistic observations
2. Field Notes
3. Video recording of daily routines
4. Video recording of structured activities: doll school
5. Video recording of structured activities: cube of emotions
6. Video recording of structured activities: frog story (by Max Velthuijs)
7. Individual interviews with children
8. Individual interviews with parents
9. Individual interviews with teachers
10. Drawing journal (a copybook or journal, where they should draw whatever they wanted)

children and educators within their classrooms and in the playground, registering relevant events and ideas in a field diary. Casual conversations with teachers and other adults occurred naturally and played a role in her social acceptance within the preschool context. The next step then was to select those subjects who would participate of the longitudinal research. After selecting one specific classroom in the preschool, and before any other procedure, the researcher attended to preschool's activities with children for 8 weeks. Thus, she was able to develop a good rapport with children, which later was fundamental for implementing the research procedures. After the immersion period, the researcher selected seven children to participate in the study, and their parents were contacted to obtain their consent. During the 1-year period, the researcher spent at least 3 days within the preschool and the elementary school's contexts in order to perform the procedures described in Table 1.

After bringing together the knowledge deriving from all procedures, we started data construction according to five levels of analysis:

1. Initial transcription of all relevant material in order to select a smaller number of subjects to be investigated in detail, as in case studies. Three subjects, two girls and one boy, were selected due to quality of their information, which would allow us to construct significant data for our purposes.
2. Analysis of children and adults' narratives.
3. Analysis of children's and adult-child's interactions.
4. Microgenetic analysis aiming at the construction and integration of data concerning meaning-making processes for each child. Data triangulation was performed in search for powerful indicators of each child's affective semiotic fields and self positionings along the year.
5. Elaboration of substantiated inferences about children's self-development and the proposal of theoretical explanations of those possible processes involved in children's self-development.

To investigate each children's trajectories (the three case studies), we used an analytical framework (Branco & Valsiner, 1997) that took into account specific sources of information. They were (a) children, narratives about themselves and

their experiences at school and family; child-child and teacher-child interactions; (b) teachers, narratives about the child's development, peer interactions, academic performance, and teacher's relationship with the child's family; and (c) families, mother's narrative about the child and child's development in general. As the researchers analyzed the three case studies, the relevance of communication and metacommunication, cultural canalization, and anticipation processes (Branco, 2016; Valsiner, 2014; Zittoun, 2016) were discovered.

Three basic guidelines oriented the research construction of each child trajectory: (1) The expectations and meanings concerning social and affective relationships, recurrent in preschool and in the first grade; (2) the role of significant others; and (3) relevant changes in self-related meanings from preschool to elementary school.

A summary of each child's trajectory follows:

1. Helena: at preschool, she provided multiple indicators of social isolation, sadness, and a self-positioning of "I-as-rejected," particularly due to her father's abandonment after parents' divorce and to difficulties in engaging in relations with peers. At the first grade, with new extra-class activities provided by mother's support (meaningful at both phases), she moved on to much more positive self-positionings, toward an optimistic self-development trajectory due to the support and appreciation of her skills by teacher and peers in the first grade.
2. Giselle: from preschool to the elementary school, she experienced a somewhat ambivalent self-development trajectory. She is very much appreciated by teacher and peers at preschool, the new environment did not support her major affective-semiotic fields and self-positionings, related to being beautiful and popular. The new environment praised intellectual skills, and as she presented learning difficulties, this resulted in strong tensions, which made her sad but also hopeful, since her abilities to draw were then appreciated.
3. Anderson: the boy went through a very problematic self-development trajectory, mainly because in the first grade, his teacher and his mother contributed to the deconstruction of those previous positive self-meanings he had developed during preschool.

The idiographic and longitudinal approach to Giselle's, Helena's, and Anderson's trajectories, in conclusion, allowed for the investigation of self- developmental processes, as each child's affective-semiotic fields and self-positionings (Branco, 2016; Branco, Freire, & Roncancio-Moreno, in press; Roncancio-Moreno, 2015) were identified and analyzed in terms of emergence, disappearance, and transformation, within their developing dialogical self-systems. Had we not employed all procedures developed to produce several indicators of each child's dialogical self-positioning, we would not be able to make sense of such positionings as well as the whole set of social others and subjective resources used by the participants that resulted in their self-development.

The use of several procedures allowed the researchers to access to different aspects of children's lives, providing valuable information about the dynamics of the dialogical self-system of each child during that transition period. Social

interactions, observed in videos, field notes, semi-structured tasks, together with narratives produced by participants, were the core of the investigation of children's meaning-making processes about themselves. As Zittoun (2016) argues, transitions entail identity redefinitions, learning, and sense making.

The study's major results pointed to the fundamental role of the internalization of significant others' voices in active dialogue with each child's own voices, creating tensions in their dialogical self-system that tended to promote development in specific directions. Possibilities for a creation of a third position to negotiate between opposite self-positionings were observed, and we argue that this emergence may have occurred because the dialogical self-system operates to release tension and achieve a reasonable level of integration and stability. Such emergence, therefore, can result from the dynamics of dialogical self-system resources in interaction with several catalytic conditions – as significant social others and activities – that enable new developments. Other significant results were obtained, with consequences to further theoretical elaborations on the dynamics of individuals' dialogical self-development along the irreversible time, but to discuss them would be out of the scope of this chapter. For further details concerning this study, we suggest the reader to consult (Roncancio-Moreno & Branco, 2017).

Example # 2

The second example here presented refers to an experiment we conducted in Brasilia (Branco & Valsiner, 1992). Our goal was to analyze the role of social interactions' dynamic and structured contexts on cultural canalization processes related to specific patterns of children's interactions. We carried out an experiment with two triads composed by three 3-year-old children (two boys and one girl) that were instructed to play under the supervision of an adult. They were observed within two differently structured contexts: a cooperative context and a competitive context. Along six 25-minute consecutive sessions, each triad was invited to play with different materials but under a same social participation rule. Triads were then referred to as "cooperative" or "competitive."

Children in the "cooperative" triad were asked to interact with each other in order to build a unique structure from small pieces of a same material; or they were asked to play together within a fantasy-play context. In the "competitive context," children were asked to play alone and their performance were then compared. For instance, the adult took photographs of their constructions so people could later choose which was the best one; or their individual scores during competitive games were exposed. The materials used during the sessions were varied to keep children's motivation to participate is high and were selected to afford multiple coordination possibilities (wooden blocks, family doll sets, puzzles, bowling game, etc.). We also organized a test situation (the 7th session) when children of both triads (cooperative and competitive) were asked to perform a same cooperative task. Children were instructed to carry around a big doll pretended to be "ill," to undress her, pretend to bathe her, dry

her, dress her again, carry her to the "hospital" for examination and medication, and, finally, bring the doll back "home."

All sessions were fully videotaped, and adult's and children's actions and interactions were fully transcribed. After that, we carried out a microgenetic analysis of the material, in order to be able to identify specific cues and strategies used by children along the experiment. The experiment's goals, then, did not only consisted of demonstrating the effect of cultural canalization on the emergence of specific patterns of social interactions. The study aimed, in addition, at identifying and analyzing all sorts of triggers, events, and strategies – at a microgenetic level – used by participants during play activities.

Results revealed the effects of cultural canalization processes, with a sharp contrast in the time spent in cooperative interactions between the triads. We verified an increasing number and duration of cooperative episodes among children belonging to the cooperative triad, in comparison to the triad submitted to competitively structured activities. Likewise, results from the test session (7th session) showed that the cooperative triad displayed cooperative interactions during 81% of the session time, while children who experienced competitive contexts spent only 8% of session time in cooperative interactions. Such results are, therefore, aligned with the work of cultural canalization processes, demonstrating that adult's verbal orientations, as well as the typical affordances and constraints of each situation, directed children's actions and interactions during the experiment.

When we analyzed the material from a microgenetic level of analysis, we observed a very interesting interplay between cooperative-oriented and competitively oriented interactions. We were able to closely analyze the events that triggered divergences as well as negotiation movements and strategies employed by the participants, and this led us to conclude for the intertwined nature of social interactive processes. This is next illustrated by an interesting episode taken from the first cooperative session. In the episode, divergent interactions occurring between two boys over the possession of an object finally resulted in a negotiation process, which gave rise to the emergence of a new cooperative coordination of their actions.

The experimental procedure we designed allowed for capturing relevant information concerning the dynamics of social interactions within culturally structured contexts. For instance, the adult, a female undergraduate student, was instructed to continuously negotiate with the three children to canalize their actions, either into cooperation or individual/competitive orientation, during the six sessions. Next, we present an extract of an episode with the "cooperative" triad that clarifies the dynamic interplay between different categories of social interaction. Gustavo (G), who plays the most active role in interacting with the adult (strongly resisting her efforts to promote cooperation) and with peers, initiates conflictual interactions with Pablo (PF) over the possession of an object. He picks a wooden block he pretends to be a "clock" from Pablo, Pablo struggles to take it back, Gustavo threats Pablo's construction and indeed destroys it. Then the adult takes to pieces Gustavo's construction, and the interactional flow goes on with Gustavo involved in conflictual interactions with both Pablo and the adult. The three children grab a part of the blocks for themselves, and the following interaction takes place:

[A = adult, in italic; G = Gustavo; PF = Pablo; P = Paola]

- *A: Folks, she smiles, what have you done?*
- G: I won't let him take these from me!
- PF: Neither will I!
- *A asks G: But why? Isn't he your friend?*
- G complains: No! I'm not his friend because he's taking... he doesn't let me take his clock...
- *A: But you also have a clock!*
- G: Where is the clock?
- *A picks up PF's clock: What if we have a clock here and we make a church?*
- PF takes his block back: No!! (emphasis)
- G: Where is my clock?
- *A: It's not yours, it belongs to everyone, Gustavo!*
- G: Where is my clock that was here?
- *A: I don't know... and then: Pablo could help you. He could lend you the clock and then you'd make something very big here!*
- **G to PF: So you lend it to me...**
- **PF moves towards P's construction: Look what we have here!! (he picks up a block-"clock" in P's construction and gives it to G)**
- **G to P: Give it to me! That's what I was looking for, this clock..**
- *A: But this belongs to everybody! (she firmly asserts this point, and picks up PF's clock) We can use two clocks if we do just one thing!*
- PF takes his block back immediately: OK, but this is mine!
- *A: Hum...*
- G: This belongs to him! Nobody should take it, isn't that right, Pablo? (G firmly holds the block PF gave to him from P's construction) This is mine... to build something like this, and nobody will get inside my building. I have to put all here, or they will get lost...
- *A: Isn't Gustavo going to help Paola? She's started to do it, it's turning into a very nice job!*
- **G moves towards P: Do you want me to help you? (G picks up a different block, which is lying in front of P and puts it in her construction)**
- A: *OK! That's it!*
- **G to A: *Like this. That's a good idea, isn't it?***
- *A: Good idea!*

The first thing that becomes evident in our analysis is how intensively and appropriately the adult tried to engage children in cooperation, consistently negotiating with them, insisting to trigger negotiations leading to mutual collaboration. In this episode, she finally succeeds, but a setback occurred when Pablo used a strategy to help Gustavo – metacommunicating to him he was indeed his friend – that could potentially upset Paola. The complex dynamics observed in such a short piece of the interactional flux among the four participants well demonstrates the adequacy of the experiment's design and the microgenetic analysis of the participants interactions.

Both allowed us to elaborate some relevant theoretical possibilities. It is noteworthy, for instance, that before the emergence of the conflict between Gustavo and Pablo, children were not interacting with each other, they were oriented to their individual activities. Therefore, we can speculate about the functional role of conflict interactions for the very emergence of cooperation among peers, since negotiations may include strategies – as the one used by Pablo – that can be considered as a key element to twist the quality of individuals' interchange. In the episode, Pablo's prosocial strategy toward Gustavo (his friend but immediate opponent in the flux of interactions) contrasted with a possible disrespect regarding Paola, whose block was taken away.

To sum up our point, we can, thus, conclude that the mere recording and evaluation of the occurrence of mutually excluding behavioral categories, such as cooperation and competition, would not allow for a deep understanding of social interactions dynamics. It would not, for example, provide relevant information – necessary for data construction – on how individuals constantly use all sorts of strategies to negotiate and change the quality of the flux of their interactions, ultimately affecting their relationships in different and multiple ways.

General Conclusion: What Does "Teaching Methodology" Mean?

Our story of the Methodology Cycle has immediate and profound importance for teaching methodology in psychological and educational sciences. We can summarize these as follows:

1. Teaching methodology *is not* equal to giving students an overview of existing methods and expecting them to evaluate and then select the already-available method in direct comparison with other methods at the researcher's disposal. Thus, questions about "what methods are better than others?" have no place in the teaching of methodology from the perspectives of our Methodology Cycle. Instead the productive questions about methods that need to be taught in the domain of methodology is how a particular designed method allows us to extract knowledge out of the raw phenomena through the help of the given theory that allows us to search for new knowledge.

   Any initial phase of teaching methodology starts from the work of the student's intuition when confronted with the selected phenomena. Implicit assumptions that the student carries into the first encounter need to be made explicit and analyzed by teacher and students in class. Some of such explicated assumptions can be personally upsetting for the students, and they need to get used to that. The flexibility of the scientific – as opposed to ideological – look at the phenomena entails multiple perspectives some of which may be personally rejectable by the student. Yet these disliked assumptions can have an equal status, among others. The student needs to bring all assumptions out to his or her personal philosophical consideration and then explain why some of these he/she prefers not to accept. For example, a researcher who ideologically claims to be of some particular

persuasion (feminist, masculinist, Zoroastrian, vegetarian, nativist, nudist or any other) needs to learn not to dismiss the assumptions used by his or her declared "opponents" on ideological grounds but explicitly analyze these assumptions and then explain why one rejects these in favor of one's preferred ones.
2. The notion that each research project requires the construction of its own adequate methods needs to be developed through the use of the Cycle. The *coordination* of all parts of the Cycle needs to be emphasized. The methods must be well coordinated between THEORY and PHENOMENA to render adequate data.
3. Theories are not "umbrellas" for empirical efforts where "anything goes," as long as the conventional norms of inter-coder agreements, validity, and reliability are fulfilled. Instead, theories are, first of all, tools for thinking about how to adequately construct research methods that fit the phenomena.
4. META-CODES are axioms that are on the foundation of the whole research process. They differ from orthodoxies by being changeable if they are found to misfit the phenomena. In contrast, axioms that have become orthodox beliefs are not changeable. Orthodox beliefs have no place in science, while axioms are central in the research enterprise.

We also insist on the necessary active participation of the students in defining and discussing multiple research questions and all aspects and steps concerning a project coconstruction. Such approach can definitely be very productive. Hence, students' motivated engagement on such practices and activities can prove to be the best venue to put in motion successful teaching-learning processes that we, as teachers, look forward to develop with them.

It becomes obvious that the teaching of methodology is a clearly structured educational task that emphasizes creativity, subjectivity, and most of all – fresh ways of thinking – in the very first research efforts of young students. Such teaching is crucial for the future of the science – since exactly at this early stage the difference between axioms and orthodoxies becomes clarified. The eagerness of young students to innovate their worlds needs to be supported – rather than crushed – by the teaching of methodology.

References

Branco, A. U. (2016). Values and their ways of guiding the psyche. In J. Valsiner, G. Marsico, N. Chaudhary, T. Sato, & V. Dazzani (Eds.), *Psychology as the science of human being: The Yokohama Manifesto* (pp. 225–244). Cham: Springer.

Branco, A. U., Freire, S. F., & Roncancio-Moreno, M. (in press). Dialogical self system development: The permanent co-construction of Dynamic Self Positionings along life trajectory from a cultural psychology perspective. In M. C. Lopes-de-Oliveira, A. U. Branco, & S. F. Freire (Eds.), *Psychology as a dialogical science*. São Paulo: Springer.

Branco, A. U. & Valsiner, J. (1992, July 19–25). *Development of convergence and divergence in joint actions of preschool children: The emergence of cooperation and competition within structured contexts*. Paper presented at the 25th International Congress of Psychology, Brussels, Belgium.

Branco, A. U., & Valsiner, J. (1997). Changing methodologies: A co-constructivist study of goal orientations in social interactions. *Psychology and Developing Societies, 9*(1), 35–64.

Hermans, H. (2001). The dialogical self: Toward a theory of personal and cultural positioning. *Culture & Psychology, 7*, 243–281.

Hermans, H., & Hermans-Konopka, A. (2010). *Dialogical self theory: Positioning and counter-positioning in a globalizing society*. New York: Cambridge University Press.

Lykkeskov, M., Askildsen, M. A., & Eckerdal, A. (2019). Integrative synthesis of psychological support systems for enhancing athletic performance. *Human Arenas*. https://doi.org/10.1007/s42087-019-00065x

Roncancio-Moreno, M. (2015). *Dinâmica das significações de si em crianças na perspectiva dialógico-cultural* [Self-meanings dynamics in children from a dialogical cultural perspective]. Doctoral dissertation, University of Brasília, Brazil.

Roncancio-Moreno, M., & Branco, A. U. (2017). Developmental trajectories of the Self in children during the transition from preschool to elementary school. *Learning, Culture and Social Interactions, 14*, 38–50.

Smedslund, J. (1991). The pseudoempirical in psychology and the case for Psychologic. *Psychological Inquiry, 2*(4), 325–330.

Smedslund, J. (1992). Are Frijda's "laws of emotion" empirical*? Cognition & Emotion, 6*(6), 435–456.

Smedslund, J. (1995). Psychologic: Common sense and the pseudoempirical. In J. A. Smith, R. Harre, & L. van Langenhoeve (Eds.), *Rethinking psychology* (pp. 196–206). London: Sage.

Smedslund, J. (2012). The bricoleur model of psychological practice. *Theory & Psychology, 22*(5), 643–657.

Smedslund, J. (2016). Why psychology cannot be an empirical science. *IPBS: Integrative Psychological & Behavioral Science, 50*, 185–195.

Smedslund, J., & Ross, L. (2014). Research-based knowledge in psychology: What, if anything, is its incremental value for the practitioner. *IPBS: Integrative Psychological & Behavioral Science, 48*, 365–383.

Toomela, A., & Valsiner, J. (Eds.). (2010). *Methodological thinking in psychology: 60 years gone astray?* Charlotte, N.C.: Information Age Publishers.

Valsiner, J. (1995). Meanings of "the data" in contemporary developmental psychology: Constructions and implications. Gastvorträg am *12. Tagung der Fachgruppe Entwicklungspsychologie der Deutschen Gesellschaft für Psychologie*, Leipzig, 27. September (published version-Valsiner, 2018).

Valsiner, J. (2000). Data as representations: Contextualizing qualitative and quantitative research strategies. *Social Science Information, 39*(1), 99–113.

Valsiner, J. (2014). *An invitation to cultural psychology*. London: Sage.

Valsiner, J. (2018). Meanings of "the data" in contemporary developmental psychology: Constructions and implications. In G. Marsico & J. Valsiner (Eds.), *Beyond the mind* (pp. 421–452). Charlotte, NC: Information Age Publishers.

Valsiner, J. (Ed.). (2020). *Social philosophy of science for the social sciences*. New York: Springer. ISBN 978-3-030-33098-9.

Zittoun, T. (2016). Studying higher psychological functions: The example of imagination. In J. Valsiner, G. Marsico, N. Chaudhary, T. Sato, & V. Dazzani (Eds.), *Psychology as the science of human being: The Yokohama manifesto* (pp. 129–147). Cham: Springer.

Qualitative Methodology

19

Günter Mey

Contents

With the assistance of Paul Sebastian Ruppel

G. Mey (✉)
University of Applied Sciences Magdeburg-Stendal, Stendal, Germany
e-mail: guenter.mey@h2.de

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Abstract

In this chapter, methods for qualitative data production and analysis relevant for psychological research are presented with respect to their importance for teaching and learning qualitative methodology in psychology. Beginning with a brief overview of epistemological and methodological foundations, the special features of qualitative research with regard to the question of design and case selection are highlighted. Since qualitative research follows different logical assumptions compared to quantitative research and works with smaller numbers of cases, it requires an appropriate overall framing of the respective research project. The use of software programs to support qualitative data analysis and the potential of working in research groups is discussed in this chapter. Lastly, questions are addressed about the presentation of qualitative research results as well as the consideration of quality criteria and research ethics.

Keywords

Qualitative research · Subjectivity · Interview · Arts-based research · Grounded theory

Introduction

Consider this rephrasing of a well-known sentence: Qualitative research in psychology has a long history, but no tradition. There exist two narratives: one emphasizes, because of "paradigm wars" and heated controversies, that qualitative approaches were marginalized in psychology for a long time, although qualitative methods had shaped the beginning of research in several sub-disciplines at one time. The other narrative points out that there are a growing interest in qualitative methodology in psychology and – stressed by Smith, Harré, and Van Langenhove (1995a, 1995b) – a need for "rethinking psychology" and "rethinking of methods in psychology" which includes its own history and seeks an exchange with other disciplines that have a lively practice in qualitative research, especially social sciences and anthropology (Schjødt Terkildsen & Demuth, 2015).

Many general handbooks in qualitative research have existed over time. One of the most prominent is edited by Norman Denzin and Yvonna Lincoln, first published in 1994, now in its fifth edition (Denzin & Lincoln, 2018). There are also handbooks on special approaches (e.g., grounded theory; Bryant & Charmaz, 2019) and

methods (e.g., interviewing; Gubrium, Holstein, Marvasti, & McKinney, 2012). Many journals are published, dedicated explicitly to qualitative research. A prominent one is, e.g., the multi-lingual (English, Spanish, German) open-access journal *FQS* (Forum Qualitative Sozialforschung / Forum: Qualitative Social Research, www.qualitative-research.net) with more than 2000 peer-reviewed articles. In the last two decades, the number of special handbooks on qualitative research in the field of psychology has been growing in different countries: written in Danish, German, Italian, or Spanish and in English as the international scientific language (e.g., the revised version of Willig & Stainton-Rogers, 2017). The same development can be found with regard to disciplinary journals like *Qualitative Research in Psychology* (founded in 2004) or *Qualitative Psychology* (2019) and, lastly, the founding of specific divisions in psychological organizations, e.g., the APA division subgroup "Society for Qualitative Inquiry in Psychology" or the "Association of European Qualitative Researchers in Psychology" (EQuiP) (https://www.equipsy.org/).

In sum, today – compared to the situation two decades ago – a wide range of possible applications is conceivable doing psychological research with the aim of data-based theorizing on relevant questions in all fields of psychology. The status quo expresses the progress of qualitative research in psychology and emphasizes the need to place the diversity of qualitative research and the particular logic of qualitative methodology as an integral part of the teaching programs in psychological education.

Without any doubt, qualitative research is not limited to but necessarily indicated when it is not possible to answer a research question on the basis of existing theories by means of hypothesis generation and testing. But even in proven fields, new phenomena emerge all the time, especially through processes of social change for which no or only inadequate explanations are yet available. When existing theories can no longer claim validity, further or new developments become necessary. Furthermore, a qualitative approach is always suitable if the planned analysis presupposes the preservation of the complexity of the research objects to be investigated or if reference to individual cases is in the foreground. Lastly, some practical concerns could be mentioned: qualitative research is indicated if access via standardized research is not possible or if research situations are to be set up as non-artificially as possible in order to maintain the reference to everyday life.

In the following presentation, attention is paid to general topics of qualitative research in order to understand the very special logic of the approach (section "Theoretical-Methodological Foundations of Qualitative Research"). Then follows an overview of different designs (section "Planning and Design of Qualitative Studies"), data production (section "Data Production"), and data analysis (section "Qualitative Analysis"). Included are also remarks regarding organizing the research process (sections "Fixing the Data" and "Organization of the Work Process"), added by an outline to questions of quality criteria (section "Quality Criteria of Qualitative Research") and ethics (section "Research Ethics") and, lastly, some suggestions with regard to learning and teaching qualitative research methods (section "Teaching and Learning Qualitative Research").

Theoretical-Methodological Foundations of Qualitative Research

Theoretical Reference Points

It is a truism that qualitative research is an umbrella term for a wide variety of methods and approaches dedicated to a meaningful approach to everyday contexts. Important theoretical points of reference include hermeneutics, phenomenology, and American pragmatism – paradigms that were made theoretically and methodologically fruitful especially in symbolic interactionism and in ethnomethodology. Of particular importance for psychology are psychoanalysis as well as social constructionism, the theory of social representations, critical psychology, and especially research in cultural psychology.

These theoretical references point out that psychological, social, and cultural realities are the result of social processes of construction and negotiation. In this respect, qualitative research in psychology is dedicated to the subjective views and patterns of interpretation of the actors as well as their communication and interaction in their everyday world contexts. But latent structures of meaning can also be taken into account.

Paradigmatic Commonalities in Qualitative Research

The diversity of theoretical frameworks and the plurality in methods suggest that there are some characteristics ("essentials of qualitative research") which are generally significant insofar as they open up a special sensitivity for the communicative, interactive, and social moment for doing psychological research. These essentials are openness, contextuality (principle of communication), and reflexivity (cf. Flick, Kardorff, & Steinke, 2004, pp. 7–8; Mey, 2010).

The principle of openness refers to a basic attitude toward the researched and at the same time refers to the design of the entire research process. In particular, it demands that contextual assumptions or hypotheses are not specified or formed in advance, but ideally only in the course of the research process. This is to ensure that the structuring of the investigated subject field that was done by the researchers can flow into the theory development. In the meantime, however, researchers are granted a more theory-guided approach, whereby openness as "disclosure" of prior knowledge is to be consistently implemented.

Principle of communication/contextuality: Since research is understood as an interaction between all participants (researchers and researched), the data generated in the research situation are considered to be co-produced. This co-construction can be used to explore social processes and interactions and involve the researcher in the analysis. In addition, during data analysis, there is sometimes an intense communicative exchange between researchers that generates further data. Attention to these – often unconsidered – communicative group phenomena holds further potential for psychological approaches to shed light on the production process of qualitative research.

Reflectivity: In view of the principles mentioned above, researchers are encouraged to reflect on their working methods. After all, they structure the research situations with their interests and their approach (e.g., research question, choice of data collection and evaluation strategies, spatio-temporal arrangements). The researchers – as perceptible subjects/actors – themselves are the ones who interact and provoke reactions in the field. The ethnopsychoanalyst Georges Devereux (1967) speaks here of the "stimulus value" that persons have for other persons; of course, this stimulus value is not a fixed influencing variable, but varies depending on the person and the situation. Against this background, the overall demand for a reflected subjectivity is to be understood. However, the fact that contextual factors, differences in perception, and the subjectivity of the researcher are not regarded as confounding variables, but are essential and should be used for analysis, is pointedly advocated within the framework of qualitative programmatic research. An enormous amount in qualitative research practice is needed to take into account the joint construction process and the researcher's own involvement (his/her subjectivity) in the research (see Mruck & Mey, 2019).

Planning and Design of Qualitative Studies

The planning of qualitative studies is of great importance, since they often work with a small number of cases compared to quantitative studies. Even if single case studies are a rarity, studies with a case number of a few dozen participants occur frequently. In view of the relatively high effort involved, case numbers are often in the single digits in the context of students' qualification theses (BA/MA theses). In order to be able to generalize, however, special attention must be paid to sampling, so the procedure of purposive sampling has become widely established in the discipline.

Sampling

Theoretical sampling, which originates from grounded theory methodology (Glaser & Strauss, 1967), is a prominent strategy to sampling and a special case of purposive sampling. This is a so-called iterative procedure, in which data collection and analysis constantly alternate. The selection of the next data in each case does not take place as a theory-driven and pre-defined top-down strategy, but as a data-driven bottom-up process in which the specific criteria for the ongoing case selection are successively specified with regard to the theory to be developed on the basis of the analysis of the data material collected up to the respective point in time. Based on a selection of minimum and maximum comparisons, the best possible condensation or variation for the subject area of interest is to be sounded out step by step. It is important here, first, to make explicit the criteria for selecting the next case and not to form the next sample beforehand and, second, to counter the danger of seeking only confirming cases by deliberately including (potentially) divergent cases. Completion of this iteration of data collection and analysis occurs when further data are no longer expected to yield

significant insight. In the language of grounded theory methodology, this is referred to as theoretical saturation.

Triangulation and Mixed Methods

Study design also includes the question of the extent to which it is based on one or more methodological approaches and how these can be justifiably related to each other. This combination of methodological approaches is called triangulation. Introduced by Denzin (1989) as a way of mutually examining different results, triangulation is now considered a way of obtaining findings from multiple perspectives, relating them to one another, and differentiating them. A distinction is made here between data triangulation, researcher triangulation, theory triangulation, and method triangulation (Flick, 2018).

Data triangulation describes the use of data from different times, places, persons, or sources to create a basis for comparison. Researcher triangulation refers to the fact that the collection and analysis is carried out by more than one person. In the case of theory triangulation, the analysis is carried out using different theories or approaches. For method or methodological triangulation, different procedural elements are used, whereby a distinction is made here between within-method (combination of similar methods) and between-method (use of divergent methods). In the latter case, qualitative and quantitative methods are often used together.

For the combination of qualitative and quantitative methods, the term "mixed methods" has become generally accepted, and one already speaks of the third research paradigm beside the quantitative and the qualitative. Depending on the research question, the appropriate combination models are selected (Todd, Nerlich, McKeown, & Clarke, 2004).

Secondary Analysis

Secondary analysis is relatively new on the research agenda of qualitative methodology. Here, existing data (so-called primary data) are subjected to repeated analysis. Secondary analysis, however, requires that data be made available for further use, especially through data archives. In addition to the data set, so-called metadata (information on the research context and collection situation) are also required for the analysis (Corti, Witzel, & Bishop, 2005).

Following Heaton (2004), a distinction is made between different forms of analysis: Data analysis takes place under a new research perspective (supra analysis), along questions that have only become relevant in the follow-up (supplementary analysis), and re-analysis with the same research question, which has the primary goal of developing alternative perspectives on the material (re-analysis). Secondary analyses can be performed on a single data set or on data sets from different studies (amplified analysis). In addition, they can be combined with the collection of new data (assorted analysis).

Participatory Approaches

Participation – the extent to which respondents can become an active part of the study as co-researchers – is also a planning issue (Bergold & Thomas, 2012). Although qualitative research is characterized by a "subject" understanding that sees the researched as self-reflective and interested in their everyday world and actions, it is often "traditionally" conceived in its design, that is, with a strict separation between researchers and researched. Participatory research, on the other hand, which is based on Kurt Lewin's action research (Lewin, 1946), questions this separation and tries to dissolve it, so that participation comes into play to different degrees: for example, the research question can be negotiated between the researcher and the researched. Participation can also be extended to the cooperative design of the entire research process, the course and (interim) results of which are jointly structured and presented by all participants.

Data Production

In the practice of psychological research, interviews as well as group discussions and observation methods were often used. Because there exists a variety of qualitative methods which developed in the interdisciplinary field of social research, there is also a plethora of other methods that have become established for addressing diverse research questions, and those will now be presented.

In general, the choice of the methods should not be made hastily and detached from the consideration of the research project as a whole, for which it is inevitably momentous. In this respect, the theoretical background and the specific understanding of the subject matter must be made clear. In addition, the relationship between the data to be generated and the analysis methods must be coordinated. In this context, the existing range of methods should not be misunderstood as a toolbox that can always be used with precision. The primacy of the phenomena under inquiry (and appropriateness of the method to the object) applies, and thus also the credo that the application of methods can or must also always be the development of methods. Qualitative researchers are therefore required to carry out methodological modifications and innovations in the examination of the research object, if necessary, and to present these in a comprehensible way.

Interviews

Variants of Qualitative Interviews

In interdisciplinary qualitative research as a whole, interviews are the most common method of data collection in psychology. This is hardly surprising if one takes a look at psychological topics such as opinions, attitudes, interpretations of self and others, and everyday theories. Interviews make it possible to record narratives, descriptions,

explanations, argumentations, justifications, convictions, and statements of facts or hypothetical assumptions.

The abundance of available interviews can be distinguished according to:

- What extent they are structured – from open to semi-structured to structured – and thus determine the interviewers' scope for design and frame the interviewees' response options
- Which form of presentation they aim at in particular: for example, narratives, statements of facts/reports, and opinions
- Whether they are more dialogical-discursive or receptive (i.e., either they are closer to an everyday conversation and the interviewers intervene in a formative way or they act in a very restrained way)

The focused interview (Merton & Kendall, 1946) is considered the "original version" of all qualitative interviews, since it was here that the questioning technique was first systematized. As an introduction, it was suggested to present stimulus material (mostly films or newspaper commentaries, but also other texts, images, and/or sound materials) in order to then explore the subject area in detail. The interview questions should consider the following levels:

- Specificity, to go beyond the level of generalized statements
- Coverage of relevant aspects/themes "given" by the interviewers and "brought in" by the interviewees
- Affective, cognitive, and evaluative deepening in order to go beyond "abbreviated" naming
- Exploration of the biographical background as a prerequisite for appropriate interpretation

As an example of many existing interview forms (cf. Kvale & Brinkman, 2008) for the design of conversations, the problem-centered interview (Witzel & Reiter, 2012) will be presented here from the abundance of suggested procedures. Distinguished are:

- An open-ended introductory question, which does not necessarily have to be narrative in nature: a relevant social problem identified by the researcher forms the starting point. This problem-centeredness gives the method its name.
- Material-generating inquiries, for example, "How was that exactly?".
- Comprehension-generating follow-up questions. These include (with reference to Rogerian person-centered psychotherapy) reflection back for communicative validation, comprehension questions to clarify possible contradictions, and confrontation to further promote detail.
- In addition, ad hoc questions are provided, which can be taken from a flexibly applicable interview schedule.
- In addition, a short questionnaire can be used to outsource the collection of supplementary or socio-demographic data from the interview.

Each interview procedure is based on basic theoretical positions, e.g., psychoanalytically inspired (Kvale, 2003) or aligned to narrative theories (Wengraf, 2001), furthermore adapted for specific groups (e.g., children) or to address specific professions, like elite interviewing (Dexter, 2006).

Interview Schedules

In many interviews, and partly also in group discussions, schedules are used. They have to be developed anew in each case with regard to the research question, since it is usually not possible to fall back on existing schedules for similar research contexts – differently, for example, from the case of "the adult attachment interview" (George, Kaplan, & Main, 1996) in the context of research on attachment theory.

The quality of an interview depends primarily on how it is conducted and not on the design of the underlying guide. However, the interview schedule is a crucial link between research question, data collection, and analysis, because its construction presupposes the mental anticipation of the interview and offers the possibility to plan in advance desired framings, thematic emphases, or even forms of answers. Such framing, however, can easily be at the expense of the subjective relevance and orientation of the interviewees. This quickly violates the principle of openness, which should be avoided, if possible.

In general, an interview schedule should be clearly sorted and subdivided into topic blocks. Interview schedules should not be misunderstood as a corset-like set of questions that simply have to be "worked through." Rather, schedules serve as an orientation for conducting the interview. They also offer help in the run-up to the interview in order to organize one's own knowledge as well as to disclose pre-assumptions and discuss them in the research group (cf. Witzel & Reiter, 2012).

Lastly, it should be noted that completed guide development work does not have to mean that no modifications will be made from this point forward. If necessary, the guide can be adapted for further interviews, depending, for example, on the person to be interviewed, anticipated circumstances of the implementation, or the stage of the research process. Further adjustments can also be made on an ad hoc basis as needed during implementation.

Group Discussion

In psychology, group discussions – often titled "focus groups" (Krueger & Casey, 2000) – are an important method for recording group processes. Group discussions aim at the exchange about or the discussion of a given topic. The discussions are usually opened with a "basic stimulus" or "narrative stimulus." This can be a given topic, an open question, a provocative statement, or a given material, such as a film or a newspaper report. Ideally, the discussion then becomes "self-propelling," i.e., a discussion among the participants that does not need to be initiated again by the leaders. The groups can be heterogeneous or homogeneous in terms of age, status, gender, social orientations/practices, or horizons of experience. They can also exist in reality or be "artificially" arranged with regard to the research question (e.g.,

teachers from different schools). Accordingly, they are characterized by a different degree of cohesion, which, for example, may be more pronounced in families or long-standing "cliques" than in ad hoc groups. One of the special features of group discussions is that the addressee is always the group. In practice, the method of group discussion is often seen as equivalent to group interviews as a quick way to get much information from different people.

Observation and Ethnography

The method of observation is also frequently used in psychological research. Along with interviews, it is one of the methods employed and elaborated upon as a matter of course. In psychology, there are many classic studies that used observation to capture "live" social behavior.

Observation can be used in a wide variety of ways: in natural or artificial settings, participatory or non-participatory, overt or covert, unmediated or mediated, unstructured or structured, and as third-party or even self-observation. Within qualitative research, participant observation is a particularly fruitful approach. Somewhat more broadly, it is also referred to as ethnographic research. An example of this is the study "Street Corner Society" (Whyte, 1943), which is pioneering in terms of social psychology and qualitative methodology due to its focus on group processes and in-group-out-group phenomena. This research on the "Social Structure of an Italian Slum" examined how immigrant youths organize themselves and establish their social identity in a culture that is new to them.

Ethnography or participant observation aims at a comprehensive data collection that combines "pure" observation data with insights from conversations, being there and one's own experience. Likewise, documents found in the field enter into the analysis (see section "Documents and Artifacts").

Insights are also opened up by attempting to record how the field responds to the researchers, i.e., how it gives them access, excludes them, or interacts with them. This recording is referred to as ethnographic protocols. The principles of communication and strangeness come into particular play here and require a high degree of reflection on the research action, the researcher him−/herself, and the roles he/she has assumed or ascribed in the field. In the course of participant observation, the question of proximity-distance is problematized. A prominent term here is "going native" which refers to a phenomenon that sometimes occurs during longer field stays. The researchers then increasingly lose the outside perspective, adopt the ways of seeing and acting of the people in the field, and become group members. Similarly, there is debate about the extent to which observation protocols reveal more about the researchers' construction efforts than about the actions of those observed in the field.

The data generated during observation or ethnographic work can be recorded in different structured ways. Besides various forms of writing observation protocols, sheets, and schemes during or shortly after a field or observation phase, a research diary is recommended especially in the context of ethnographic studies. It can be

used to reflect on one's own role, document the research process, and shed light on challenges such as the field's reactivity. Quite a few field researchers have pointed out that the duration of the protocol preparation exceeds the observation time many times over. Moreover, observational or ethnographic studies, especially when conducted covertly or partially covertly, face particular ethical issues for which situational and general answers must be found.

Documents and Artifacts

Qualitative research increasingly uses "found" documents and materials to address its research questions. This approach is sometimes referred to as a separate approach when talking about documents, artifacts, or visuals. Sometimes these are then classified as forms of data collection and elsewhere as analysis procedures.

The more general term "document analysis" is used when existing documents are used that were not specifically created with the research question in mind (Bowen, 2009). These can be, for example, expert reports; files; annual, case, or other reports with which institutional processes are reconstructed; or personal notes, diaries, and correspondence with which forms of sociality and biographical aspects can be worked out. Finally, newspaper articles or political speeches are also used to address socio-psychological questions, for example, to study discourses on social movements.

Artifact analysis (Froschauer & Lueger, 2020) is used when dealing with "objects" of material culture: objects (e.g., packaging), photographs (e.g., family pictures), written documents (e.g., fanzines), or traces in public spaces (e.g., graffiti).

In document analysis as well as artifact analysis, it is important not to interpret the objects of investigation exclusively as references to something "behind" them, but to consider the constructional character and thus the (e.g., usual, anticipated, intended) context of production as well as reception. Accordingly, the questions pertain to how the document/artifact is constituted, what functions it has in the original or newly placed context, and what meanings it has.

Videography and Visual Data

Video-based recording is increasingly used both in the course of field work and in observational studies. This is referred to more broadly as videography or video ethnography (Pink, 2021). These films, produced by researchers, differ from video analyses which focus on videos that are not produced by researchers, but sometimes by the researched, such as films of festivals or events or such videos that are uploaded to internet platforms. Because of the easy accessibility to video technology, everyday situations are now recorded with great ease. The advantages of video recordings lie primarily in repeatability; sequences can also be played back separately, for example, for single-frame analysis of interactions. However, the limitations associated with the use of video should not be underestimated. These are, in

particular, the limited angle of view, which can lead to the misrecognition of situation logics as "tunnel vision," as well as the lack of bodily experienced perception. Videos, therefore, do not per se guarantee more comprehensive or detailed data than, for example, ethnographic protocols, and the choice of the use of videography can thus only be determined along the lines of the research interest.

Netnography and Online Research

When researching media worlds, it becomes particularly clear how social science objects and methodological-technical approaches are mutually dependent. With the growth of net communication and virtual communities, new research questions can be applied to psychological issues. The term netnography (Kozinets, 2015) was specifically coined for methodologically innovative approaches and for forms of "being on the net" by researchers.

The expansion of new media also makes them interesting for the implementation of research (Mann & Stewart, 2000). On the one hand, the new media are the "object" of investigation; on the other hand, they also provide the equipment: while interviews by telephone have long been taken for granted, synchronously – through the Covid-19 pandemic – designed e-interviews and group discussions in virtual spaces are now becoming established. For qualitative research, which has to reflect the contexts of data production in particular, this poses completely different challenges due to the very different modes of communication.

Qualitative Experiments

The experiment as a central method for psychological questions has also a special relevance for psychology. The classics – the Milgram experiment and the Stanford Prison experiment – have attracted attention beyond the boundaries of the discipline. In this context, the work on leadership styles that goes back to Lewin or Sherif's field experiments on group conflict is also significant, as are experiments in the case of ideographic research related to "Ganzheitspsychologie" (holistic psychology) (Diriwächter, 2009).

In contrast to the quantitative experiment, the qualitative experiment focuses neither on hypothesis testing nor on the establishment of rigid experimental conditions. Rather, it is characterized by a search movement that influences during the execution, that is modifiable and discovering, and that seeks great proximity to everyday life. In the context of qualitative experiments, the "interventions" can be physical-material modifications, as well as be carried out in the form of thought experiments.

Introspection, Autoethnography, and Arts-Based Research

Approaches in which researchers make themselves the subject of inquiry sharpen a salient moment of qualitative research: the involvement of researchers. Their

perspective connects with introspection which was part of the common methodological repertoire in the early stages of psychology's history (Valsiner, 2017). The scientific approach to introspection is to recollect experiences and events. The process of doing introspection varies. It could, for example, take place in a research group: at first, members write down their memories individually and in as much detail as possible, present their notes to each other, and finally expand and clarify again in writing what they have presented.

A second approach that works with self-reports is autoethnography (Ellis, 2004), which contains moments of autobiography and ethnography. As in a written self-interview, researchers detail their own experiences and ways of processing the field of study. However, description alone is not the goal of autoethnography. Rather, it is about broadening the perspective beyond the purely personal level to generalizable sociocultural processes.

Introspection and autoethnography could be combined (Mey, 2018), and from autoethnography, it is a short step to approaches labeled as arts-based research which uses artistic methods – coming from theatre, the arts like painting or documentary film, etc. – to explore the phenomena under research (Leavy, 2015).

Fixing the Data

In order for qualitative data to be used for later analysis, it must be fixed. This can be done through texts as results from introspection/autoethnography or through protocols from observations/ethnography. Because of the prominence of verbal accounts, transcripts are usually prepared based on the audio- or video-recorded interviews, group discussions, field conversations, etc.

Transcription is not to be misunderstood as a simple transformation from spoken language to written text. It is a sophisticated process of "transcription as theory" (Ochs, 1979). Beside theoretical discussions (Davidson, 2009), quite a few suggestions for transcription are available (cf. Kowal & O'Connell, 2004). They range from "standard orthography" (transcription according to the norms of written language) to "literary transcription" to "phonetic transcription," according to a catalog of specifications.

The decision about the adequate transcription should be made on the basis of the research question and the planned evaluation steps: a "simple" transcription oriented to the written language is recommended if the level of analysis focuses in particular on what was said (manifest content). If, in addition, or primarily, it is of interest how something was said (e.g., communicative-interactional aspects) or why it was said (latent meaning), more complex transcriptions are appropriate.

In the course of transcription, further decisions have to be made, for example, whether to transcribe completely or in excerpts and how detailed to make the transcripts, i.e., whether to include not only what was said but also para-linguistic features such as laughter or prosodic ones such as pauses, stresses, or stretches. The duration of a transcription depends on the recording quality and the chosen transcript format. It varies from about 1:4 to 1:10, i.e., for 1 hour of audio-taped interview, 4 to 10 hours of transcription time should be estimated. For video-taped data, the time

required – depending on the demands of the transformation of image and voice information – can often be incomparably longer. For the fixation, it is recommended to use software (see section "Category-Oriented Methods").

In addition to transcripts and other fixations, it has become standard practice to create a postscript after an interview or group discussion (Witzel & Reiter, 2012). Here, the framework data of the situation (place, time, duration), conspicuous features (e.g., disturbances), impressions of the course (e.g., atmosphere, interactions), and unrecorded moments (e.g., greeting, warming up, and follow-up discussion) are fixed.

Qualitative Analysis

In qualitative social research, there are several methods for data analysis. They are in a process of being continuously developed, also because non-textual data are increasingly used in qualitative research. Which analysis method is suitable depends on the objective of the study. In addition, it is crucial which data are available in which form, because they must fit the method and meet its requirements. Finally, it should be noted that some analysis methods are designed as stand-alone procedures, while others can be combined with others. The choice and use of analysis methods are of great importance in qualitative social research, since the analysis work is usually the most time-consuming step, in which interpretation methods and results are determined.

Category-Oriented Methods

With qualitative content analysis (QCA) and grounded theory methodology (GTM), two methods are mentioned here that have in common how the results are presented in the form of categories. However, they do this in different ways: while QCA applies categories to the data material on the basis of theoretical assumptions and the research question or develops the categories further in discussion with the data material, the analysis work within the framework of GTM begins without categories that have been deduced in advance, because these are only developed and related to each other during the data analysis in order to arrive at complex statements about the topic of investigation.

Qualitative Content Analysis

Qualitative content analysis is characterized by the fact that categories are developed in an interplay between theory, the research question, and the concrete material. Many different kinds of QCA have existed (Schreier, 2012; Schreier, Stamann, Janssen, Dahl, & Whittal, 2019), but as a common understanding, this is the distinction between inductive and deductive categorization. Inductive category development means the elaboration of categories from the data. A predefined process model includes the steps of paraphrasing, generalizing, and reducing. In this way, the data are condensed so that complex statements about the content of the

data material become possible. The deductive category application is different, using a coding guide in which clear category descriptions, descriptive anchor examples, and concrete coding rules are listed. This procedure is intended to ensure that the data are processed systematically and as unambiguously as possible. This serves the formal, the content-related, the typifying, and the scaling structuring of the data. In scaling, for example, the data material is estimated on an ordinal scale level (such as "much – medium – little"). In this respect, the quantification of qualitative data is also often seen as an advantage of QCA, which can thus be classified in the border area between qualitative and quantitative research.

Grounded Theory Methodology

Grounded theory methodology is an approach that provides sophisticated methodological implementation suggestions for data collection and analysis. Originally developed by Glaser and Strauss (1967), the authors each later developed it independently. In addition, further variants have been proposed by Kathy Charmaz and Adele Clarke, among others, and increasingly linkages with other approaches are being implemented (e.g., with narrative analysis or with regard to approaches to the analysis of visual data; see for an overview Ruppel & Mey, 2017).

The goal in applying this methodology is to develop a grounded theory, i.e., a theory grounded in the data. Through intensive engagement with the data, categories are formed and organized into a relational structure until a theory framework emerges. The particular strengths of GTM are its transparently comprehensible methodological path of theory generation, its handling of sampling questions, and its iterative procedure that systematically combines data collection and analysis.

Following Strauss and Corbin (1990), to date one of the most prominent GTM books, the analysis process can be divided into three phases – open, axial, and selective coding. In the first phase, open coding, the data are examined in a small-scale manner. For this purpose, the texts are broken down into segments and interpreted in terms of their conceptual meaning, and codes are assigned. The second phase is axial coding. Here the so-called coding paradigm can be used to expand the categories and to highlight their relations. A distinction is made between context, causal conditions, intervening conditions, strategies, and consequences, which are ordered with regard to the phenomenon of the study. This procedure should help to structure the data and to establish category-oriented connections, since even a strongly inductive approach cannot hope to elaborate theoretical structures purely on the basis of data. In the last phase – selective coding – the relational connections that have remained vague are specified. Furthermore, the categories are further condensed, integrated into a category network by establishing a core category, and finally formulated as grounded theory.

Sequence Analytical Procedures

In addition to analysis procedures that present the data material in categories, there are a variety of methods that focus on the sequential structuring and temporal

dimensions of social phenomena. Sequential analytical methods differ, for example, in how small-scale they make the analysis and which data they prefer. The objects of sequential analyses are often micro-aspects of social interaction. An example of this is the change of speakers in conversational sequences, which are studied conversationally or narratively. However, meso- or macro-level phenomena can also be subject to sequential analysis, such as socially, historically, or institutionally shaped ways of speaking about gender, nation, or culture, where discourse analysis is then applied.

Narrative Analysis

Narrative psychology is interested in how people give meaning and significance to events and experiences by presenting and transmitting them in the form of narratives (Sarbin, 1986). For narrative analysis (e.g., Andrews, Squire, & Tamboukou, 2013), it is crucial whether the data are considered in terms of their narrative aspects, that is, whether narrative dimensions are considered significant reference points of the data in the analysis. Thematic analysis sheds light on the "what" of the narrative or what is narrated, whereas structural analysis sheds light on the "how."

Narrative analysis procedures are particularly suitable for the reconstruction of self- and other-positioning, with which the narrators indicate how they want to be seen and which positions they assign to others. On the basis of biographical interviews, for example, narrative analyses also enable the reconstruction of (life) events with their interactional, social, cultural, and historical reference points. Going beyond the individual biography, they represent a fruitful field of social psychological research, for example, with questions about dialogic and group dynamics and structures. In order to fully exploit the analytical potential of the narrative-analytical approach, distinct language-related knowledge is required. Then complex narrative reconstructions of social phenomena can be developed with the help of this method (e.g., in the field of identity research, see Bamberg, Demuth, & Watzlawick, 2021).

Conversation and Discourse Analysis

Conversation analysis (CA) was developed by Harvey Sacks, among others, in the 1960s. With it, a methodology is available that enables the analysis of social interactions, so that the organization of interactive action sequences can be examined and practical design rules of communication can be worked out. Accordingly, the analyses can be localized on the micro level. In addition, there is a close empirical reference that decisively shapes the conduct of the analyses: CA prefers natural, i.e., audio/video data of everyday and institutional origin, e.g., private conversations, telephone calls, or doctor-patient interactions, which were not created for the purpose of research. In CA data analysis, the focus is on sequentiality such as looking closely at speaker changes or sequence of contributions, and analysis is conducted on a case-by-case basis as well as comparatively and across cases.

In psychology, conversation analysis is sometimes labeled discourse analysis (Potter & Wetherell, 1987). In sociology, especially in European research, however, the term discourse analysis is associated with approaches that take a power-critical approach to discursive phenomena, for example, that of Michel Foucault

(Bührmann et al., 2007). Those are not identical with CA. In this respect, it must always be taken into account not only that the concept of discourse is understood quite differently but also that different varieties of "discourse analyses" coexist. Particularly with regard to Foucault, one tends to speak of "analytical glasses" rather than of small-scale methodological steps of analysis that have to be "worked through." Analytical orientations in the context of discourse analyses often aim at questions about the production of power relations, about inclusion and exclusion phenomena, moments of production and representation of reality, and truth and subjectivity. In addition, contextual, historical, social, and institutional points of reference are considered relevant. In this context, the "texts," and meant here are any forms of data in which traits of the discourse phenomenon of interest can be shown (e.g., newspaper articles and political speeches), are examined for discursive structures and practices.

Further Procedures and Basic Considerations

Without presenting further methods individually here in detail, at least some of them should be pointed out. They illustrate the special challenges of qualitative analyses which also guide the methods mentioned so far.

In objective hermeneutics (Reichertz, 2004), the central principles are contextuality, literalness, sequentiality, extensivity, and parsimony. The principle of contextuality prohibits interpreting the text hastily on the basis of contextual knowledge. The principle of literalness refers to the requirement to interpret the text in its existing form and to consistently elaborate the latent structures of meaning beyond the manifest meaning or textual intention. The principle of sequentiality demands that the interpretation be based without exception on the sequences and structures given by the data. Thus, it is forbidden to pick out passages arbitrarily or to skip them during the interpretation. The principle of extensivity states that the interpretations must be logically exhaustive. Therefore, all textual statements must be considered in depth, and all conceivable readings must be formed that are necessary for understanding and reconstructing the latent meaning. Finally, the principle of parsimony states that in the elaboration of possible readings, no additional assumptions are used, but only those "forced" by the text. Thus, interpretation proceeds in a methodologically controlled ("objective") manner, since only readings that can be verified against the text are taken into account.

Depth hermeneutics or, more generally, psychoanalytically oriented social research (Salling Olesen, 2012) applies a detailed interpretation of what is said (and meant, the latent meaning), first on a case-by-case basis and later across cases, including the conversational dynamics in the interviews and group discussions. Within the framework of the interpretation – based on the two fundamental operations of psychoanalysis: transfer and countertransfer – various meaning development questions are asked in order to enable a logical (factual content), psychological (relational content), scenic (manner of representations), and in-depth hermeneutic (latent intentions and meanings) understanding. Here, the associations,

emotions, identifications, and dynamics triggered in the evaluators are consciously used for interpretation.

Lastly, there exist many other approaches like metaphor analysis based on the linguist theory by Lakoff and Johnsen (2003), variants of interpretative phenomenological analysis approaches rooted in phenomenology or phenomenological psychology, and more and more specific approaches like video analysis (Knoblauch, Baer, Laurier, Petschke, & Schnettler, 2008).

Organization of the Work Process

Software for Computer-Assisted Analysis of Qualitative Data

Qualitative (or more generally: non-numerical) data in the form of text, images, or video are nowadays largely analyzed using specially developed software. This is called computer-assisted/computer-aided qualitative data analysis (CAQDAS). Numerous tools are available (e.g., ATLAS.ti, MAXQDA, and NVivo), which are mainly used for category-forming procedures, but also for sequence-analytical procedures. For various film or video analyses, for example, special software has been developed. In addition to paid tools, there is also freeware such as freeQDA. Researchers sometimes also realize their analysis with the help of Word or Excel. In the end, the complexity of the data analysis decides which programs should be used (a helpful orientation is given by Lewins & Silver, 2007).

CAQDAS is not an independent analysis technique but merely supports the evaluation. The programs are aids in the application of one of the many evaluation methods possible in qualitative research. Just as in the past paper-pencil analysis was used to mark passages of text and assign codes or categories to them, for example, these steps are now mostly done using digital input on a computer screen. The most important functions of the programs are data management (for compiling text passages for special coding, so-called retrievals), category management (for compiling categories and subcategories and attaching notes to categories), and memoing (for recording ideas about text passages, categories, and entire cases). Many programs are characterized by further features, for example, for searching text segments or for visualizations by graphical representations (qualitative modeling).

An advantage of CAQDAS is the possibility to process large amounts of data, to structure them clearly, and to include different types of data and their multimedia links. In addition, this can facilitate documentation and thus increase transparency. The fact that the software supports teamwork when processing data sets is also a major advantage.

Working in Research Teams

Today, data analysis via CAQDAS is often taken for granted. The situation is completely different when it comes to working in groups which is realized much less frequently. Yet collaboration in teams or working groups – in doing research, but

also in the context of studying and learning qualitative methodology – can help to make research decisions more explicit and provide input, for example, on case selection and through alternative "readings" in data analysis (Strauss, 1987). Teams are also helpful in checking the plausibility of, for example, the presentation of results. Working in groups also fulfills crucial demands of the quality criteria of qualitative research, especially that of intersubjectivity (Mruck & Mey, 2019).

It seems particularly important that research groups work together in a binding and regular manner. They are more productive if they are heterogeneously composed with respect to the topic or the state of the work, i.e., if they deal with different questions and the respective work is at different stages of development. Meanwhile, such research groups can also work virtually – for example, by using chats, discussion forums, or online conference tools. However, the specifics of network communication should be reflected and the necessary adaptations implemented.

Presentations of Qualitative Research and Performative Approaches

The modes of presentation of qualitative and quantitative studies differ to some extent. The articles resulting from quantitative studies are relatively standardized in structure, always including, for example, the state of the research, the hypotheses, the research design, information on the survey, the analysis, presentation of results, and finally the discussion. Qualitative research, on the other hand, cannot always – although all the study elements exist – follow such a scheme, if only because of its iterative procedure and its goal of theory development in, for example, the context of GTM studies. There is always a big gap between research work and its publication.

All studies, regardless of which methods they use, have in common that they must present the research process transparently. Especially for qualitative research, it means to give a deep insight into the individual decisions and steps, so that readers can understand the research process. To this end, it is not enough to merely mention the methods used by name.

Against the background of postmodern considerations on the staging of reality and truth, as well as the increased attention paid to the reception of scientific presentations of results, it has recently been discussed within qualitative research to fundamentally redesign the presentations and to enable new forms of appropriation. Under the general term performative social science (Jones et al. 2008; Mey, 2023), work has begun to develop new forms of presentation. As arts-informed research, artistic elements such as painting, theater, film, or multimedia installations and exhibitions are used to make social science results and findings accessible in new ways and for new audiences.

Quality Criteria of Qualitative Research

The comments on the presentation of qualitative studies already address the question of validity. Special weight is given to the "method-appropriate quality criteria" of qualitative research which means that the quality criteria of standardized research – objectivity, reliability, and validity – are largely rejected as a standard of evaluation.

Occasionally, however, the transfer of classical criteria can be found with, for example, reliability estimates in QCA to determine intercoder reliability. Rarer are positions that fundamentally reject the application of criteria for determining quality to qualitative research. The debate essentially boils down to different proposals and attempts to further develop criteria that genuinely relate to challenges of producing and demonstrating quality in qualitative research. In view of the diversity of methods for data production and analysis, specific criteria catalogs are discussed, and each criterion is weighted differently with respect to the areas of application (e.g., basic, application, and evaluation research). Against this background, the overarching criteria of transparency, intersubjectivity, and scope seem particularly important (see also the section "Debate: Quality of Qualitative Research" in *FQS* (https://www.qualitative-research.net/index.php/fqs/sections/deb/quality)).

Transparency: Since qualitative research involves a multitude of research decisions and the application of methods always means method development, the entire research process must be adequately documented – from the research question to the justification of choice of method, its adaptation within the framework of the study, and the concrete implementation of the research work with information on the sample. It must also be possible to clearly understand how the data were analyzed and interpreted. This presentation is part of the paper and should therefore not be separated into appendices.

Intersubjectivity: The evaluation should be plausibly explicated and juxtaposed with alternative interpretations. Against this background, the relevance of working in research groups is emphasized which helps to establish consensual validation or intersubjectivity. This includes reflecting on one's own role and disclosing the possible reflection of one's own thinking. Member checking, a presentation and discussion of the results with the participants, is recommended for studies in which an ability to agree in principle on the part of the respondents/co-researchers can be assumed.

Scope: Due to the comparatively small number of cases, it should be stated which generalization is intended and possible. Instead of statistical representativeness criteria, the "theoretical relevance" or "theoretical representativeness" should be estimated, and the scope should be defined. Against this background, any comments on the practical relevance of the research work can also be appropriately classified.

Research Ethics

It goes without saying that research must meet ethical criteria. This has been discussed in detail within psychology, most recently on the occasion of the Milgram experiment. Qualitative research is not ethically permissible per se, but it also must take into account the legitimate interests of those being researched – precisely because of its closeness to everyday life. In principle, the requirement of informed consent applies, i.e., all research participants must be informed about the aims, purposes, and possible effects of the study. As a rule, an information sheet is prepared for this purpose, in which information about the study is provided. The protection of the individual, the safeguarding of his or her integrity, and the

protection of his or her rights must be ensured at all stages of the research process. On the other hand, it should be avoided to trigger crises among the research participants, for example, by designing the research situation, by insensitive formulations of interview questions. Finally, all personal data must be treated confidentially, and publications must be designed in such a way that no conclusions can be drawn about the participants. This commitment on the part of the researchers goes far beyond anonymization. Changing or omitting personal details such as names, places, or institutions is sometimes not enough, because certain narrative sequences or specific modes of presentation could also make a person identifiable. Therefore, written agreements regulating the details must be drawn up with all research participants. In particular, these are voluntary participation, information about the aims of the study, storage of data, and information about the use and status of the research.

Regulations on research ethics and data protection are provided by the respective professional societies. At the same time, it is also true that qualitative research, due to its special logic, must formulate and adapt the recommendations with regard to its concerns and demands. Here, reference should be made, by way of example, to process ethics, which understands ethical decisions as process-related and questions the extent to which all concrete ethical challenges in terms of content can be anticipated (see also the section "Debate: Qualitative Research and Ethics" in *FQS* (https://www.qualitative-research.net/index.php/fqs/sections/deb/ethics)).

Teaching and Learning Qualitative Research

General Considerations

Against the background of the explanations on qualitative research, it becomes clear that three perspectives must be always virulent in teaching/training programs on qualitative research (see also the section "Debate: Teaching and Learning Qualitative Methods" in *FQS* (https://www.qualitative-research.net/index.php/fqs/sections/deb/teaching)):

- First, it is to give (for the teacher) and to learn (for the students) broad knowledge of research approaches/theories and thus knowledge also about their differences.
- Second, an understanding of research as a "social arrangement" and thus as a process of communication and interaction must be conveyed (learned): this includes a willingness and ability to be open to the researched persons, their stories, and their attitudes/(self-)interpretations/ways of constructing (according to the "principle of openness") and includes the ability for (self-)reflection and recognition of subjectivity (committed to the "principle of communication").
- Third, abilities to act appropriately in the research process are to be taught; corresponding qualifications are to be acquired by the students. But again, this includes the ability to put aside one's own prior knowledge, as well as to endure contradictions and ambiguities.

Learning/teaching of – and that means socialization into – qualitative research takes place (at best) over several semesters, in which, from the teachers' perspective, knowledge transfer, demonstration of technical procedures, and coaching of student research constantly merge.

The principle of teaching includes a rotation of the work phases of individual and small group work and discussion in the plenum. The alternation of mediation and accompaniment is paralleled by the practice of interpretation skills as well as the implementation of studies on pre-selected or freely selectable topics.

Regarding application orientation of qualitative research, the process of learning is linked from the very beginning through close interlocking with later (professional) practice – for example, through the discussion of suitable studies as well as research into the field.

Integrated Method Education

With this goal of teaching/learning in mind, the task is to develop curricula to give a complete understanding of qualitative methodology in regard to research planning (research question, sampling, design including mixed methods, access to the field, tip sheets, agreements) as well as methods of data production (interview, group discussion, observation, etc.), data preparation (transcription, protocols, postscript), and analysis procedures. Some of these issues could be given as a lecture, but selected aspects (development of interview schedules, mock interviews with video feedback, moderation techniques in group discussions, reading transcripts) are studied in depth as exercises in small groups.

After providing this general understanding of qualitative research, especially in order to make theoretical and methodological claims of qualitative research recognizable as equal access to social, psychological, and cultural realities, the following courses should be much more practice-oriented by involving the students in conducting their own empirical study which systematically addresses the aspects of the research process covered before. All steps are then worked out together in the research team. In practical terms, the individual work packages could be implemented in small groups to promote teamwork, but all results have to be discussed in plenary sessions. Although the project phases are circular, the first part of the module should focus on preparation (formulation of research questions and development of schedules, agreements, etc.), implementation of the study (field access/acquisition), and starting data production (interviews, observations, etc.). In the second part, supervision of the interviews, group discussion, and ethnography take place – for example, in regard to interviewing, question formulation, and specifically communicative/interactive skills.

Based on these skills – gaining first experiences through conducting a small study – the students are well prepared to start writing a qualitative-empirical bachelor or master thesis. Because of the specificity of qualitative research, it is advisable to organize for the students a moderated peer-to-peer setting, in which projects are presented and supervised on an ongoing basis. All research concerns are

discussed, and in particular, data are interpreted collaboratively to emphasize diversity of perspective.

Additionally, a course or a unit called "Presentation of scientific results using the example of qualitative research" could be implemented. Beside traditional dissemination strategies (articles, posters), alternative forms, such as performative social science (film, theater, exhibition), should be discussed. This prepares for interdisciplinary work and sensitizes students to the particularities of presentation in general and in particular for addressing results to different recipients.

Conclusion

Qualitative research has a firm foothold in many disciplines, as is evidenced by numerous handbooks and textbooks. Although the first comprehensive accounts for psychology are also available, qualitative research is still less established here, which can be attributed to the quantitatively dominated psychological teaching and learning content at universities.

The acceptance of qualitative research within psychology is expressed primarily in the use of interviews and qualitative content analysis, as well as in research that follows the mixed-methods paradigm (cf. Demuth & Mey, 2015). Genuinely qualitative work still has a hard time within the discipline. The same is true for the implementation of newer developments such as autoethnographic and performative approaches.

In view of the manifold and elaborate offers of qualitative research methods and the connectivity to formative research traditions of the discipline, their careless non-use is tantamount to self-restriction which wastes the potentials of qualitative research especially for psychological investigations. For future work, it is to be hoped that the discipline will more decisively exploit the breadth of qualitative research at the same time as it also participates in further development of these valuable tools.

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References

Andrews, M., Squire, C., & Tamboukou, M. (Eds.). (2013). *Doing narrative research*. Los Angeles, CA: Sage.

Bamberg, M., Demuth, M., & Watzlawick, M. (Eds.). (2021). *The Cambridge handbook of identity*. Cambridge University Press.

Bergold, J., & Thomas, S. (Eds.). (2012). Participatory qualitative research. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 13*(1). Retrieved August 4, 2021 http://www.qualitative-research.net/index.php/fqs/issue/view/39

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9*(2), 27–40. https://doi.org/10.3316/QRJ0902027

Bryant, A., & Charmaz, K. (Eds.). (2019). *The Sage handbook of current developments in grounded theory*. London, UK: Sage.

Bührmann, A. D., Diaz-Bone, R., Gutiérrez Rodríguez, E., Schneider, W., Kendall, G., & Tirado, F. (2007). Editorial FQS 8(2): From Michel Foucault's theory of discourse to empirical discourse research. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 8*(2). https://doi.org/10.17169/fqs-8.2.233

Camic, P. M., Rhodes, J. E., & Yardley, L. (Eds.). (2003). *Qualitative research in psychology: Expanding perspectives in methodology and design*. Washington, DC: American Psychological Association.

Corti, L., Witzel, A., & Bishop. L. (Eds.). (2005). Secondary analysis of qualitative data. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 6*(1). Retrieved August 4, 2021, from https://www.qualitative-research.net/index.php/fqs/issue/view/13

Davidson, C. R. (2009). Transcription: Imperatives for qualitative research. *International Journal of Qualitative Methods, 8*(2), 1–52. Retrieved August 4, 2021, from https://journals.library.ualberta.ca/ijqm/index.php/IJQM/article/view/4205

Demuth, C., & Mey, G. (2015). Qualitative methodology in developmental psychology. In J. D. Wright (Editor-in-chief), *International encyclopedia of social and behavioral sciences* (2nd ed., Vol. 19, pp. 668–675). Oxford, UK: Elsevier.

Denzin, N. K. (1989). *The research act* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2018). *The Sage handbook of qualitative research* (5th ed.). Thousand Oaks, CA: Sage.

Devereux, G. (1967). *From anxiety to method in the behavioral sciences*. The Hague, Netherlands: Mouton & Co.

Dexter, L. A. (1970/2006). *Elite and specialized interviewing*. Essex, UK: ECPR Press.

Diriwächter, R. (2009). Idiographic microgenesis: Re-visiting the experimental tradition of Aktualgenese. In J. Valsiner, P. C. M. Molenaar, M. C. D. P. Lyra, & N. Chaudhary (Eds.), *Dynamic process methodology in the social and developmental sciences* (pp. 319–352). New York, NY: Springer.

Ellis, C. (2004). *The ethnographic I: A methodological novel about autoethnography.* Walnut Creek, CA: AltaMira Press.

Flick, U. (2018). *Doing triangulation and mixed methods*. London, UK: Sage.

Flick, U., Kardorff, E., & Steinke, I. (2004). What is qualitative research? An introduction in the field. In U. Flick, E. Kardorff, & I. Steinke (Eds.), *A companion to qualitative research* (pp. 3–11). London, UK: Sage.

Froschauer, U., & Lueger, M. (2020). Artefaktanalyse. In G. Mey & K. Mruck (Eds.), *Handbuch Qualitative Forschung in der Psychologie. Vol. 2.: Designs und Verfahren* (2nd ed., pp. 773–794). Wiesbaden, Germany: Springer.

George, C., Kaplan, N., & Main, M. (1996). *Adult attachment interview protocol* (3rd ed.). Berkeley, CA: University of California. Unpublished manuscript.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New York, NY: Aldine de Gruyter.

Gubrium, J. F., Holstein, J. A., Marvasti, A. B., & McKinney, K. D. (Eds.). (2012). *Sage handbook of interview research. The complexity of the craft* (2nd ed.). London, UK: Sage.

Heaton, J. (2004). *Reworking qualitative data*. London, UK: Sage.

Jones, K., Gergen, M., Yallop, J. J. G., Lopez de Vallejo, I., Roberts, B., & Wright, P. (Eds.). (2008). Performative social science. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 9*(2). Retrieved June 18, 2022. http://www.qualitative-research.net/index.php/fqs/issue/view/10.

Kleining, G., & Witt, H. (2000). The qualitative heuristic approach: A methodology for discovery in psychology and the social sciences. Rediscovering the method of introspection as an example. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 1*(1), Art. 13. https://doi.org/10.17169/fqs-1.1.1123

Knoblauch, H., Baer, A., Laurier, E., Petschke, S., & Schnettler, B. (2008). Visual analysis. New developments in the interpretative analysis of video and photography. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 9*(3), Art. 14. https://doi.org/10.17169/fqs-9.3.1170

Kowal, S., & O'Connell, D. C. (2004). The transcription of conversations. In U. Flick, E. Kardorff, & I. Steinke (Eds.), *A companion to qualitative research* (pp. 248–252). London, UK: Sage.

Kozinets, R. V. (2015). *Netnography. Redefined* (2nd ed.). London, UK: Sage.

Krueger, R. A., & Casey, M. A. (2000). *Focus groups: A practical guide for applied research*. Thousand Oaks, CA: Sage.

Kvale, S. (2003). The psychoanalytical interview as inspiration for qualitative research. In P. Camic, J. Rhodes, & L. Yardley (Eds.), *Qualitative research in psychology: Expanding perspectives in methodology and design* (pp. 275–297). Washington, DC: American Psychological Association Press.

Kvale, S., & Brinkman, S. (2008). *InterViews: Learning the craft of qualitative research interviewing* (2nd ed.). Thousand Oaks, CA: Sage.

Lakoff, G., & Johnsen, M. (2003). *Metaphors we live by.* London, UK: The University of Chicago Press.

Leavy, P. (2015). *Method meets art* (2nd ed.). New York, NY: The Guilford Press.

Lewin, K. (1946). Action research and minority problems. *Journal of Social Issues, 2*, 34–46. https://doi.org/10.1111/j.1540-4560.1946.tb02295.x

Lewins, A., & Silver, C. (2007). *Using software in qualitative research: A step-by-step guide* (2nd ed.). London, UK: Sage.

Mann, C., & Stewart, F. (2000). *Internet communication and qualitative research: A handbook for researching online*. London, UK: Sage.

Merton, R. K., & Kendall, P. L. (1946). The focused interview. *American Journal of Sociology, 51*, 541–557.

Mey, G. (2010). Qualitative developmental psychology. In A. Toomela & J. Valsiner (Eds.), *Methodological thinking in psychology: 60 years gone astray?* (pp. 209–230). Charlotte, NC: Information Age Publishers.

Mey, G. (2018). Outer silence-inner dialogue. An essay on the performative dining experience "The Silence Meal" at Zagreus-Projekt, Berlin. *Human Arenas, 1*(2), 143–150. https://doi.org/10.1007/s42087-018-0017-7

Mey, G. (2023/in press). Performative social science. In E. Tseliou, C. Demuth, E. Georgaca, & B. Gough (Eds.), *Routledge international handbook of innovative qualitative psychological research*. London: Routledge.

Mruck, K., & Mey, G. (2019). Grounded theory and reflexivity in the process of qualitative research. In A. Bryant & K. Charmaz (Eds.), *The Sage handbook of current developments in grounded theory* (pp. 470–496). London, UK: Sage.

Ochs, E. (1979). Transcriptions as theory. In E. Ochs & B. Schieffelin (Eds.), *Developmental pragmatics* (pp. 43–72). New York, NY: Academic Press.

Pink, S. (2021). *Doing video ethnography* (4th ed.). London, UK: Sage.

Potter, J., & Wetherell, M. (1987). *Discourse and social psychology. Beyond attitudes and behaviour.* London, UK: Sage.

Reichertz, J. (2004). Objective hermeneutics and hermeneutic sociology of knowledge. In U. Flick, E. Kardorff, & I. Steinke (Eds.), *A companion to qualitative research* (pp. 296–302). London, UK: Sage.

Ruppel, P. S., & Mey, G. (2017). Grounded theory methodology. In R. Parrott (Ed.), *Encyclopedia of health and risk message design and processing* (Oxford research encyclopedia of communication, pp. 1–20). New York, NY: Oxford University Press. https://doi.org/10.1093/acrefore/9780190228613.013.522.

Salling Olesen, H. (Ed.) (2012). Cultural analysis and in-depth hermeneutics – Psycho-societal analysis of everyday life culture, interaction, and learning. *Forum Qualitative Sozialforschung/*

Forum: Qualitative Social Research, 13(3). Retrieved August 4, 2021, from http://www.qualitative-research.net/index.php/fqs/issue/view/41

Sarbin, T. R. (Ed.). (1986). *Narrative psychology: The storied nature of human conduct*. London, UK: Praeger Press.

Schjødt Terkildsen, T., & Demuth, C. (2015). The future of qualitative research in psychology. A discussion with Svend Brinkmann, Günter Mey, Luca Tateo and Anete Strand, moderated by Carolin Demuth. *Integrative Psychological & Behavioral Science, 49*(2), 131–161.

Schreier, M., Stamann, C., Janssen, M., Dahl, T., & Whittal, A. (2019). Qualitative content analysis: Conceptualizations and challenges in research practice – Introduction to the FQS special issue "Qualitative content analysis I". *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research, 20*(3), Art. 38, https://doi.org/10.17169/fqs-20.3.3393.

Schreier, M. (2012). *Qualitative content analysis in practice*. London, UK: Sage.

Smith, J. A., Harré, R., & Van Langenhove, L. (Eds.). (1995a). *Rethinking psychology*. London, UK: Sage.

Smith, J. A., Harré, R., & Van Langenhove, L. (Eds.). (1995b). *Rethinking methods in psychology*. London, UK: Sage.

Strauss, A. L. (1987). *Qualitative analysis for social scientists*. Cambridge, UK: Cambridge University Press.

Strauss, A. L., & Corbin, J. M. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.

Todd, Z., Nerlich, B., McKeown, S., & Clarke, D. D. (Eds.). (2004). *Mixing methods in psychology: The integration of qualitative and quantitative methods in theory and practice*. Hove, UK: Psychology Press.

Valsiner, J. (2017). *From methodology to methods in human psychology*. New York, NY: Springer.

Wengraf, T. (2001). *Qualitative research interviewing: Biographic narrative and semi-structured method*. London, UK: Sage.

Whyte, W. F. (1943). *Street corner society. The social structure of an Italian slum*. Chicago, IL: University of Chicago Press.

Willig, C., & Stainton-Rogers, W. (Eds.). (2017). *The Sage handbook of qualitative research in psychology* (2nd ed.). London, UK: Sage.

Witzel, A., & Reiter, H. (2012). *The problem-centred interview*. London, UK: Sage.

Further Readings

FQS – Forum Qualitative Sozialforschung/Forum Qualitative Social Research. www.qualitative-research.net

Willig, C., & Stainton-Rogers, W. (Eds.). (2017). The sage handbook of qualitative research in psychology (2nd ed.). London, UK: Sage.

Psychological Assessment and Testing

20

Leslie A. Miller and Ruby A. Daniels

Contents

Abstract

The field of psychological assessment is a multibillion-dollar business and probably touches more people than any other field of psychology. Various professionals, across different settings, administer psychological assessments and use the results to make important decisions about others. From childhood through adulthood, millions of individuals take and use psychological assessments to

L. A. Miller (✉)
LanneM TM, LLC and Rollins College, Winter Park, FL, USA
e-mail: DrLeslieAMiller@outlook.com

R. A. Daniels
Texas A&M University - San Antonio, San Antonio, TX, USA
e-mail: RDaniels@tamusa.edu

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make important decisions about themselves and others. Given the wide-reaching use and effects of psychological assessments, effectively designing and teaching of psychological assessment courses is essential. For significant and valuable learning to occur, courses must be designed using a systematic and integrated competency-based approach, with purposeful and aligned course goals, outcomes, and learning objectives. Courses must be designed in a way that has personal meaning to students and extends beyond the classroom experience into the workforce. In this chapter, we present a systematic and integrated competency-based approach (based on Fink's taxonomy of significant learning) for teaching courses related to psychological assessment. The approach helps those who design and teach psychological assessment sources achieve two major goals. The first goal is to provide students with learning opportunities to acquire the knowledge base needed to be informed consumers of psychological assessment. The second goal is to offer individuals who take workforce roles that involve identifying, administering, and/or interpreting psychological assessments with opportunities to acquire the knowledge base and professional skills needed to properly use psychological assessments to make good decisions.

Keywords

Psychological assessment · Psychological testing · Tests and measurements · Teaching · Instruction

Introduction

Psychological assessment, also commonly referred to as psychological testing, is a multibillion-dollar business and probably touches more people than any other field of psychology. Each year hundreds of test publishing companies proactively market their assessments, with media reports indicating sales growing from approximately $7 million in 1955 to as high as $700 million in more recent years (WGBH Educational Foundation, 2015). Annually, states spend approximately $1.8 billion a year on standardized tests in US schools (Statistic Brain Research Institute, 2017), with parents investing about $1.1 billion on test preparation and tutoring (IBISWorld, 2019) and students taking approximately 112 tests between pre-K and Grade 12 (Hart et al., 2015). Workplace assessment alone is a $500 million a year industry, with 82% of US organizations administering pre-employment assessments (Zielinski, 2018). Over 2 million students took the SAT alone in 2019 (College Board, 2019), with over 10,000 companies using the Myers-Briggs Type Indicator personality assessment and 35 million people taking the assessment each year (Bajic, 2015).

Professionals, across disciplines, financially and personally invest in psychological assessments because they rely on the results to make objective, high-stakes decisions. For example, in clinical and counseling settings, psychologists use assessment results to make diagnoses, develop treatment plans, and assess

treatment outcomes – even determine a person's competency to stand trial for a crime. In organizational settings, human resource professionals use psychological assessment results to make hiring/promotion decisions, measure employee performance, evaluate training effectiveness, and assemble effective teams. In educational settings, school administrators and educators use psychological assessment results to evaluate the success of curriculum, measure teacher performance, make college admission decisions, guide curriculum planning, and assign student grades. Similarly, government agencies and professional organizations use psychological assessment results for certification and licensure. Even individuals, such as yourself, who take psychological assessments use the results to make personal decisions, such as where to apply to college or graduate school and what degree to seek.

Given the heavy reliance on psychological testing to make decisions, it is critical that those who both take psychological assessments and those who administer them are well-informed about foundational concepts related to psychological assessment. For example, they must know how to distinguish well-designed (or psychometrically sound) assessments from others and how such assessments should and should not be used. Without understanding such foundational concepts, psychological assessments can be misunderstood and improperly used. For example, individuals may incorrectly conclude that psychological assessments are useless or even harmful. Or they may conclude that psychological assessments are extremely precise measurement instruments – when, in fact, they are not.

Because these foundational concepts are not intuitive, effective teaching about psychological assessment is essential. When students are interested in pursuing professions that use and rely on psychological assessments to make critical decisions, they must be prepared to identify and administer such assessments appropriately and ethically. Even if they do not pursue such careers, students are still likely to be consumers of psychological assessments. While in school and after graduating, they will continue to take standardized and/or teacher-made assessments throughout their professional and personal lives. Many are likely to be recipients of assessments administered to them in the workplace (e.g., as part of a job selection process). As a result, having a foundational understanding of testing concepts helps students become informed consumers of psychological assessment.

Carefully designing psychological assessment courses is also vital. Simply identifying the foundational concepts that must be taught and then providing students with resources to learn about these topics is not enough. For high-quality learning to occur, courses must be purposely and carefully designed to reflect emerging, competency-based teaching and learning best practices (American Psychological Association [APA], 2020a) and to influence students' perceptions of the material (Black, Daughtrey, & Lewis, 2014). Research indicates student engagement and learning improve dramatically when a systematic and integrated, competency-based approach to course design is used (Fink, 2007).

To build a strong foundation for learning, effective psychological assessment courses are ones that are purposefully designed to integrate the learning objectives, activities, and assessments needed for students to develop the competencies

expected in high-quality undergraduate and graduate programs. Students who can demonstrate desired competences are more likely to be successful upon graduation.

The course design process begins with a clear understanding of critical competencies and clearly identified learning objectives so students understand the purpose – or "why" – of a course. In turn, instructors should then develop engaging learning activities that inspire students to achieve the intended objectives. To maximize learning, the pedagogical process should be both clear and engaging. Students should be active participants in their learning so they are slowly guided to deeper and higher-order thinking with interesting activities that appeal to different learning styles. When designed appropriately, assessments not only determine whether students understand foundational concepts but also evaluate if students can apply the concepts in a meaningful way (Fink, 2007). While instructors may be tempted to design courses "on the fly," failure to integrate learning objectives, activities, and assessments into a holistic, integrated course design – focused on developing critical competencies – increases the likelihood that students will feel disengaged and/or confused in a psychological assessment course.

In this chapter, our goal is to provide evidence-based advice about how to design and teach courses related to psychological assessment that strive for two major goals: first, providing students with learning opportunities to acquire the knowledge base needed to be informed consumers of psychological assessment and, second, offering individuals who take workforce roles that involve identifying, administering, and/or interpreting psychological assessments with opportunities to acquire the knowledge base and professional skills needed to properly use psychological assessments to make good decisions.

Nature of the Field

So, what exactly is psychological assessment? It is a process professionals use to systematically gather information about individuals, using a combination of methods and instruments. The information gathered is then used to make important decisions across a variety of settings, including clinical/counseling, educational, and organizational settings (Miller & Lovler, 2020). Within different settings, the types of professionals who use psychological assessments are varied, with some of the most common being clinical psychologists, counselors, administrators, school psychologists, educators, industrial-organizational psychologists, and human resource professionals.

Professionals use a variety of methods and instruments during the psychological assessment process. For example, in clinical and counseling settings, clinical psychologists and mental health counselors often use clinical interviews/observations, standardized tests (e.g., personality assessments and neuropsychological tests), as well as behavioral checklists. These instruments help professionals understand the nature and impact of a client's problem, diagnose mental illness/disease, determine a client's readiness for treatment, evaluate whether an individual will benefit from treatment, and develop the most effective interventions. In organizational settings,

industrial-organizational psychologists, human resource professionals, and managers often use structured interviews, personality inventories, as well as tests of cognitive ability, aptitude, knowledge, and integrity. They use these assessment results to not only make human resource decisions, such as who to hire and promote, but to guide decisions related to development planning, employee performance, and training effectiveness. Within educational settings, school administrators, college admission personnel, school psychologists, and teachers use norm-referenced, criterion-referenced, and self-made tests to make admission and placement decisions, assess program and student learning outcomes, compare student performance to other groups, and evaluate whether students have developed critical competencies (collections of knowledge, skills, and abilities).

Professional and Scientific Issues/Objectives

As is true in most disciplines, those working in the field of psychological assessment must understand the relevant professional and scientific issues. Some of today's most prominent issues in psychological assessments are (a) using assessments appropriately and ethically, (b) using psychological assessments with good psychometric properties, and (c) not making critical decisions based on the results of a single psychological assessment. These issues stem from continued misunderstanding and improper use of psychological testing resulting in two extreme misconceptions: (a) psychological assessments provide little value (and can even be harmful), and (b) psychological assessments are perfectly precise measurement instruments.

Using Assessments Appropriately and Ethically Using assessments appropriately and ethically is critical to avoiding assessment misuse. To alleviate the potential for assessment misuse, all individuals who use psychological assessments should ensure they understand and abide by the guidelines, principles, and standards that exist for psychological assessment (Miller & Lovler, 2020; Society for Personality Assessment, 2006). Misuse can have significant consequences, including the assessment user making poor or improper decisions based on the information obtained from an assessment. Further, misuse can reflect poorly on test users and professional organizations that develop, market, and provide services related to psychological assessment.

Misuse of a psychological assessment is often not intentional. Rather, misuse is often the result of inadequate technical knowledge and misguided information about proper testing procedures. To help those who use psychological assessments act appropriately and ethically, a variety of professional associations and societies publish technical/professional guidelines, principles, and standards for constructing, evaluating, administrating, scoring, and interpreting psychological assessments. Intended to guide the work of members and nonmembers who practice in the field of psychological assessment, some of the most referred to guidelines, principles, and standards are:

- American Psychological Association's (APA) Ethical Principles of Psychologists and Code of Conduct (APA, 2010)
- Code of Fair Testing Practices in Education (Joint Committee on Testing Practices, 2004)
- Standards for Educational and Psychological Testing (American Educational Research Association [AERA], APA, and National Council on Measurement in Education [NCME], 2014)
- Code of Ethical and Professional Standards in Human Resource Management (Society for Human Resource Management [SHRM], 2019)
- Uniform Guidelines on Employee Selection Procedures (1978)

A more comprehensive listing of professional guidelines, principles, and standards can be found at the Buros Center for Testing (2019).

Assessment misuse may also be the result of purchasing and using psychological assessments without meeting the minimum training, education, and experience qualifications (Miller & Lovler, 2020). While publishers are responsible for ensuring those who purchase their assessments are qualified to use them, individuals purchasing assessments also have a responsibility to ensure they meet the required test user qualifications (background, training, and/or certifications). Most test publishers market their psychological assessments as A-, B-, and C-level tests (e.g., see Pearson, 2019). While A-level assessments typically do not require any special qualifications, B- and C-level assessments have increasingly stringent training, education, and experience requirements.

Using Psychological Assessments with Good Psychometric Properties Individuals who use psychological assessments should also ensure they only use assessments with good psychometric properties (Ayearst & Bagby, 2010; Miller & Lovler, 2020). The psychometric properties of a psychological assessment are determined by gathering evidence of reliability and validity for intended use. Because important decisions are made using the results of psychological assessments, it is critical that assessments produce dependable or consistent information and that the inferences and decisions made from this information are well justified.

To determine whether psychological assessments produce dependable or consistent information, we gather evidence of reliability. No one psychological assessment can be 100% dependable or consistent due to the measurement error associated with evaluating psychological constructs. However, the objective is to use psychological assessments where error is minimized. The less error, the more dependable and consistent the information is resulting from a psychological assessment.

Just using a psychological assessment that produces dependable and consistent information is not enough. Individuals who use psychological assessments should also ensure the psychological assessments they use have evidence of validity for intended use. Historically, those involved in psychological assessment have viewed validity as a property of an assessment instrument itself. For example, if evidence was gathered that an instrument measured what it claimed to measure or predicted what it claimed to predict, the instrument was considered valid. However, today

assessment experts argue that the concept of validity is best understood by accumulating evidence to justify the inferences and decisions made based on the results of a particular psychological assessment (AERA, APA, & NCME, 2014).

Not Making Critical Decisions Based on the Results of a Single Psychological Assessment Last, individuals who use psychological assessments should also ensure they do not make critical decisions based on the results of a single assessment (Miller & Lovler, 2020). As shared above, psychological assessments are not perfectly accurate measurement instruments. Their results contain error that may be caused by factors related to the assessment itself (systematic error) or factors stemming from how the assessment was administered or taken (unsystematic or random error). Using the results of multiple assessments provides not only a more comprehensive understanding of what is being measured but also enhances the accuracy of information being used to make important decisions. If multiple assessments reveal similar, converging information, then we can feel more confident in the information obtained to make more informed decisions.

Historical Context and Current Trends

The use of psychological assessments is thought to have begun over 4000 years ago during the Xia Dynasty in Ancient China. At this time, there is some, though not confirmed, evidence that the Chinese emperor implemented royal examinations to determine whether officials should remain in office. While a thorough discussion of the history of psychological assessment is beyond this chapter, Fig. 1 includes a timeline summarizing many of the significant events in history described by Miller and Lovler (2020), leading to today's worldwide use of psychological assessments.

During the late 1800s, the use of psychological assessments gained in popularity, primarily due to the realization that just as important as studying individual similarities was studying individual differences, which is what psychological assessments do. Then, in the 1900s, the use of psychological assessments began to flourish with the publication of multiple intelligence tests: the Binet-Simon Scale (Binet & Simon, 1905), the Stanford-Binet Intelligence Scale (Terman, 1916), and the Wechsler-Bellevue Intelligence Scale for Adults/the Wechsler Adult Intelligence Scale (Wechsler, 1939). Various personality tests, such as the US Army's Personal Data Sheet (Papurt, 1930), the Rorschach inkblot test (Exner, 1993), and the thematic apperception test (Murray, 1943), were also published. Efforts then began, in the mid-1940s, to design vocational tests such as the General Aptitude Test Battery (U.S. Department of Labor, 1970).

In the early 1950s, given the increasing numbers of psychological assessments being used and the significance of the decisions being made based on testing results, psychologists began focusing efforts on protecting test taker rights. In 1953 the APA established the Committee on Ethical Standards for Psychology. This committee then led a larger group of psychologists to publish the Ethical Standards of Psychologists, of which an updated version is still in use today.

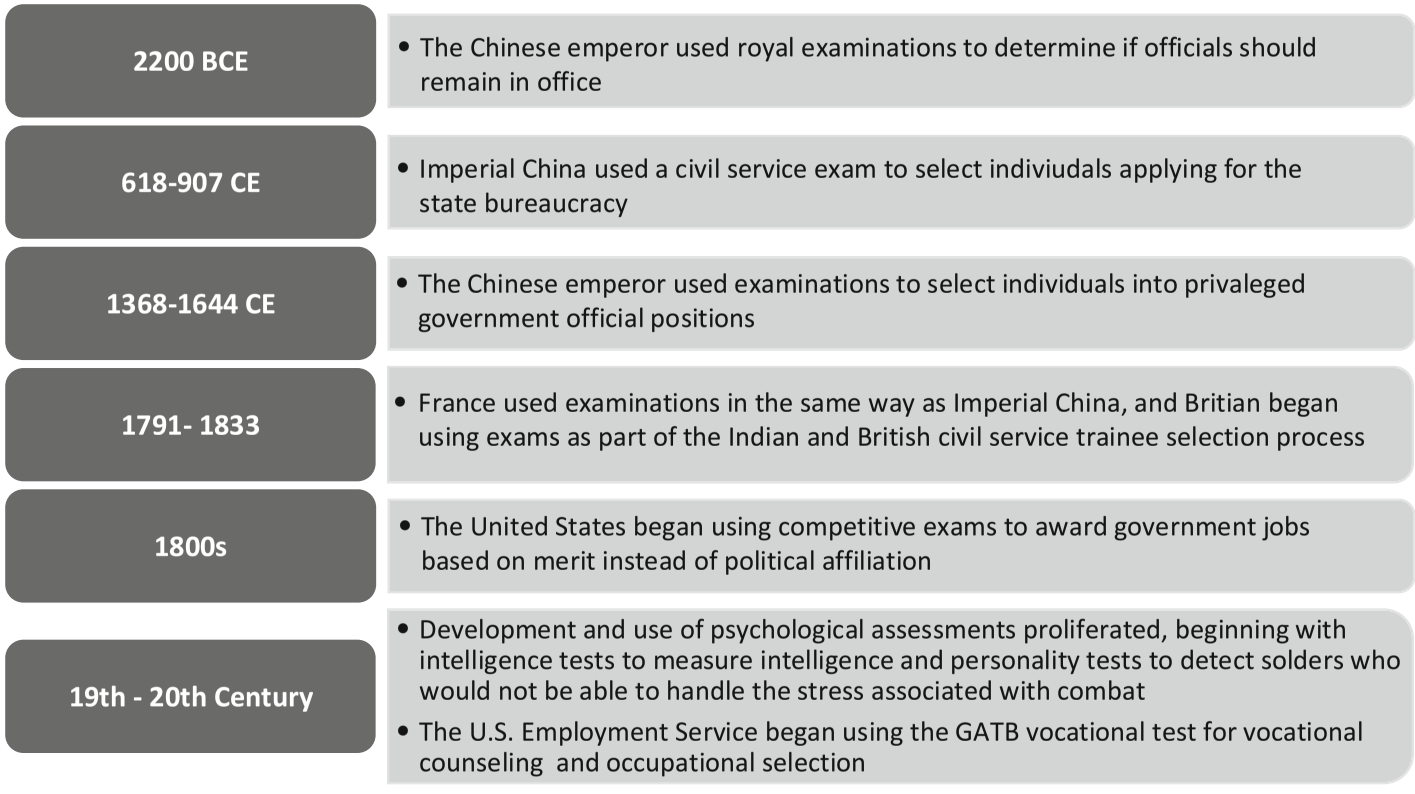

Fig. 1 Timeline of historical events related to the use of psychological assessment

Purposes and Rationale of the Curriculum in Psychological Assessment

Various undergraduate and graduate programs offer core and/or elective courses to educate students about psychological assessment. The content included in these courses varies significantly depending on the level of the degree (associate, bachelor's, master's, or doctorate), the course level (introductory or advanced), and the degree program (e.g., BS in Psychology or Organizational Behavior, MA in Counseling, PhD in Clinical Psychology). Lower-level associate and bachelor's degree courses typically focus on enhancing student understanding of foundational concepts related to psychological assessments. These courses usually provide students with the information needed to be well-informed consumers, versus users, of psychological assessments. For example, an introductory-level course may focus on enhancing student understanding of what psychological assessments are, who uses them and for what reason, how to tell if an assessment is a quality one, and the ethical issues associated with psychological assessment.

In contrast, more advanced or graduate-level courses may focus on enhancing student understanding of specific types of psychological assessments and how to appropriately use them within the profession of a specific graduate program. For instance, psychological assessment courses in graduate clinical psychology programs are likely to focus on improving student understanding of how to administer and interpret the results of specific assessments clinical psychologists use to aid in diagnosing client problems, monitoring treatment progress, and assessing treatment outcomes. Examples include clinical interviews, behavior rating scales, and clinically oriented self-report tests, such as the Minnesota Multiphasic Personality Inventory (MMPI) or the Personality Assessment Inventory (PAI) (Miller & Lovler, 2020). Similarly, a psychological assessment course in a graduate industrial-organizational program is likely to focus on improving student understanding of the specific assessments used for employee selection and development. Examples include cognitive ability tests, job knowledge tests, personality tests, integrity tests, situational judgment tests, assessment centers, and behaviorally based structured interviews (SHRM Foundation, 2016).

All courses on psychological assessment, regardless of degree, course level, or program, should be carefully designed to follow today's best practices in curriculum development. Aligned with Covey's (2013) Habit 2 of the seven habits of highly effective people and the APA's competency-based approach to psychology program curriculum development (e.g., see APA, 2020a, b), instructors should *begin with the end in mind* when designing courses on psychological assessment. Beginning with the end in mind requires understanding the competencies (collections of knowledge, skills, and abilities) or outcomes students should be able to demonstrate at the end of the program of study and identifying the goals of the specific course being designed.

The competencies or outcomes students should be able to demonstrate at the end of a program of study vary depending on the program. For example, as shown in Fig. 2, APA's (2013) *Guidelines for the Undergraduate Psychology Major* indicate psychology departments should expect undergraduate students majoring in psychology to

Fig. 2 APA (2013) framework of guidelines for undergraduate majors

demonstrate 19 specific learning outcomes that are grouped into 5 skill-based goals (pp. 15–16).

The goals of a specific psychological assessment course will also vary. The goals will vary depending on whether the course is an introductory-level course or a graduate-level course. For introductory-level courses, we recommend two simple course goals:

1. To develop student understanding of the foundational knowledge and principles of psychological assessment
2. To develop student understanding of what types of professionals use psychological assessments, in what settings, and for what reasons

When developing a graduate-level psychological assessment course where students will be using profession-specific assessments after graduation, we recommend one additional course goal:

3. To develop student competency applying foundational psychological assessment principles when selecting and using assessment instruments in clinical, educational, organizational settings

Beginning with the end in mind, or a clear understanding of program-level competencies and course-level goals, leads to development of high-quality courses in psychological assessment, where students can experience more robust learning and assessment activities (APA, 2020a, b). Such an approach helps curriculum designers and teachers achieve the objectives of a college education, such as helping students develop work-related skills, grow personally and intellectually (Pew Research Center, 2011), and become globally competitive (Department of Education, 2020).

Taking time to carefully identify what course outcomes (as well as corresponding learning objectives) are needed to achieve program-level competencies and course-level goals establishes a foundation for a well-aligned course that not only engages students but also maximizes learning. Once course outcomes and learning objectives are identified, teachers can design learning activities or tasks (such as reading book chapters/articles, watching videos, or completing exercises) to help students achieve the desired learning objectives. Similarly, all assessments of student learning (such as quizzes, tests, etc.) should be designed to determine the extent to which the desired learning objectives are achieved.

Learning Objectives for Psychological Assessment Courses

As we previously discussed, the content of psychological assessment courses varies significantly by degree level, course level, and degree program. As a result, no standard set of learning objectives (what students should know and be able to do) is recommended for a course on psychological assessment. However, we believe that Fink's (2013) taxonomy of significant learning can serve as an extremely valuable framework to help instructors create course learning objectives – regardless of level or program. Fink's taxonomy builds upon Bloom's (1956) taxonomy, a powerful and commonly used framework for developing learning objectives (e.g., see Adams, 2015). While Bloom's (1956) taxonomy includes six hierarchical levels of learning based on how the brain processes information and how students learn, Fink's (2013) taxonomy includes six interactive categories of learning deemed important for *significant* learning to occur.

According to Fink (2013), for significant learning to occur, students must experience lasting learning, which only occurs when the concepts are important to a person's life. Therefore, course learning objectives should extend well beyond the typical objectives of understanding and application of core concepts and topics – which aligns extremely well with most competency-based program-level guidelines. To make the process important to a learner's life, Fink (2003) believes courses should include more challenging and exciting learning objectives that (a) lead to significant changes in students that continue after a course and graduation and (b) enhance students' lives by preparing them for experiences beyond the classroom, including the world of work. According to Fink (2003, 2013), significant learning occurs when courses are designed with learning objectives in each of six major categories (see Fig. 3).

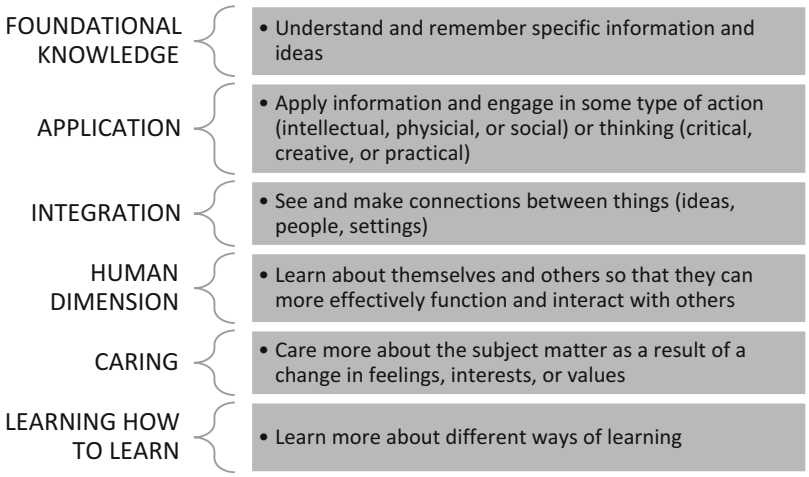

Fig. 3 Summary of Fink's (2013) taxonomy of significant learning

When designing courses, it is essential for instructors to align each course goal with corresponding course outcomes and learning objectives. Table 1 illustrates how the course goal of "developing student understanding of the foundational knowledge and principles of psychological assessment" aligns with six specific course outcomes. In turn, each course outcome has more specific learning objectives. For instance, the first course outcome in Table 1 indicates that students should be able to "explain key terms related to psychological assessment." To meet this outcome, students have the learning objectives to "define what a psychological assessment is," "identify common measures of central tendency," "define reliability and validity," etc.

When writing learning objectives, teachers should also consider Fink's taxonomy of significant learning. By using Fink's taxonomy to create learning objectives, courses on psychological assessment have the potential to add value that extends well beyond the classroom, the college experience, and graduation. Following Fink's (2003, 2013) taxonomy, Fig. 4 includes some general questions to help instructors reflect about the desired learning objectives for a psychological assessment course. For the most lasting learning to occur, Fink (2003, 2013) encourages teachers to identify learning objectives that promote all six kinds of learning. For more information on how to write objectives that promote all six kinds, of learning with examples, see Teacher and Educational Development, University of New Mexico School of Medicine (2005).

Core Contents and Topics of Psychological Assessment

To illustrate how to align specific topics with the course goals identified in the previous section, Table 2 lists the foundational concepts and principles instructors should include to meet the course goals of an introductory class about psychological

Table 1 Alignment of a course goal, course outcomes, and learning objectives by Fink's taxonomy of significant learning

Course goal Develop student understanding of the foundational knowledge and principles of psychological assessment		Fink's taxonomy of significant learning				
Course outcomes	Learning objectives	Foundational knowledge	Application	Integration	Human dimension	Caring
Explain key terms related to psychological assessment	Define what a psychological assessment is	●				
	Identify common measures of central tendency	●				
	Define reliability and validity	●				
	Define nominal, ordinal, interval, and ratio levels of measurement	●				
	Define test-retest, alternative forms, internal consistency, and scorer reliability	●				
	Define content, construct, and criterion-related validity	●				
Discuss how and why psychological assessments are used to make decisions	Identify reasons why different professionals, across various settings, use psychological assessments				●	●
	Discuss the types of decisions made based on the results of psychological assessments				●	●
	Identify common examples of psychological assessments used by individuals and organizations				●	●
Describe ethical issues related to psychological assessment	Explain the ethical responsibilities of assessment publishers				●	●
	Describe the rights and responsibilities of assessment-takers				●	●
	Discuss ethical issues that may occur when assessing individuals with physical and mental challenges				●	●

(continued)

Table 1 (continued)

Course goal Develop student understanding of the foundational knowledge and principles of psychological assessment		Fink's taxonomy of significant learning				
Course outcomes	Learning objectives	Foundational knowledge	Application	Integration	Human dimension	Caring
Interpret the results of psychological assessments	Explain when the mean, median, and mode should be used to measure central tendency		●	●		
	Interpret the results of norm-referenced and criterion-referenced assessments		●	●		
	Interpret standard and normed scores		●	●		
Demonstrate best practices when developing a psychological assessment	Describe how to minimize response bias when developing a psychological assessment				●	●
	Explain how to use replication and cross-validation to measure the validity of a psychological test		●	●		
	Explain how to use common quantitative and qualitative techniques to analyze items in a pilot test		●	●		
	Describe best practices for validating a psychological assessment		●	●		
Analyze the psychometric properties of a psychological assessment	Determine whether a psychological assessment has evidence of reliability		●	●		
	Analyze whether a psychological test has evidence of validity for intended use		●	●		

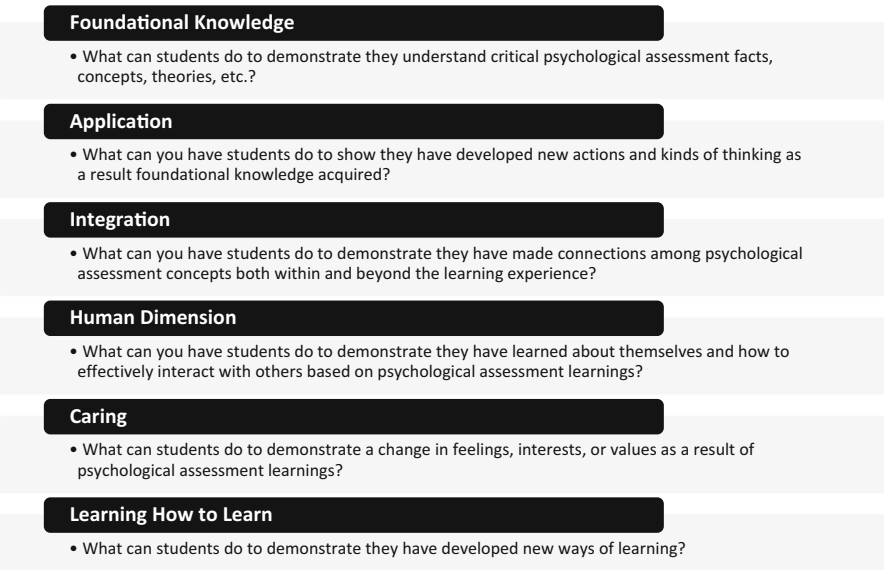

Fig. 4 General questions to consider when developing learning objectives for psychological assessment courses

assessment. The table clusters topics into four groups: overview, use/rationale, critical evaluation, and ethics. These categories indicate that by the end of the course, students should know what psychological assessments are (overview), who uses them and for what reason (use and rationale), how to tell if an assessment is a quality one (critical evaluation), and ethical issues associated with psychological assessment.

Based on these core concepts and topics, instructors should develop four to six general course outcomes to identify what students should be able to do by the end of an introductory psychological assessment course. For instance:

- Explain key terms related to psychological assessment.
- Discuss how and why psychological assessments are used to make decisions.
- Interpret the results of psychological assessments.
- Demonstrate best practices when developing a psychological assessment.
- Analyze the psychometric properties of a psychological assessment.
- Describe ethical issues related to psychological assessment.

Organizing Frameworks for Psychological Assessment Courses

There are various ways course developers organize instructional content to achieve learning objectives. For example, content might be organized categorically, chronologically/sequentially, by order of importance, from simple to complex,

Table 2 Foundational concepts and principles critical to an introductory psychological assessment course

	Concepts and principles	Description
Overview	Definition of psychological assessment	What constitutes a psychological assessment, including the similarities and differences between a psychological assessment, a psychological test, and a survey
	Common characteristics	The characteristics common to all well-designed psychological assessments
	Ways of classifying psychological assessments	The common ways professionals classify and refer to psychological assessments (maximal performance, behavior observation, self-report; standardized vs. nonstandardized; objective or projective; dimension/construct measured)
	Assumptions	The assumptions we must make when using psychological tests and steps we can take during test development to increase our confidence
	Locating information about psychological assessments	Where to locate appropriate psychological assessments (print and online), including information about their intended use, merits, and limitations
Use and rationale	Professionals who use psychological assessments	The types of professionals in different settings (e.g., clinical/counseling, educational, and organizational) who use psychological assessment results to make important decisions
	Types of psychological assessments used	The types of psychological assessments professionals in different settings use to make important decisions
	Types of decisions made	The types of important decisions individuals and institutions make, in different settings, using the results of psychological assessments, including the comparative or absolute method used by institutions
Critical evaluation	Critical concepts and procedures for interpreting results	Levels of measurement, normal distribution, histograms, measures of central tendency, measures of variability, standard scores, norms
	Methods for establishing reliability/precision	Test-retest, alternate forms, internal consistency, and scorer reliability
	Methods for gathering evidence of validity	The five sources of validity evidence described in the *Standards for Educational and Psychological Testing*: Evidence based on test content (content validity), evidence based on response

(continued)

Table 2 (continued)

	Concepts and principles	Description
		process, evidence based on internal structure (construct validity), evidence based on relations with other variables (criterion-related validity), evidence based on the consequences of testing
	General principles/methods for developing psychological assessments	The assessment development process, including common item types (objective and projective) and practices for minimizing response bias (e.g., social desirability, acquiescence, random responding/faking)
	General principles/process for conducting a pilot test to assess the psychometric quality of an assessment	Common quantitative (e.g., item difficulty, discrimination index, item-total correlations, interitem correlations, item bias) and qualitative (e.g., questionnaires, expert panels) techniques for evaluating the performance of test items, including the assessment revision process
	General principles/process for validating a psychological assessment	The process of replication and cross-validation; assessing measurement bias and differential validity; determining test fairness; developing norms and identifying cut scores
Ethical issues	Common professional practice standards	The professional practice standards of associations and societies most relevant to psychological assessment/testing, including the general ethical responsibilities of assessment/test publishers, test users, and test takers
	Ethical issues	Issues associated with testing special populations (e.g., individuals with physical and mental challenges)

hierarchically, or by focusing on the whole and then the parts. Regardless of how the content of a psychological assessment course is organized, the course should be structured in a way that is logical and meaningful to students.

Most psychological assessment courses have a core textbook upon which most content is drawn. Textbook content is organized into some logical, meaningful structure. One possible way to organize a psychological assessment course is to find a core textbook that you believe is meaningfully organized. Then, either map your learning objectives to the textbook content or use the learning objectives provided by the textbook author, supplementing them to ensure learning objectives are included from all six categories of Fink's (2013) taxonomy of significant learning.

Figure 5 includes a combination of *simple to complex* and *hierarchical* organizing framework, with the course divided into four sections, each with sub-units. The framework is *simple to complex* in that students are slowly introduced to the topic of

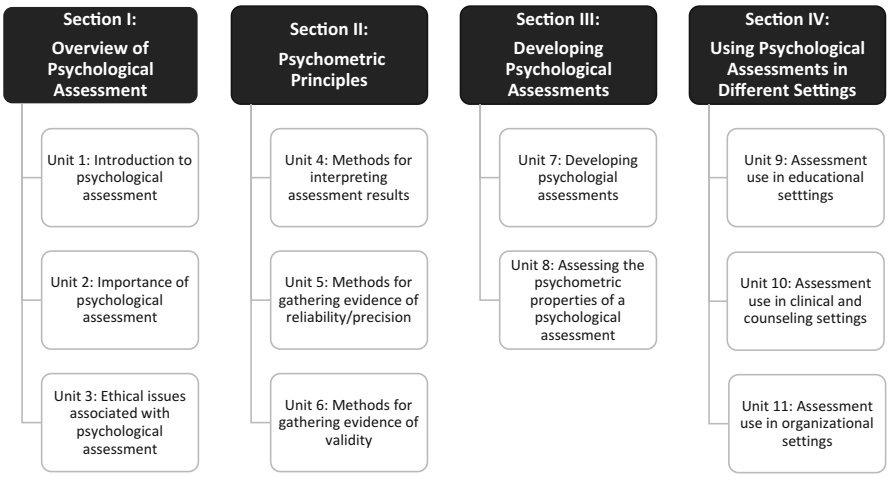

Fig. 5 Organizing framework for a psychological assessment course

psychological assessment (in section "Introduction") prior to focusing on more complex concepts related to psychometric principles and assessment design. The framework is also hierarchical because foundational knowledge, which is required for more higher-level knowledge/skills, is presented first. This organizing framework follows the structure of Miller and Lovler's (2020) *Foundations of Psychological Testing: A Practical Approach* textbook. Instructors who use this *simple to more complex* and *hierarchical* framework gradually introduce students to the field of psychological assessment by building their knowledge base and confidence prior to covering more complex concepts and practices.

Teaching, Learning, and Assessments: Approaches and Strategies

The complexity of psychological assessment demands a myriad of teaching and assessment strategies. Instructors should not only consider *what* to teach and *how* to assess whether students understand the core concepts but also *why* students should care about the information and *how* to keep students engaged during class. After discussing general strategies related to student engagement and type of instructional delivery (face-to-face, online, or hybrid), this section presents specific learning activities and assessments instructors should consider for their psychological assessment classes.

Teaching Strategies

Engagement Strategies Keeping students engaged in the learning process is particularly important when teaching a challenging subject like psychological

assessment. Students often perceive theory-based, lecture-only approaches as boring, irrelevant, and confusing. Research indicates student attention starts to lapse after about 10 to 18 minutes of a lecture (Williamson & Schell, n.d.). To maximize student engagement, teachers of psychological assessment courses should leverage the technology, application, and dialogue strategies suggested in Table 3.

Activities that require students to apply the course concepts to specific problems or situations tend to increase student engagement (Fink, 2007). For instance, rather than merely providing general information about the widespread use of psychological assessments, instructors should have students work in small groups to identify and discuss psychological assessments they have personally taken in the past. Integration of real-world case studies, simulations, and problem-based learning also increase student engagement.

Using technology to reinforce psychological assessment concepts also helps capture student interest and attention. Several interactive quiz platforms, such as Kahoot, Quizizz, Quizlet Live, and/or Gimkit, allow students to use their laptops or smart phones to measure understanding of course concepts or provide the instructor with feedback. Instructors can also incorporate activities that teach students how to design psychological assessments and collect data with online survey-hosting platforms, such as Google Forms, SurveyMonkey, and SurveyPlanet (see Stickler, 2019).

Classroom dialogue, whether in-person or online, also significantly increases student engagement. Rather than merely providing information, instructors should use Socratic questioning to encourage participation and reflection about psychological assessment concepts. McQuain (2014) provides a list of various Socratic inquiries, including questions to probe about assumptions, information, reasons, evidence, causes, viewpoints, implications, consequences, and interpretations. For instance, psychological assessment teachers can ask students questions such as:

- Why should you care about psychological assessment?
- Who can benefit from the use of psychological assessments?
- What is the difference between reliability and validity?
- How do we know if a psychological assessment has evidence of validity?
- What evidence supports your interpretation of a psychological assessment's results?
- What is the difference between interval and ratio levels of measurement?
- When should you use norm-referenced assessments? Criterion-referenced assessments?

Regular use of Socratic questioning teaches students to think critically about psychological assessment concepts, rather than merely memorizing and repeating information.

Delivery Strategies Because traditional face-to-face (F2F) courses incorporate live interaction, instructors should reflect carefully about the way psychological assessment concepts are presented. F2F classes provide instructors with several options to

Table 3 Strategies to maximize student engagement in psychological assessment courses

Engagement strategies	Description	Examples	Description
Application	Integrate scenarios that require critical thinking about psychological assessment concepts	Simulations	Teachers provide students with hypothetical scenarios that require them to apply and interpret various psychological assessment concepts
		Real-world case studies	Instructors develop case studies issues related to popular psychological tests
		Problem-based learning	Teachers provide students with psychological assessment-related problems and require them to make recommendations, individually or in groups
		Real-life examples	Instructors design activities based on current events. For instance, the class could discuss how inappropriate sampling resulted in inaccurate conclusions about pilot readiness to fly Boeing 737 MAX aircraft (Pasztor, 2019)
Technology	Incorporate interactive hardware and software in the classroom to maintain student interest	Clickers	Instructors provide students with handheld devices that collect and analyze student responses to close-ended questions in real time (Bruff, 2019)
		Online assessments	Instructors demonstrate online testing platforms
		Interactive quiz platforms	Instructors use a free online quiz platform, such as Kahoot (2019), so students can anonymously self-assess their understanding of foundational concepts
		Survey software	Instructors incorporate activities that teach students how to design psychological assessments and collect data with online survey-hosting platforms (see Stickler, 2019)
		Excel activities	Instructors use Excel to demonstrate various statistical methods to calculate and interpret test scores

(continued)

Table 3 (continued)

Engagement strategies	Description	Examples	Description
Dialogue	Use interactive conversation between the instructor and students psychological testing	Socratic questioning	Instructors pose probing questions (rather than merely providing information) to encourage student self-discovery
		Peer interaction	Students work in pairs to discuss their thoughts about various psychological assessment concepts
		Group discussion	Students work in groups of 3 to 5 to discuss concepts and/or case scenarios
		In-class debate	Students debate the pros and cons of standardized testing in schools

engage students personally and use formative assessments to measure student understanding. A F2F environment also provides students with the opportunity to ask questions in real time, minimizing the chance of confusion about a particular concept.

However, traditional lectures can be problematic in psychological assessment courses. When lengthy, lectures may come across as tedious and/or complicated. As a result, teachers should consider "chunking" longer lectures into a series of shorter presentations so the information can be combined with activities to maximize student attention, interest, and curiosity. Figure 6 illustrates how a traditional 60-minute lecture can be modified into a more engaging "chunked" approach (Williamson & Schell, n.d.).

Learning Activities Before designing learning activities, teachers of psychological assessment should reflect about whether the activities align with at least one of the course's learning objectives. Purposefully selecting specific readings and videos for students to review is particularly important because these resources provide students with a preliminary understanding of psychological testing concepts. When the assigned readings and videos align with course learning objectives, students are in a stronger position to accomplish the course outcomes. In contrast, when readings and videos are disconnected with the learning objectives, accomplishing course goals/outcomes is significantly harder. Similarly, other learning activities should also align with one or more of the learning objectives. Table 4 identifies a variety of engaging learning activities that can be integrated into a psychological assessment course. For practical and critical thinking learning activities following the course structure in Fig. 6, see Rhoads, Pemble, Miller, and Lovler (2020).

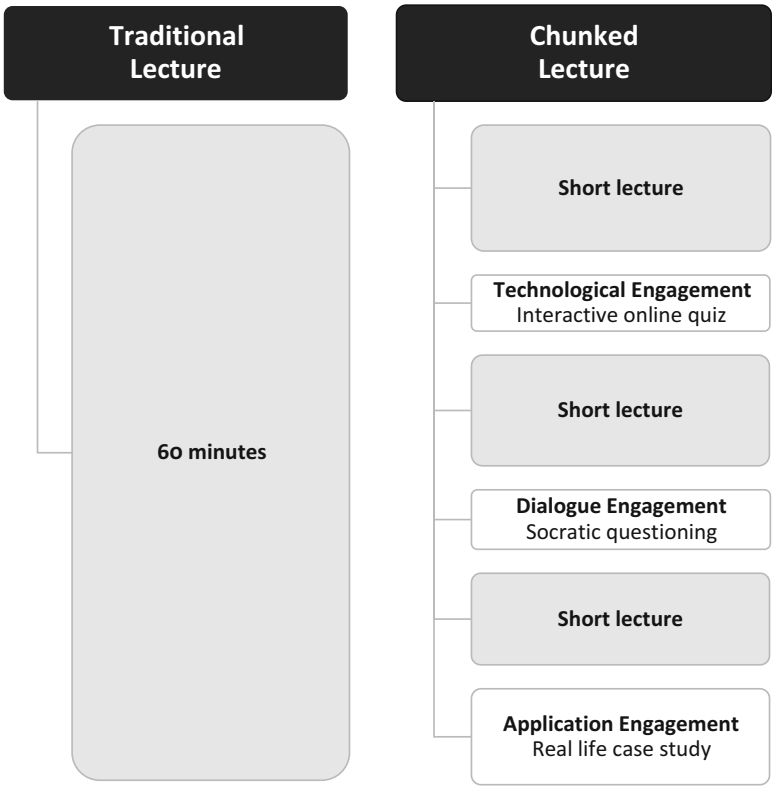

Fig. 6 Comparison of a traditional lecture with a chunked approach

Unlike F2F classes, online courses are asynchronous, with students participating at different times and from various locations. Because students are not in the same place as the instructor, online learning depends heavily on written (rather than oral) communication and may result in less instructor and peer-to-peer interaction. Because of these structural differences, online and hybrid psychological assessment instructors should proactively use technology to build relationships with students and provide opportunities for live dialogue. For instance, online instructors can record video lectures rather than relying exclusively on text-only information. They also can offer live office hours with telephone or video conferencing platforms to provide students with opportunities to discuss concepts in real time (see Watts, 2019).

Course-spanning learning activities, which include a series of activities spread throughout the course, are also an effective means for achieving desired learning objectives. The purpose of such activities is for students to apply psychological assessment concepts as they proceed through the course, culminating in a final deliverable submitted at the end of the class. For example, instructors can integrate an assessment critique activity where students identify a commercially available

Table 4 Alignment of potential learning activities with engagement strategies

Learning activity	Description	Engagement strategies		
		Application	Technology	Dialogue
Pair and share	Students work in pairs to share their thoughts on a discussion topic			●
Muddiest point	Students anonymously write down topics that are not clear at the end of a class. In the next class, the instructor discusses topics that are still "muddy"			●
Fishbowl	Students insert questions about a psychological assessment topic into a fishbowl (or other containers). The instructor then randomly selects questions for class discussion			●
Real-world case study	Students receive and analyze a case study based on actual events	●		
Daily journal	Students regularly write journal entries about the psychological assessment concepts and cases presented in class	●		●
Discussion	Students analyze questions that are presented in a F2F or online class	●	●	●
Build a survey	Students use an online survey-hosting platform to create a psychological assessment; they can also analyze data collected from their assessment	●	●	
Interactive quiz	Students respond to true/false and multiple-choice questions based on readings and videos about psychological assessment		●	●
Concept mapping	Students use online software to create concept maps about various psychological assessment topics	●	●	●

Note: Additional information about these activities can be found at Paulson and Faust (2019)

psychological assessment, conduct sequential research on the assessment, and complete an assessment critique worksheet (see Fig. 7). At the end of the course, students present their critique to classmates (either face-to-face or perhaps through an online video), demonstrating increasing levels of knowledge and skill. Instructors may also consider providing students with an opportunity to take a psychological assessment and receive coaching about their results (see Center for Application of Psychological Type, 2019; Morrison, 2019a, b, c). Students can then prepare a development plan based on the assessment's results or write an analysis of their key learnings.

Assessment Strategies

Measuring whether students are learning is particularly important in psychological assessment courses. Instructors are expected to "walk the talk" of assessment

Test/assessment Critique Worksheet

Part I: General descriptive information	
• What is the title of the test/assessment?	
• Who is the author of the test/assessment?	
• Who publishes the test/assessment, and when was it published? (Include dates of manuals, norms, and supplementary materials.)	
• How long does it take to administer the test/assessment?	
• How much does it cost to purchase the test/assessment?	
Part II: Purpose and nature of the test/assessment	
• What does the test/assessment measure and/or predict?	
• What behavior does the test/assessment require the test/assessment taker to perform?	
• What population was the test/assessment designed for (for example, age, type of person)?	
• What is the nature of the test/assessment (for example, maximal performance, behavior observation, self-report, standardized or nonstandardized, objective or subjective)?	
• What is the format of the test/assessment (for example, paper-and-pencil or computer, multiple choice or true/false)?	
• Is the test/assessment manual comprehensive? (Why or why not?)	
• Is the test/assessment easy or difficult to administer?	
• How clear are the administration directions?	
• How clear are the scoring procedures?	
• What qualifications and training does a test/assessment administrator need to have?	
• Does the test/assessment have face validity?	

Fig. 7 (continued)

Test/assessment Critique Worksheet

Part III: Technical evaluation	
• Is there a norm group, who comprises the norm group, and what types of norms are there (for example, percentiles, standard scores)?	
• What evidence exists that the test/assessment has evidence of reliability/precision?	
• What evidence exists that test/assessment has evidence of validity for intended use?	
Part IV: Test/assessment reviews	
• What do reviewers say are the strengths and weaknesses of the test/assessment?	
• How did the test/assessment perform when researchers or test/assessment users, other than the test/assessment developer or publisher, used it?	
Part V: Summary	
• Overall, what do you see as being the strengths and weaknesses of the test/assessment?	

Fig. 7 Sample psychological assessment critique worksheet

by demonstrating they can accurately identify when students have obtained the knowledge, skills, and abilities specified in the course outcomes. To maximize student learning, psychological assessment instructors should be familiar with both summative and formative assessment as well as key performance indicators.

Summative Assessment Psychological assessment courses frequently use summative assessments, which measure student learning at the end of an instructional unit. Tests, problem sets, discussion questions, individual or team papers, presentations, and/or projects are common summative assessments. Designed to evaluate understanding of key concepts, students take tests, write papers, participate in online discussion boards, complete computational problem sets, etc. While these assignments provide a global measure of understanding at the end of an instructional unit (e.g., after a chapter or a midterm exam), summative assessments only measure a student's understanding at a specific point in time. Because these tend to be high-stakes assignments (worth a significant percentage of the student's grade), summative assessments can be stressful and do not effectively provide feedback about student learning between each assignment.

Formative Assessment In contrast, formative assessments provide students with ongoing, low-stakes feedback to improve their learning throughout the course. Several of the learning activities in Table 4 are also formative assessments that can be used in psychological assessment courses. For instance, instructors can use an interactive quiz activity to anonymously assess students' understanding of key terminology about psychological assessment. As shown in Fig. 8, a series of true/false or multiple-choice questions can be displayed for the class. Students then use their laptop or smart phone to select a response. After everyone indicates an answer, the correct response is displayed and can be discussed by the instructor. This type of formative assessment allows students an anonymous and engaging way to self-assess their understanding of psychological assessment concepts.

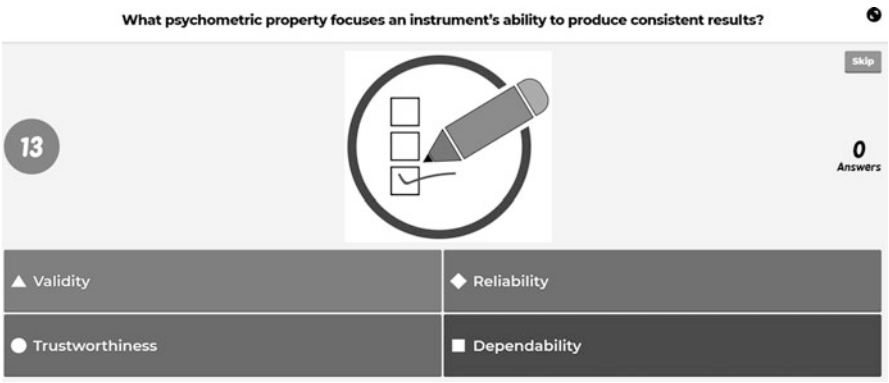

Fig. 8 Example of a formative assessment hosted on Kahoot's (2019) interactive quiz platform

It also provides students with insight about the content the instructor believes is important. The muddiest point, fishbowl, and concept mapping activities also provide instructors with an informal way to measure students' understanding of the course concepts.

Course Key Performance Indicators In addition to using specific assignments to measure learning, instructors should track overall course effectiveness with key performance indicators (KPIs). When crafting such indicators, Winkelmes (2014) suggests instructors should reflect about what essential knowledge students should be able to retain 5 years after taking a course. Table 5 provides sample KPIs for an introductory psychological assessment course. By clearly and transparently stating KPIs *before* a class starts, instructors make the course more intentional, while also empowering students with the ability to self-assess their understanding of important concepts during (as well as after) the class.

Table 5 Learning outcome key performance indicators (KPIs) for effective teaching of psychological assessment

Learning outcome KPIs	Description	Poor	Average	Excellent
Awareness of the importance of psychological testing	To what extent can the student describe how psychological assessments are used by individuals and organizations?	Describes less than two examples	Describes three to four examples	Describes five or more examples
Unprompted recognition of common psychological assessments	How many psychological tests can the student identify and describe without being prompted?	Identifies less than five assessments	Identifies six to nine assessments	Identifies ten or more assessments
Correct recollection of psychological assessment concepts	How accurately can the student remember key psychological testing concepts? Reliability Validity Instrumentation Sampling Data collection Data analysis/ interpretation	Accurately recalls a few (two or less) key concepts	Accurately recalls some (three to five) key concepts	Accurately recalls all six key concepts
Proper application of psychological assessment concepts	To what extent can the student appropriately apply psychological testing concepts in his/her personal and professional life?	Able to apply few (two or less) of the key concepts	Able to apply some (three to five) key concepts	Able to apply all six key concepts

Challenges and Lessons Learned

Designing and teaching a psychological assessment course that has maximal impact on students is not easy. Based on the material in this chapter, such courses should be designed and taught to achieve four pedagogical objectives:

- Keep students engaged in their learning.
- Enhance student understanding of core concepts and topics.
- Lead to significant changes in students that continue after a course and graduation.
- Enhance students' lives by preparing them for experiences beyond the classroom, including the world of work.

Achieving these four teaching objectives requires that individuals designing a psychological assessment course carefully identify aligned course goals, outcomes, learning objectives, activities, and assessments. The learning objectives must be carefully written, and action-oriented, to align with program-level competencies and to promote significant learning, including learning objectives across all six of Fink's (2013) categories of significant learning: foundational knowledge, application, integration, human dimension, caring, and learning how to learn. Instructors must then focus on keeping students engaged by incorporating purposeful learning activities that align with identified learning objectives, leveraging technology, application, and dialogue strategies. Further, instructors must incorporate formative and summative assessment strategies that can accurately identify whether students have the knowledge, skills, and abilities specified in the course outcomes. When such information is integrated effectively into a course, students are more likely to demonstrate the long-term KPIs of a psychological assessment course: awareness of the importance of psychological testing, unprompted recognition of common psychological assessments, as well as accurate recollection and appropriate application of psychological assessment concepts.

Achieving the four pedagogical objectives above becomes more challenging, requiring strategies above and beyond those discussed in this chapter, given the following:

- **Students often fear courses with statistics**, which are foundational to understanding methods for interpreting assessment/test results and establishing evidence of reliability/precision and validity. Therefore, it is critical that teachers employ strategies to get students to relax and feel comfortable learning about statistical concepts.
- **The demographics and learning environment of classrooms change over time**. Therefore, teachers must constantly update their approaches to teaching to meet the needs of both traditional and adult learners who have unique needs and learn in various ways (F2F classroom, online, and blended learning environments).

- **While many of the foundational concepts of psychological testing are old ones, the field of psychological assessment/testing constantly evolves**. Therefore, teachers must be lifelong learners themselves, remaining aware of current trends (e.g., changes in the way we conceptualize validity, focus on evidence-based assessment in clinical settings, use of simulations and gamification instead of paper-based assessments in educational and organizational settings, and electronic availability of tests compromising test security).
- **Students are savvy and will take every opportunity they can to question the assessments administered to them** – particularly in a psychological assessment course where they are learning about best practices in assessment development. Therefore, teachers must ensure their assessments are developed following best practices in assessment development, with good psychometric properties themselves.
- **Students demand relevance**. Therefore, students need to know *why* the concepts being taught are important before they can focus on *how* to apply/use the information.
- **Employers are less interested in content knowledge and more focused on graduates who write and think critically**. Therefore, instructions must integrate more critical thinking and writing learning activities into their courses.
- **Passion is contagious!** Some of the concepts in psychological assessment are dry and/or difficult to understand. Instructors must understand that delivery matters. Even in a well-designed course, teachers must excite and engage students by presenting information in an engaging, dynamic, and compelling manner to spark students' desire to learn.

Teaching, Learning, and Assessment Resources

The role of an instructor who teaches courses in psychological assessment is to demonstrate teaching excellence using evidence-based practices that maximize student engagement and learning of the field. Below are some final recommendations and advice for those who teach psychological assessment courses, followed by a brief list of annotated sources about teaching, learning, and assessment in the field of psychological assessment:

- **Tip 1**: Create alignments: Begin with the end in mind! Take time to align course goals, outcomes, and action-oriented learning objectives focused on what students should be expected to do. Similarly, align each learning objective with Fink's (2013) categories of significant learning using the course concepts and principles in Table 1 as a foundation.
- **Tip 2:** Keep students engaged by incorporating purposeful and aligned learning activities leveraging technology, application, and dialogue strategies.
- **Tip 3:** Incorporate formative and summative assessment strategies that accurately identify whether students have the knowledge, skills, and abilities specified in the course outcomes.

- **Tip 4:** Employ additional strategies to help students relax and feel comfortable, addressing the need of both traditional and adult learners who learn in classroom, online, and blended learning course.
- **Tip 5:** Stay current on current trends in psychological testing so you can explain *why* concepts are important before focusing on *how* to apply them.
- **Tip 6:** Design psychometrically sound formative and summative assessments based on best practices in assessment development.
- **Tip 7:** Integrate critical thinking and writing activities.
- **Tip 8:** Demonstrate passion in the classroom.

For more information about teaching, learning, and assessment in the field of psychological assessment, see the list of resources below.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.

The *Standards* is the gold standard guide on testing not only in the United States, but globally. Approved in 2013 as APA policy, the *Standards* is a 230-page book, providing those who develop and use standardized psychological assessments/tests with criteria for evaluating testing practices and tests. Some of the criteria included are related to validity, reliability/precision, measurement error, fairness in testing, test design and development, rights and responsibilities of test takers and test users, and applications in clinical, workplace, and educational settings.

Buros Center for Testing (https://buros.org)

The Buros Center for Testing is a nonprofit research and assessment resource center located within the Department of Educational Psychology at the University of Nebraska-Lincoln. The Center's mission is to improve both the science and practice of assessment and testing. The Center houses the largest and most comprehensive test review resources, such as the Mental Measurements Yearbook and Tests in Print. The Center also has many valuable print and video resources related to appropriate use of psychological assessments.

Course Design and Teaching

Fink, D. L. (2013). *Creating significant learning experiences: An integrated approach to designing college courses*. San Francisco, CA: Jossey Bass.

This book includes informative ideas that higher education instructors can use to improve teaching and how these improvements will benefit both them and students. A new taxonomy of significant learning extends beyond just remembering and application, with terms instructors can use to create learning goals. An integrated course design is presented in a new and novel manner with easy to understand and apply things course designers and students can do to engage student in active learning and achieve significant learning.

Rhoads, A., Pemble, S., Miller, L. A., & Lovler, R, L. (2020). *Student workbook to accompany Miller and Lovler's foundations of psychological testing: A practical approach* (6th ed.). Thousand Oaks, CA: SAGE Publications.

While written to accompany Miller and Lovler's 6th edition *Foundations of Psychological Testing: A Practical Approach* textbook, the workbook contains a variety of learning activities directly linked to critical psychological assessment learning objectives. Included are practical and critical thinking exercises that allow students to actively demonstrate one or more learning objectives by completing very applied activities. Also included are practice multiple-choice and short-answer questions.

Teacher & Educational Development, University of New Mexico School of Medicine. (2005). *Effective use of performance objectives for learning and assessment.* Retrieved from https://www.mtsac.edu/fclt/docs/EffectiveUseofLearningObjectives.pdf

This PDF file provides detailed information about what learning objectives are and why have them. The authors discuss the key components of well-designed learning objectives, as well as how to create useful SMART learning objectives. Also included are example action verbs, example learning objectives, and suggested learning strategies using both Fink's dimensions of learning and Bloom's levels of thinking/learning.

Cross-References

▶ Assessment of Learning in Psychology
▶ Basic Principles and Procedures for Effective Teaching in Psychology
▶ Educational Psychology: Learning and Instruction
▶ First Principles of Instruction Revisited
▶ Formative Assessment and Feedback Strategies
▶ Inquiry-Based Learning in Psychology
▶ Problem-Based Learning and Case-Based Learning
▶ Psychological Literacy and Learning for Life
▶ Psychology in Professional Education and Training
▶ Psychology in Social Science and Education
▶ Psychology in Teacher Education
▶ Small Group Learning
▶ Teaching of Work and Organizational Psychology in Higher Education
▶ Teaching Psychology in Secondary Education
▶ Teaching the Foundations of Psychological Science
▶ Teaching the Psychology of Learning
▶ Technology-Enhanced Psychology Learning and Teaching
▶ Topics, Methods, and Research-Based Strategies for Teaching Cognition

References

Adams, N. E. (2015). Bloom's taxonomy of cognitive learning objectives. *Journal of the Medical Library Association, 103*(3), 152–153. https://doi.org/10.3163/1536-5050.103.3.010.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (2014). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.

American Psychological Association. (1953). *Ethical standards of psychologists*. Washington, DC: Author.

American Psychological Association. (2010). *Ethical principles of psychologists and code of conduct: Including 2010 amendments*. Washington, DC: Author. Retrieved from http://www.apa.org/ethics/code/index.aspx

American Psychological Association. (2020a). *APA guidelines for the psychological undergraduate major*. Retrieved from https://www.apa.org/ed/precollege/about/undergraduate-major

American Psychological Association. (2020b). *Promoting excellence in professional psychology education and training through best practices in defining and measuring competence*. Retrieved from https://www.apa.org/ed/graduate/competency

Ayearst, L. E., & Bagby, R. M. (2010). Evaluating the psychometric properties of psychological measures. In M. M. Antony & D. H. Barlow (Eds.), *Handbook of assessment and treatment planning for psychological disorders* (pp. 23–61). New York, NY: The Guilford Press.

Bajic, E. (2015, September). *How the MBTI can help you build a stronger company*. Retrieved from https://www.forbes.com/sites/elenabajic/2015/09/28/how-the-mbti-can-help-you-build-a-stronger-company/#240084a7d93c

Binet, A., & Simon, T. (1905). New methods for the diagnosis of the intellectual level of subnormals. In H. H. Goddard (Ed.), *Development of intelligence in children (the Binet-Simon Scale)*. Baltimore, MD: Williams & Wilkins.

Black, G. S., Daughtrey, C. L., & Lewis, J. S. (2014, December 7). The importance of course design on classroom performance of marketing students. *Marketing Education Review, 24*(3), 213–226. https://doi.org/10.2753/MER1052-8008240303

Bloom, B. S. (1956). *Taxonomy of educational objectives: The classification of educational goals*. Retrieved from https://www.uky.edu/~rsand1/china2018/texts/Bloom%20et%20al%20-Taxonomy%20of%20Educational%20Objectives.pdf

Bruff, D. (2019). *Clickers and classroom dynamics.* Retrieved from http://www.nea.org/home/34690.htm

Buros Center for Testing. (2019). *Standards, codes, & guidelines.* Retrieved from https://buros.org/standards-codes-guidelines

Center for Applications of Psychological Type. (2019). *Take the MBTI assessment with personal feedback*. Retrieved from https://www.capt.org/take-mbti-assessment/mbti.htm?utm_source=MBF&utm_medium=link&utm_campaign=personal&bhcp=1

College Board. (2019). *SAT results: Class of 2019.* Retrieved from https://reports.collegeboard.org/sat-suite-program-results/class-2019-results

Covey, S. R. (2013). *7 habits of highly effective people*. New York, NY: Simon & Schuster.

Exner, J. E. (1993). *The Rorschach: A comprehensive system* (3rd ed.). New York, NY: Wiley.

Fink, L. D. (2003). *Creating significant learning experiences: An integrated approach to designing college courses*. San Francisco, CA: Jossey-Bass.

Fink, L. D. (2007, Winter). The power of course design to increase student engagement and learning. *Peer Review, 9*(1). Retrieved from https://www.aacu.org/publications-research/periodicals/power-course-design-increase-student-engagement-and-learning

Fink, L. D. (2013). *Creating significant learning experiences: An integrated approach to designing college courses*. San Francisco, CA: Jossey Bass.

Hart, R., Casserly, M., Uzzell, R., Palacious, M., Corcoran, A., & Spurgeon, L. (2015, October). *Student testing in America's great city schools: An inventory and preliminary analysis*.

Retrieved from https://www.cgcs.org/cms/lib/DC00001581/Centricity/Domain/87/Testing%20Report.pdf
IBISWorld. (2019, March). *Tutoring & test preparation franchises in the US market size 2005–2025*. Retrieved from https://www.ibisworld.com/industry-statistics/market-size/tutoring-test-preparation-franchises-united-states
Joint Committee on Testing Practices. (2004). *Code of fair testing practices in education*. Washington, DC: Author. Retrieved from http://www.apa.org/science/programs/testing/fair-testing.pdf
Kahoot. (2019). *Make learning awesome.* Retrieved from https://kahoot.com/
McQuain, W. (2014). *Questions for a Socratic dialogue*. Retrieved from http://courses.cs.vt.edu/cs2104/Spring14McQuain/Notes/SocraticQ.pdf
Miller, L. A., & Lovler, R. (2020). *Foundations of psychological testing: A practical approach* (6th ed.). Thousand Oaks, CA: SAGE Publications.
Morrison, I. (2019a). *CPI 260 coaching report for leaders.* Retrieved from http://www.discoveryourpersonality.com/cpi-260-lead.html
Morrison, I. (2019b). *FIRO-B test online*. Retrieved from http://www.discoveryourpersonality.com/firo-b.html
Morrison, I. (2019c). *Myers-Briggs Step II online (Form Q)*. Retrieved from http://www.discoveryourpersonality.com/myers-briggs-step-2-online-form-q.html
Murray, H. A. (1943). *Thematic Apperception Test manual*. Cambridge, MA: Harvard University Press.
Papurt, M. (1930). A study of the Woodworth Psychoneurotic Inventory with suggested revision. *Journal of Abnormal and Social Psychology, 25*(3), 335–352.
Pasztor, A. (2019, September 26). Plane tests must use average pilots, NTSB says after 737 MAX crashes. *Wall Street Journal.* Retrieved from https://www.wsj.com/articles/plane-tests-must-use-average-pilots-ntsb-says-after-737-max-crashes-11569506401
Paulson, D. R., & Faust, J. L. (2019). *Active learning for the college classroom.* Retrieved from http://www.calstatela.edu/dept/chem/chem2/Active/main.htm
Pearson. (2019). *Qualifications policy.* Retrieved from https://www.pearsonassessments.com/professional-assessments/ordering/how-to-order/qualifications/qualifications-policy.html
Pew Research Center. (2011, June 2). *Purpose of a college education*. Retrieved from https://www.pewsocialtrends.org/2011/05/15/is-college-worth-it/
Rhoads, A., Pemble, S., Miller, L. A., & Lovler, R. L. (2020). *Student workbook to accompany Miller and Lovler's foundations of psychological testing: A practical approach* (6th ed.). Thousand Oaks, CA: SAGE Publications.
SHRM. (2019). *SHRM code of ethical and professional standards in human resource management*. Retrieved from https://www.shrm.org/about-shrm/pages/bylaws%2D%2Dcode-of-ethics.aspx#sthash.gcyad0s5.dpu
SHRM Foundation. (2016). *Choosing effective talent management to strengthen your organization.* Retrieved from https://www.shrm.org/hr-today/trends-and-forecasting/special-reports-and-expert-views/documents/effective-talent-assessments.pdf
Society for Personality Assessment. (2006). Standards for education and training in psychological assessment: Position of the Society for Personality Assessment. *Journal of Personality Assessment, 87*(3), 355–357.
Statistic Brain Research Institute. (2017). *Standardized testing statistics*. Retrieved from https://www.statisticbrain.com/contact/
Stickler, R. (2019). *11 free online survey tools compared.* Retrieved from https://www.webfx.com/blog/internet/11-free-online-survey-tools-compared/
Teacher & Educational Development, University of New Mexico School of Medicine. (2005). *Effective use of performance objectives for learning and assessment.* Retrieved from https://www.mtsac.edu/fclt/docs/EffectiveUseofLearningObjectives.pdf
Terman, L. M. (1916). *The measurement of intelligence*. Boston, MA: Houghton Mifflin.

U.S. Department of Education. (2020). *About ED*. Retrieved from https://www2.ed.gov/about/landing.jhtml

U.S. Department of Labor. (1970). *Manual for the USES General Aptitude Test Battery*. Washington, DC: U.S. Government Printing Office.

Uniform guidelines on employee selection procedures, 41 C.F.R. § 603 (1978).

Watts, R. (2019, April 29). *6 best free conference call services 2019*. Retrieved from https://fitsmallbusiness.com/best-free-conference-call-service/

Wechsler, D. (1939). *The measurement of adult intelligence*. Baltimore, MD: Williams & Wilkins.

WGBH Educational Foundation. (2015). *The testing industry's big four*. Retrieved from https://www.pbs.org/wgbh/pages/frontline/shows/schools/testing/companies.html

Williamson, Z., & Schell, J. (n.d.). *Chunking instruction.* Retrieved from https://craftx.org/sites/all/themes/craft_blue/pdf/Chunking-Instruction.pdf

Winkelmes, M. A. (2014). *Using transparent assignments to increase students' success equitably.* Retrieved from https://tilthighered.com/assets/pdffiles/Faculty%20Workshop%20Slides.pdf

Zielinski, D. (2018, January 22). *Predictor assessments give companies insight into candidates' potential*. Retrieved from https://www.shrm.org/resourcesandtools/hr-topics/talent-acquisition/pages/predictive-assessments-insight-candidates-potential.aspx

Individual Differences and Personality

21

Manfred Schmitt

Contents

Abstract

This chapter first introduces the aims, scope, history, achievements, and current state of personality and individual differences (PID) as a subdiscipline of psychology. Section "Purposes and Rationale of Curricula" describes guidelines for the composition of PID curricula provided by academic associations. The third section presents knowledge, comprehension, and competencies as components of

M. Schmitt (✉)
Department of Psychology, University of Koblenz-Landau, Landau, Germany
e-mail: schmittm@uni-landau.de

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the content to be taught. Knowledge includes concepts, theories, research methods, controversies, and important research findings. Comprehension pertains to the location of PID in psychology, the hierarchical structure of personality, the bandwidth-fidelity dilemma, the difference between absolute and relative consistency and stability, the data box, and the meaning of heritability estimates. Competencies and skills consist of tracing literature and appropriate instruments, administering tests correctly, reading texts, designing and executing studies, and analyzing data. Section "Teaching, Learning, and Assessment: Approaches and Strategies" introduces teaching, learning, and assessment resources. Section "Challenges and Lessons Learned" describes challenges in teaching PID, resulting from confusion about the existence of multiple theories and research designs and from insufficient knowledge about research methods. Section "Teaching, Learning, and Assessment Resources" recommends books, journals, and online materials as teaching and learning resources.

Keywords

Temperament · Character · Ability · Skill · Attitude · Motive · Belief · Inerest · Emotion · Self-concept · Self-esteem · Disposition · Trait · State · Consistency · Stability

Introduction

Personality psychology or personality science is a subdiscipline of psychology. In this chapter, the more inclusive denomination personality and individual differences (PID) will be used. PID is interested in individual differences in thinking, feeling, and behaving. It seeks to describe and understand the pattern of psychic attributes that make individuals unique and constitute their personality. Individual differences are ubiquitous. People differ in their abilities, skills, knowledge, motives, attitudes, values, beliefs, interests, emotions, self-concept, and self-esteem. Some individual differences are quite consistent across contexts and are called broad or generalized dispositions. Others are more context-dependent and are called narrow or domain-specific dispositions. Some individual differences are rather stable over time and are called traits, whereas others fluctuate and are called states. These classifications are simplifications because consistency and stability are continuous. Behavior is neither fully consistent nor fully inconsistent and neither entirely stable nor entirely unstable. It is more or less consistent and more or less stable.

Describing individuals with a large number of typical thoughts, feelings, and behaviors would be inefficient and would go against the principle of scientific parsimony. Therefore, specific individual differences are combined into broader classes on the basis of their similarity. Intelligence, for example, is used as an abstract construct that includes a large number of correlated problem-solving abilities. Loss of accuracy is the price that is paid for the parsimony of abstract constructs. This trade-off is called the bandwidth-fidelity dilemma.

In addition to describing individual differences, PID explores the extent to which important life outcomes (e.g., educational achievement, job success, and health) can be predicted from personality. Next, PID wants to explain how individual differences emerge. Explanation means identifying the causal factors that shape personality. Causal knowledge is necessary for another task of PID: the modification of personality. Excessive feelings (anxiety), thoughts (suspiciousness), and behavior (gambling) can be maladaptive to a point where professional help is advisable. This example shows that PID can make important contributions to applied psychology.

PID has witnessed constancy, change, crises, and important advancements over its history of about 100 years. Some enduring goals have been to describe and explain individual differences, to assess personality traits, and to use them to predict important life outcomes. Considerable change has occurred in the theoretical paradigms guiding the discipline's epistemic agenda. Psychodynamic theories, humanistic theories, cognitive theories, social-learning theories, interactionist theories, psychobiological theories, trait theories, and process theories have each dominated personality research for a while before being superseded by other theories. Some theories, especially trait theories, have persisted for a long time, whereas others have reappeared in modified versions.

Whereas it is difficult to evaluate whether shifts in the theoretical mainstream are advances or mere alternations, this evaluation is easy for the research methods PID employs. These have become more elaborate due to progress in test theory, multivariate statistics, elaborate assessment methods such as virtual reality, ambulatory assessment, electronic sensing, online data collection, and big data mining. Most of this progress is due to the availability of increasingly powerful electronic hardware and software.

PID has had its crises. Its most devastating was sparked by Mischel's (1968) critique of the trait model. His review concluded that, except for intelligence, traits hardly ever predict behavior with a correlation over 0.30, suggesting that traits have little value for one of psychology's most important tasks: predicting behavior. As a consequence of this putative limitation, PID lost attraction, funding, its place in curricula, as well as research and teaching staff. Fortunately, not all scholars turned away from PID. Some engaged vividly in its defense, challenging Mischel's critique as exaggerated, simplified, and biased. Important lessons were learned from this debate (Funder, 2009) and eventually strengthened PID. Meanwhile, doubts about whether individual differences matter in predicting life outcomes have vanished (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007).

A second critique argued that PID lacks scientific rigor because (a) its correlational research approach is unfit for revealing causes of behavior and (b) explaining behavior with traits is circular because traits are defined as behavioral dispositions. Both objections have some validity and need to be taken seriously. Yet, they are one-sided and draw only an incomplete picture. Sophisticated longitudinal designs combined with latent growth and true change models can detect cross-lagged effects reflecting the causal impact of personality differences over time on outcomes of interest. Experimental designs can be used to manipulate personality states and reveal state effects. Assuming the functional equivalence of states and traits

(Fleeson, 2001; Steyer, Schmitt, & Eid, 1999), state effects are suggestive regarding the causal impact of their trait counterparts.

A third critique is that causal mechanisms of behavior cannot be revealed with structural models of personality. Process-oriented research is needed for this task. The argument is reasonable but ignores the fact that PID has always been interested in both personality structure and process (Rauthmann, Funder, & Sherman, 2017) and attempts to integrate them (Baumert, Schmitt, et al., 2017; Jayawickreme, Zachry, & Fleeson, 2019).

A fourth objection against PID involves its alleged ignorance of the impact of situations on behavior. Though it is true that the trait approach cares more about persons than situations, other approaches have included situations systematically and have considered person x situation interactions for the explanation of behavior (Blum, Rauthmann, Göllner, Lischetzke, & Schmitt, 2018; Endler & Magnusson, 1976).

Finally, the trait model was accused of disregarding the modifiability of personality. As a consequence of the alleged immutability assumption, teacher education programs have taken little notice of personality as a source of teacher behavior in the classroom. The argument is that if personality cannot be changed during teacher education or later, knowing the impact of personality on teaching behavior is pointless. This attitude, which can also be found in other fields of applied psychology, is unfortunate. Despite the substantial stability of individual differences across the lifespan, personality does change, for instance, due to life transitions and events (Denissen, Luhmann, Chung, & Bleidorn, 2019), and can be changed through targeted interventions (Roberts et al., 2017).

These challenges have shaken PID but have also contributed to its progress and reputation. The latter is due to the high methodological standards of PID as well as to research findings of high relevance and replicability. To further increase the trustworthiness of its findings, PID is committed to open science guidelines (Asendorpf, Conner, et al., 2013).

Purposes and Rationale of Curricula

Curricula in PID vary across countries, universities, and levels (undergraduate, graduate, PhD). In the USA, many undergraduate curricula follow APA guidelines for the undergraduate psychology major (APA, 2013). These guidelines stipulate five learning goals: (a) knowledge base in psychology, (b) scientific inquiry and critical thinking, (c) ethical and social responsibility in a diverse world, (d) communication, and (e) professional development. Because these goals are defined for psychology majors in general, they need to be specified in curricula. APA does not provide similar guidelines for master and PhD programs. In Europe, the European Federation of Psychologists' Associations (EFPA) has established boards, standing committees, and project groups that are in charge of reviewing, informing, and advising the community of psychologists about research, teaching, and professional activities in Europe. Board 2 is responsible for educational affairs.

It monitors and assesses developments in the teaching of psychology, develops standards, and gives advice on issues of concern to students and teachers. The reports of this board show that despite the Bologna framework adopted by all members of the European Union, psychology curricula vary greatly across European countries. Because of this variability, the board's guidelines are phrased, like the APA guidelines, in general terms. Consequently, no report contains a blueprint for a curriculum in PID.

Higher degrees of standardization have been attained within countries. Most guidelines issued by national psychological societies recommend the subject areas that are to be taught and the number of CPs that should be devoted to these subjects. They do not contain recommendations about the content to be taught. This decision is left to the departments. When departments apply for program accreditation, they submit curricula, including module books. Module books describe content and learning goals. Although the module books of different departments overlap, each department is free to define its own profile.

Two remarkable observations can be made when inspecting typical PID modules. First, the content to be taught is defined in short and general terms. No specific theories, methods, and research findings are recommended. Thus, PID teachers are free but also obliged to choose the content they consider relevant. Second, learning goals can be sorted into three categories: knowledge, comprehension, and competencies/skills.

Core Contents and Topics

Adaptive Composition of Content

The content to be taught in a PID module depends on several factors:

1. The weight given to PID in a specific program as mirrored in the number of classes and workload devoted to PID.
2. Whether a PID module is part of a psychology major or minor or another major (education, teacher education, counseling, public health). If PID is taught as a minor or as part of another major, the selection of content should be aligned with the major.
3. The term it is taught in and the other modules that have been taught before. Some personality theories (e.g., need theories) explain individual differences but also general principles of behavior. Accordingly, they are taught in modules from other subjects such as motivation. A second case includes research methods. Ideally, PID is taught after students have acquired basic knowledge in statistics, test theory, and psychological assessment. Otherwise, the PID module has to transmit this knowledge, which is indispensable for understanding how PID research works and what the findings mean.
4. The level of the program. Bachelor PID modules provide basic knowledge, understanding, and competencies. Master PID modules build on the content of

bachelor modules and systematically advance it with an emphasis on methodological expertise and research skills.

To help PID teachers select content adaptively according to these conditions, the following presentation of content, comprehension, and competencies seeks to be exhaustive. It can hardly be covered in full in any PID module. Rather, it is meant to serve as an offer from which PID teachers can choose.

Content Knowledge

Concepts

Like every science, PID uses specific concepts to communicate its theories, methods, and findings. Despite their frequent use, these concepts are not always clearly defined. Their ambiguous meaning results from their origin in ordinary language. Because psychology explores phenomena (e.g., feelings) that ordinary people know, reflect on, and talk about, the scientific description of these phenomena is intrinsically interwoven with natural language. According to the lexical approach, words are created in natural language for all objects, phenomena, and attributes of relevance for social interaction. Personality attributes are part of this vocabulary, which was created over thousands of generations of human observers and was used as the starting point for the scientific inquiry of personality traits (Allport & Odbert, 1936; Cattell, 1950).

In light of the conflation of natural and scientific language and the potential misconceptions resulting from it, some authors have provided definitions of crucial concepts in their texts. For example, a target article by Baumert et al. (2017) contains an Appendix with definitions of many of the concepts listed below. PID teachers are well-advised to make students aware of the ambiguity issue and misconceptions resulting from the conflation of scientific and natural language. Awareness can be raised, for instance, by presenting dissenting definitions taken from different textbooks and dictionaries.

Core concepts of PID to know are personality, character, temperament, virtue, ability, aptitude, achievement, performance, behavior, cognition, motivation, need, drive, attitude, value, interest, emotion, variable (independent, dependent, mediator, moderator, manifest, latent), disposition, trait, state, construct, factor, indicator, correlation, consistency (absolute, relative), stability (absolute, relative), personality structure, personality process, personality development, measurement, assessment, and prediction. Depending on the program level and knowledge already acquired before entering the PID module, additional concepts will have to be introduced, such as:

1. Statistical concepts. Basic concepts of descriptive statistics: nominal scale, ordinal scale, interval scale, ratio scale, frequency distribution, mean, median, variance, standard deviation, covariance, correlation, regression. Advanced concepts of multivariate statistics: general linear model, multiple regression, factor

analysis, structural equation modeling. Basic concepts of inferential statistics: probability distributions z, t, F, chi-square and associated tests. Advanced concepts: fit criteria of structural equation models.
2. Research design concepts: experimental design, quasi-experimental design, between-subjects design, within-subjects design, mixed design, fully crossed design, nested design, round-robin design, internal validity, randomization, confound, control techniques, covariate, omitted variable, cross-sectional design, longitudinal design.
3. Psychological assessment concepts: performance test, questionnaire, behavior observation, biography, physiological measure, projective test, response time measure, self-description, peer rating, objectivity, reliability, validity, random measurement error, systematic measurement error, regression to the mean, attenuation due to restricted reliability and variance.
4. Concepts used in specific theories with Freud's psychoanalytic theory serving as an example: eros and libido, thanatos and aggression; id, ego, superego; conflict, identification; consciousness, preconsciousness, subconsciousness; oral stage, anal stage, oedipal stage, Oedipus complex, Electra complex, latent stage, genital stage, fixation; defense mechanism, repression, denial, projection, displacement, regression, sublimation.

Scope of the Personality Concept and Domains of Individual Differences

Some scholars use the personality concept in a narrow sense and restrict it to classical trait models such as the model proposed by Eysenck's (1953; psychoticism, extraversion, neuroticism), the five-factor model (Digman, 1990; neuroticism, extraversion, openness, agreeableness, conscientiousness), and the model proposed by Ashton and Lee (2007; honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, openness). Such a narrow concept of personality covers *what* people typically do.

Other scholars prefer a broader personality concept that includes, besides the traits listed in the previous paragraph, temperament traits as proposed by Buss and Plomin (1975; activity, emotionality, sociability, impulsivity) or Strelau (1998; briskness, perseveration, sensory sensitivity, endurance, emotional reactivity, activity). This personality concept covers *what* people typically do (content characteristics of behavior) and *how* they typically do what they do (formal characteristics of behavior).

Next, some scholars prefer an even broader personality concept that includes, in addition to content (*what*) and style (*how*), motives, drives, and needs as reasons for *why* people do what they do. In his psychodynamic theory, Freud assumed two drives, eros and thanatos, that provide the psychic energy necessary for behavior. In addition to these drives and motives assumed in subsequent theories (Deci & Ryan, 1985; Maslow, 1954; McClelland, 1987; Murray, 1938; Rogers, 1954), values (Schwartz, 1992) and interests (Holland, 1973) entail motivational accounts of behavior.

Finally, the broadest personality concept possible includes all behavioral dispositions in which individuals differ consistently across situations and stably over time:

personality traits in the narrow sense, temperament, virtues, character strengths, motives, values, beliefs, attitudes, interests, emotions, self-concept, self-esteem, talents, abilities, knowledge, and skills.

Knowing that personality cannot be equated per decree with one of these definitions that vary in scope is important to avoid confusion among students. It helps to understand that consistent and stable individual differences in behavioral dispositions are the common denominator of all personality concepts, be they narrowly or broadly defined, and that denominating the field as PID is a wise compromise that can help scholars avoid fruitless debates about the "correct" or most appropriate definition of personality.

Theories and Models

The constructs mentioned in the last section are elements of theories and models. Theories consist of sets of assumptions that together explain consistent and stable individual differences in behavioral dispositions, how these develop and change over the lifespan, how they shape important life outcomes, and how they can be modified via targeted interventions. Models describe systematic patterns of variability in thoughts, feelings, and actions that constitute personality. Models are parts of theories, but they are not necessarily grounded in a specific theory. The personality trait model, for example, can be explained by biological theories or learning theories. Theories and models can be grouped into families on the basis of their most important assumptions and research paradigms. Basic PID modules should introduce at least one specific theory or model from each family. Advanced PID modules should address communalities among and differences between members of a family of theories or teach a specific theory in detail, including the research programs it initiated and important findings.

The boundaries between families of theories are fuzzy because their assumptions overlap. Therefore, specific theories can be assigned to more than one family; see below. Understanding this matter is important because personality textbooks and handbooks differ in their classification of theories, and these differences can be a source of confusion to students.

Psychodynamic theories assume that the management of conflicts between drives and social norms determine personality development. Freud's theory, which includes dynamic (drives: eros and thanatos), structural (id, ego, superego), topographical (conscious, preconscious, unconscious), and developmental (oral, anal, phallic, latent, genital) models, and psychoanalysis as a therapeutic method is the most influential representative of this family. Psychology students should know about its sustainable influence on subsequent theories. Other representatives that can be taught in advanced courses are the theories proposed by Alfred Adler, Carl-Gustav Jung, and Anna Freud.

Motive theories assume that individual differences in behavior are the product of differences in motive strength. Theories by Murray (1938), Maslow (1954), Rogers (1954), Deci and Ryan (1985), and McClelland (1987) are representatives of this family. Schwartz's (1992) theory of values and Holland's (1973) theory of interests can also be assigned to it.

Humanistic theories: The motive theories proposed by Maslow (1954) and Rogers (1954) are sometimes also termed humanistic theories because Maslow and Rogers were distinguished advocates of humanistic psychology, a movement powered by the idea that individuals are basically healthy and resilient, capable of self-healing, agents of their own personality development, and striving for self-actualization.

Learning theories assume that personality and its change can be explained by individuals' learning histories. Important learning principles are operant conditioning (Skinner, 1969), classical conditioning (Pavlov, 1927), and social learning via the observation of others and the consequences of their behaviors (Bandura, 1977).

Cognitive theories argue that individual differences in behavior result from informed (rational) choices people make on the basis of their values and beliefs. Theories by Kelly (1955), Rotter (1954, 1966), and Bandura (1977) represent this family.

Trait theories map individuals onto a limited set of dimensions that are considered necessary and sufficient for a comprehensive and parsimonious description of PID. Trait theories have had a persistent influence on PID research. Important representatives are the abovementioned PEN, the 16 PF, the five-factor, and the HEXACO models. The trait approach is not restricted to personality in a narrow sense. It is the most general model of PID. Importantly, ability constructs such as intelligence rely on the trait model. Influential representatives are Spearman's (1904) two-factor theory, Thurstone's (1938) theory of primary mental abilities, Vernon's (1950) common factors theory, Cattell's (1971) theory of fluid and crystallized intelligence, and the comprehensive Cattell-Horn-Carroll model of intelligence (Carroll, 1993). Most trait models are hierarchical and assign many narrow traits to the lowest level of the hierarchy and a few broad traits to the highest.

Biological theories assume that individual differences are caused by the architecture of the brain and physiological processes. Seminal biological trait theories were proposed by Eysenck (1953) and Gray (1972). Biological PID research also employs behavior genetics to estimate the heritability of individual differences and molecular genetics to reveal the genetic codes responsible for these differences (Lee, Wedow, et al., 2018; Plomin, DeFries, Knopik, & Neiderhiser, 2016).

Person x situation interaction theories emerged in response to Mischel's (1968) critique of the trait model. They argue that individual differences in behavior result from the interplay of individual propensities and situational affordances. Supporting this assumption, studies have found that the interaction between the two types of factors explained more behavioral variance than the main effects did (Endler & Hunt, 1966). Revealing patterns of person x situation interactions (Endler, 1975) and the mechanisms that account for these patterns (Blum & Schmitt, 2017) are important research goals.

Personality process theories seek to explain behavioral dispositions with perceptual, cognitive, motivational, and emotional processes operating in specific situations (Rauthmann et al., 2017). Process accounts of individual differences have primarily been employed to understand emotional disorders such as excessive and dysfunctional anxiety, aggression, and depression. Selective attention to threatening, provoking, and depressing stimuli and biased interpretations of ambiguous stimuli as

dangerous, annoying, or oppressive are among the candidates for processes that have been confirmed in empirical studies (Mathews & MacLeod, 1994; Williams, Watts, MacLeod, & Mathews, 1991).

Dual-process theories distinguish between two systems of information processing and behavior control. One system is called reflective and the other impulsive (Strack & Deutsch, 2004). These theories assume that dispositions such as attitudes or self-esteem exist in explicit and implicit forms. People are aware of their explicit dispositions but have no introspective access to their implicit dispositions. Explicit dispositions can be measured directly via self-report. Implicit dispositions must be measured indirectly via procedures such as the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998). Explicit dispositions feed into reasoned action via the anticipation of behavioral outcomes. Implicit dispositions affect behavior automatically via the activation of schemata or scripts.

Systems theories integrate elements from the previously mentioned theories to achieve a comprehensive explanation of PID. Whole trait theory combines the trait model with mechanisms assumed in process theories to explain why personality states, defined as situation- and time-specific behavior, deviate from traits, defined as intraindividual averages of states (Jayawickreme et al., 2019). Personality systems interaction theory (Kuhl, Kazen, & Quirin, 2014; Kuhl, Quirin, & Koole, 2015) combines neurobiological and psychological principles and specifies seven functional personality levels, four cognitive macro-systems, and two affective modulators. The complex interactions among these elements shape behavior.

Ability theories describe and explain individual differences in performance. Abilities are stable and largely heritable. Competencies emerge from interactions between abilities (aptitudes) and learning (treatment). Skills are more narrowly defined than competencies and depend on practice. Intelligence is the most important ability because of its far-reaching impact on virtually all components of life success (Gottfredson, 2018). Different intelligence trait models were mentioned earlier. Besides academic intelligence, other kinds of intelligence have been proposed (Gardner, 2006), with emotional intelligence (Goleman, 1996) and social intelligence (Thorndike, 1920) as the most important examples. The number of competencies and skills that have been defined, measured, and used in diverse fields of applied psychology is virtually endless and not covered by a single theory.

Research Methods

Basic methodological knowledge is essential for understanding PID research findings and drawing reasonable conclusions from them. Students of advanced PID modules who are required or choose to conduct empirical studies need to acquire the methodological expertise that is necessary to investigate the research question at issue.

Ideally, research methods, test theory, and psychological assessment are taught in special modules. However, not all departments offer such modules or offer them after PID has been taught. Basic research methods are usually taught at the beginning of a bachelor program, whereas advanced courses covering multivariate statistics,

test theory, and psychological assessment are usually taught, if at all, after or simultaneously with the PID module. This situation can generate challenges that will be addressed in section "Challenges and Lessons Learned."

Assessment methods: Students should know about the large repertoire of assessment methods used in PID research. These include tests, questionnaires, behavioral observation, physiological measures, interviews, content analyses, biographical data, projective tests, indirect procedures such as the IAT, apparatus tests, simulators, economic games, virtual reality, ambulatory assessment, electronic sensing, log file analyses, and big data mining. Beginning students should be introduced to the most frequently used methods, which are tests, questionnaires, behavioral observation, and physiological measures. Each method should be illustrated with a prominent example. Advanced students should be familiar with all kinds of assessment methods and should get acquainted with at least one example from each method.

Test theory: Students of basic PID modules should be introduced to classical test theory (CTT) because most assessment methods are based on it. Advanced PID modules should cover the five measurement models of CTT (congeneric, essentially equivalent, essentially parallel, equivalent, and parallel) and how these models can be tested via confirmatory factor analysis (CFA). Advanced PID modules should also teach item response theory (IRT), at least the Rasch model. Beginning students should know the meaning and relevance of measurement precision (objectivity, reliability, validity). Advanced students should know how to estimate these coefficients.

Correlational designs: These have been the most important and frequently used research designs in PID for a long time. Beginning students should learn how to design and run a simple correlational study. Advanced students need to acquire knowledge about more complex designs and designs needed for special purposes, for instance, multitrait-multimethod designs for estimating convergent and discriminant validity.

Experimental and mixed designs: These are primarily used in general psychology to determine the impact of stimuli and situations on behavior (Shadish, Cook, & Campbell, 2002). PID research employs experimental designs for similar purposes. The calibration of the stimuli and situations to be used in mixed designs requires systematic experimental manipulation. Personality process research exposes participants to situations that vary systematically in their affordance level to explore how it interacts with personality factors. Beginning students need basic knowledge about the logic and nature of experimental designs. Advanced students should know about more complex designs such as nested and multilevel designs.

Longitudinal and cross-sectional designs: Beginning students should know the difference between these designs and their specific benefits and costs. Associations between stable traits can be estimated in cross-sectional studies. Exploring personality change requires longitudinal designs, which are also necessary for revealing causal relations among variables. Advanced students should know designs that combine cross-sectional and longitudinal elements such as the cohort sequential design for disentangling age, time, and cohort effects that contribute to ability and personality change (Schaie, 1965).

Data box: Virtually all designs can be considered special cases of a multivariate data box (Cattell, 1966). Its simplest version includes three facets: persons, situations, and time points with cells containing scores on some measure. The box can be modified and extended at will depending on research interests. For instance, the situation facet can be replaced by personality constructs, or a facet of methods can be added. The basic idea behind this powerful framework should be taught on the basic level. Its full potential should be conveyed to advanced students.

Representative designs: Advanced students should learn about representative designs as proposed by Brunswik (1952). He argued that drawing random samples should not be restricted to the person facet of the data box but should include all facets such as situations, methods, and time points. Random samples on all facets are essential for unbiased generalizability estimates of facet main and interaction effects (Shavelson & Webb, 1991).

Special designs: Depending on the research focus of a PID module, research interests, or research assignments, master and PhD students need to know special designs such as the round-robin design for disentangling perceiver effects, target effects, and perceiver x target interactions (Kenny, 1994).

Debates and Important Findings

Over its history, PID has undergone several crises. Some were mentioned in section "Introduction." Although most controversies have been resolved, some recur from time to time. Students should know about them. Beginning students should know the most important arguments, whereas advanced students should dig deeper into the issues.

Person versus situation debate: This came up first time when Harthshorne and May (1928) discovered that individual differences in honest behavior generalized only weakly across situations with an average correlation of $r = 0.23$. Similar findings and Mischel's (1968) review led critics of the trait model to argue that the situation influences behavior more strongly than personality does. Today we know that this conclusion was premature. Richard, Bond, and Stokes-Zoota (2003) meta-analyzed over 16,000 studies and found similar average effects of the situation ($r = 0.22$) and personality ($r = 0.19$) on behavior. Both effects are small, implying that person x situation interactions account for most behavioral variance. Revealing the nature of interactions requires knowledge about the psychological characteristics of situations. Psychology has made many attempts to solve this issue. Meanwhile, there are taxonomies and assessment instruments for situations that match the quality of personality taxonomies and measures (Rauthmann, Gallardo-Pujol, et al., 2014). Basic PID modules should teach the idea of combining personality and situation measures, and advanced students should be familiar with situation taxonomies and measures.

Predictability of behavior and life outcomes: Hartshorne and May's (1928) study of honesty, Mischel's (1968) review, and the meta-analysis by Richard, Bond, and Stokes-Zoota (2003) converged on the conclusion that single instances of behavior in specific situations cannot be predicted very well from personality traits. However, predictability can be vastly improved via the appropriate aggregation of behavior

(Epstein & O'Brien, 1985; Steyer & Schmitt, 1990). Accordingly, important life outcomes can be predicted reliably and surprisingly well from personality and ability traits (Gottfredson, 2018; Roberts et al., 2007).

Nature versus nurture: The question of the extent to which personality and cognitive ability are the products of a person's genetic dowry (nature) or the person's environment (nurture) has engendered a most ideologically laden controversy in PID. If personality and ability are matters of genetic fate, efforts to change undesirable personality expressions or to boost intelligence seem fruitless. Hundreds of studies have been devoted to this issue. The facts are clear. All personality characteristics and abilities depend to some extent on the person's genetic outfit. On average and roughly speaking, about half of the phenotypic personality and ability variance is genetically determined (Plomin et al., 2016). At the same time, heritability varies across individual difference domains. Whereas fluid intelligence (reasoning) has a strong genetic component and cannot be elevated much by instruction, crystallized intelligence (knowledge), competencies, and skills can be promoted more easily via learning and practice.

Stability and change: Despite substantial heritability, personality changes in response to life transitions, critical life events (Denissen et al., 2019), and targeted interventions (Roberts et al., 2017). Students need to know this and the difference between absolute (mean-level) change (Roberts, Walton, & Viechtbauer, 2006) and relative (rank-order) change (Roberts & DelVecchio, 2000). Both types of change can result from biological factors (e.g., physiological decline) and from environmental factors (e.g., training, intervention, nutrition, or injury). The degree of change varies across personality domains with the rank order of intelligence remaining particularly stable from childhood to old age (Deary, 2014).

Traits and states: In addition to the degree of personality change, its pace is relevant for PID. Intelligence changes very little across the lifespan, and it also changes very slowly. Emotions, by contrast, can change from one moment to next.

Comprehension

The knowledge of facts is worth little if their relevance cannot be appreciated for a lack of comprehension. Students must learn to understand why concepts are needed, what purposes theories and models serve, what specific methods can achieve, and how basic research findings inform applied psychology.

Location of Personality and Individual Differences in Psychology

PID cannot be defined by the kinds of thoughts, feelings, and behaviors its theories and research address. Rather, it can be characterized by its specific perspective and methodological approach. PID is interested in individual differences in dispositions and how they are interrelated. These interests differ from those of general psychology and developmental psychology. General psychology is not interested in differences between individuals. Rather, it is interested in the psychological

principles that explain the thoughts, feelings, and behaviors of all individuals. Developmental psychology is interested in changes in thoughts, feelings, and behaviors over the lifespan. These three perspectives correspond to the dimensions of a data box consisting of a person facet (PID); a stimulus, situation, or task facet (general psychology); and a time facet (developmental psychology). The three perspectives complement each other and together enable a comprehensive understanding of how people function the way they do. Students must understand these relations. Teachers can help students understand them by demonstrating how the same kind of behavior (e.g., aggression) can be studied meaningfully from general, differential, and developmental perspectives and that the results complement each other.

Hierarchical Personality Structure and the Bandwidth-Fidelity Dilemma

Describing individuals using a large number of thoughts, feelings, and behaviors would be precise but inefficient. A parsimonious description can be achieved by summarizing similar indicators. Students need to understand that factor analysis serves this purpose and does so in several steps that define the levels of the personality hierarchy. In Eysenck's model, similar (correlated) specific behaviors, located on the first level, are combined into habits on the second level. Similar habits are combined into first-order factors on the third level. First-order factors are combined into second-order factors on the fourth level. Students should understand that precision and parsimony are inversely related. If precision goes up, parsimony goes down. There is no best level of personality description. Which level is most appropriate depends on the research question or the task to be solved in applied psychology. As a general rule, the prediction of relevant outcomes from personality and ability factors succeeds best when predictors and criteria are located on the same level (symmetry principle; Ajzen & Fishbein, 1977; Brunswik, 1952).

Traits and States as Endpoints of Continua

Understanding that traits and states are not mutually exclusive alternatives but are rather endpoints of a change continuum is important. The relative stability of dispositions is neither ever perfect nor ever absent. All personality and ability constructs that have been submitted to latent state-trait analyses (Steyer et al., 1999) were found to be less than perfectly stable and to have some stability. Beginning students should have a basic understanding of this principle, and advanced students should understand whole trait theory (Jayawickreme et al., 2019) and latent state-trait theory (Steyer, Mayer, Geiser, & Cole, 2015).

Absolute and Relative Consistency and Stability

Absolute and relative consistency and stability are independent phenomena. Absolute consistency and stability mean that the intensity of personality expressions (thoughts, feelings, behaviors) does not change over situations and time, respectively. Because situational characteristics affect thoughts, feelings, and behaviors as much as personality does, absolute consistency and stability cannot be expected.

However, this is no challenge to the trait model. This model is valid and useful to the extent that thoughts, feelings, and behaviors are relatively consistent across situations and relatively stable over time, which means that individual differences remain equal in different situations and at different time points. Students at all levels should understand this.

Data Box

The data box described earlier is a powerful tool for designing PID research. It is also useful for explaining important concepts such as absolute and relative consistency and stability as addressed in the last section. It helps teachers illustrate the meaning of personality structure, personality process, personality development, how these perspectives on PID differ, how they complement each other, and how they can be integrated (Baumert et al., 2017). Comprehending the logic behind the data box is therefore a highly valuable resource that students at all levels should possess.

Meaning of Heritability Estimates

Few results from PID research have caused misunderstandings and fruitless disputes as often and vividly as heritability estimates have. It is important for students at all levels to understand what heritability means and what it doesn't mean. Heritability is defined as the proportion of phenotypic variance that can be attributed to genetic variation. It can vary from 0 to 1. The remaining proportion of phenotypic variance is accounted for by factors other than genetic factors. The concept of environment is used to summarize these other factors. The human gene pool and its variability have remained virtually invariant for the last 150,000 years or more. The environment we live in has changed dramatically due to technological progress, cultural change, and advances in formal education. If it were possible to compare the intelligence test performance of people who lived thousands of years ago with that of people living today, heritability estimates would be much lower than the ones estimated at a specific period in history such as today. In a similar vein, a study using a sample of participants from a country with either high or low educational standards will result in higher heritability estimates compared with a study including countries with far different educational standards. Heritability estimates cannot be considered anthropological constants but need to be interpreted in view of the genetic and environmental heterogeneity of a specific heritability study.

Relevance of Personality and Individual Differences for Applied Psychology

Students on all levels have to comprehend that PID is not an art for art's sake. PID theories, methods, and research findings are relevant for the solution of tasks in educational, industrial, personnel, and clinical psychology. Individuals do well and feel good when the environments they live, study, and work in fit their personality (in a broad sense). Job performance, for example, depends on the fit between job demands and employees' competencies, interests, and values.

Understanding the general principle of person x environment fit is motivating, especially for students who are more interested in applied psychology than basic research.

Competencies and Skills

In addition to knowledge and comprehension, students need to acquire competencies and skills.

Literature search: Students of basic PID modules will be provided with literature by their teacher in most but not all courses. Independent studies, for instance, require a literature search. Advanced students and those who choose a PID research question for their bachelor or master thesis will have to trace the relevant literature. Finding relevant research literature, reviews, meta-analyses, and handbook chapters by searching electronic databases (e.g., APA's PsycInfo) is therefore an important competency.

Reading skills: Students must develop the skill of reading articles, chapters, and books efficiently and effectively by extracting important information without distorting it. For research articles, this skill includes identifying research questions and hypotheses, grasping methods and procedures, and interpreting graphs and tables correctly. Reading skills can be practiced in seminars by having students report a paper and its essence and giving them detailed feedback from the teacher and fellow students.

Tracing and evaluating assessment instruments: PID research and application relies heavily on assessment. Students should be capable of finding instruments that fit the research task best and have the highest precision among alternatives. This can be a challenging task. Due to commercial interests of test authors and publishers, thousands of measurement instruments exist, and many of them are poor in quality. Students need to develop the skill of separating the wheat from the chaff by applying the criteria of objectivity, reliability, validity, fairness, standardization, and economy. Students also need to know and follow copyright rules. Instruments published in research articles are often free after obtaining permission from the authors. Students should know how to ask for it. Instruments from commercial publishers are not free, and copyright violations in these cases can result in painful fines. Knowing how to navigate data banks such as PsycInfo or Google Scholar, publishers' websites, and psychological assessment handbooks is also part of this skill.

Application of assessment instruments: Students have to know how to apply assessment instruments properly. This skill cannot be acquired alone by reading instructions. Test-taking must be practiced and supervised by the teacher and fellow students who give feedback.

Designing and implementing empirical studies: Students who are required or choose to conduct empirical studies must identify the most appropriate design, assessment instruments, and data collection procedure. They must know how to define a population, draw a sample from it, recruit participants, give clear instructions, offer incentives to avoid dropout, debrief participants, and submit their proposal to an ethics committee.

Analyzing data: Students who run empirical studies must analyze the data to test hypotheses and answer research questions. This task requires statistical expertise, the competency of using software packages such as SPSS, R, or Mplus, interpreting outputs correctly, translating them into tables and graphs, and drawing the right conclusions regarding the research questions and hypotheses.

Teaching, Learning, and Assessment: Approaches and Strategies

Teaching

Selecting from the content presented in the last section and composing it into a coherent curriculum requires competencies on the part of the teacher. In line with teacher education theory, these can be divided into content knowledge (CK), general pedagogical knowledge (GPK), and pedagogical content knowledge (PCK) (Shulman, 1986). Regarding CK, teachers need to be familiar with the content described in the last section. They need to update their knowledge by reading original research articles published in journals, reviews, meta-analyses, and handbooks. Regarding GPK, teachers should know how to motivate students, get them engaged in reading texts, design targeted take-home assignments, give feedback, and answer questions. Pedagogical models in higher education offer solutions for these tasks (Cook-Sather, 2009). PID teachers should be familiar with these models and invite experienced colleagues to attend their classes and supervise their teaching. Regarding PCK, PID teachers have to apply their GPK to the content they teach.

As a best practice example of PCK, consider how PID teachers can arouse interest in PID and convince students that it is a fascinating science. Begin the first session of your personality lecture or seminar with a mutual introduction. Tell students that working together will be more fun if students and teachers know each other. Ask students to introduce themselves in a way that is most informative and relevant for working together. Most students will begin with biographic information and then move on to talking about their interests and who they are as a person. In doing so, most will use habits (listening to certain music, reading certain books, watching certain movies, spending time with friends) and traits (curious, smart, generous, thoughtful) as descriptors. At the end of the mutual introduction, tell students that PID is interested in exactly what they just did: describing individuals on the basis of what they typically do. Next, ask your students how their best friend would describe them as a person and how that description would differ from the self-description they provided. This task is useful for illustrating that PID uses different assessment methods. Subsequently, ask students to compare their self-description with other students' self-descriptions. This exercise helps to point out another important task of PID: describing individual differences. Further, ask students to reflect on possible explanations for the differences the last exercise revealed. Most likely, they will come up with explanations that can be roughly split into nature and nurture. Again, you can use students' answers to introduce another important mission of PID:

understanding the causal origins of individual differences. Finally, ask your students whether they believe that personality changes easily or remains stable over a person's lifespan. Some students will contribute examples of people they have known for a long time who have not changed a bit. Others will counter the stability claim with examples of people who changed so much that they no longer seem recognizable as the same person. This exercise makes students curious about which viewpoint comes closer to capturing the truth.

Learning

Pedagogical models of higher education address principles of effective teaching and learning. One of these principles pertains to the class type x content fit. Typical class types are lectures, seminars, and practicums. Lectures are suited for teaching knowledge content as described in section "Content Knowledge." To learn content effectively and efficiently, students must prepare lectures with appropriate texts, take notes, and iterate the content after the lecture. Learning success from follow-up work can be enhanced when teachers share their presentation with students.

Seminars are useful for conveying comprehension as described in section "Comprehension." All content described in section "Content Knowledge" can be taught in a seminar. In lectures, students mostly listen. In seminars, they should present content and discuss it with their fellow students and the teacher. A typical seminar begins with a presentation, delivered by a student or a group of students, about a theory, method, empirical study, review, meta-analysis, or task from applied psychology requiring PID expertise. After the presentations, fellow students and the teacher provide feedback and highlight the strengths and limitations of the presentation regarding content, style, and pedagogical skill. Next, fellow students should be given the opportunity to ask questions to complement the presentation and prevent misunderstandings. The seminar can be concluded with a discussion of issues. Was the reported study well-done? Was the reported review informative? Is the presented theory coherent and convincing? How can the reported findings be used to address issues in applied psychology? Experience tells us that students engage in the discussion of such questions. For a teacher to competently moderate such a discussion, the teacher must summarize and integrate the views that have been exchanged and link them to the content presented in the lecture or a textbook.

Competencies and skills as described in section "Competencies and Skills" can be best acquired in practicums. Typical practicums are devoted to the design and implementation of empirical studies, to data analysis with proper software, to the application of assessment instruments, or to combinations of these skills. Students can practice them either alone or in groups. Groups have the advantage that students can learn from each other. Individual work offers the advantage that students must practice all components of a skill. Learning success depends greatly on supervision and feedback from the teacher.

Assessment

Appropriate feedback and adaptive teaching require the assessment of knowledge, comprehension, and competencies. Knowledge can best be assessed with written exams composed of multiple-choice and open questions. Comprehension can be assessed well via essays written in class and presentations. Students' contributions to discussions in seminars can also reveal how well they understand the presented content, its theoretical meaning, and practical significance. Competencies and skills can be evaluated via on-task observation, for instance, when a student is taking a test and via the evaluation of products (e.g., results obtained from a multivariate analysis performed with statistical software packages such as SPSS, R, or Mplus).

Challenges and Lessons Learned

Frequent challenges that PID teachers face result from (a) students' confusion about the multiplicity of personality theories and controversies, (b) difficulty understanding research methods and denial of their necessity, and (c) confusion about the various research designs used in PID.

Confusion About the Multiplicity of Personality Theories and Controversies

When students are introduced to various theories and models of PID, they sometimes want to know which one is correct, which are wrong, or which are better and which are worse. A clear-cut answer to this question is impossible because theories cannot be pitted directly against each other empirically. Teachers can reduce the confusion by explaining to students that theories are often created by single scholars who have their specific way of thinking and preconceptions about human nature. Moreover, theories are born in a historical context that codetermines research interests and research paradigms. In contrast to abstractly formulated theories, models can be compared more easily. For example, CFA can be employed to test different factor models of cognitive abilities.

When introduced to the controversies PID has experienced, such as the person versus situation debate, students sometimes wonder why the same data can be interpreted differently or even contrarily. Teachers can resolve this confusion by explaining to students that no absolute standard exists for evaluating results such as effect sizes. Explaining 20% of job performance variability with personality and ability factors can be considered a little or a lot depending on expectations and the power of alternative explanations. In the same vein, a heritability of 0.5 can be considered a little or a lot. Those interested in correcting dysfunctional personality or boosting cognitive abilities will evaluate a certain level of heritability differently than those interested in the selection of students and employees.

Trouble Understanding Research Methods and the Denial of their Necessity

PID research relies on powerful research methods, including test theory and multivariate statistics. Depending on students' knowledge, explaining these methods can be quite challenging. Teachers should respond to these challenges with adaptive teaching.

Students without basic knowledge in statistics definitely need a basic introduction to descriptive statistics. They have to understand the meaning of scales, frequency distributions, coefficients of central tendency such as the mean, coefficients of dispersion such as the variance, and coefficients of association such as the Pearson correlation. Moreover, students without knowledge of multivariate statistics should acquire a basic understanding of the general linear model and its application in factor analysis and multiple regression. It helps to explain these models verbally, mathematically as structural equations, and graphically as path diagrams.

Insight into the logic of the general linear model also helps us understand classical test theory (CTT), the decomposition of observed scores into true scores and error scores, and the decomposition of observed score variance into true score variance and error variance. Students who find it difficult to understand the logistic model equations of item response theory (IRT) often find it easier to grasp the graphical representation of IRT models as arrays of item characteristic and person characteristic curves.

Examples from applied psychology can help convince students that methodological expertise is not only indispensable for conducting PID research but also for interpreting the results of personality research correctly. Methodological expertise is necessary for translating research findings into employee selection, student selection, adaptive teaching, targeted interventions, and the evaluation of intervention success. Experience tells us that examples from clinical psychology are most convincing due to psychology students' fascination with disorders and their desire to become psychotherapists. If students understand that comparing the effectiveness of alternative therapies requires appropriate designs, assessment methods, and data analyses, they will accept that the acquisition of methodological expertise is unavoidable.

Confusion About the Multiplicity of Research Designs

Introducing the research designs described in section "Research Methods" can be challenging because there are so many. Confusion about this can be reduced if teachers patiently explain the suitability, costs, and benefits of different designs. Students understand, for example, that investigating the variability of states across time requires repeated measures. They also understand that a longitudinal study spanning decades is costly and risky because of dropout and institutional discontinuity. Advanced students will understand that separating actor, observer, and actor x observer interaction effects requires round-robin designs. Illustrating designs with the data box is advisable because this framework is most flexible. Systematically

building up and modifying the data box depending on the research interest contributes to understanding the similarities and differences between designs.

Teaching, Learning, and Assessment Resources

Types of Resources

Resources to be used in teaching PID include books, journals, online resources, assessment resources, and services provided by associations of personality and individual differences.

1. Books: Textbooks are the most frequently used teaching and learning resource for basic modules. Most textbooks are easy to understand and support learning with examples and graphical material. Moreover, modern textbooks are linked to online support for both teachers and students. Depending on how closely a teacher wants to follow the structure of a textbook, one may suffice. However, the use of more than one textbook is recommended because students differ in their preferences for writing and illustration style. Because so many textbooks are available in English and other languages, recommending a specific textbook seems difficult and unfair to authors whose textbooks are not recommended.

   Handbooks and encyclopedias are valuable teaching and learning resources for seminars and advanced lectures. Their chapters were written by experts on the treated topic. Their level of elaboration and richness of detail exceeds that of textbooks. Because the numbers of handbooks and encyclopedias are much smaller than the number of textbooks, the recommendations made in the list of cross-references below seem fair.

   A special category of books are readers containing classic articles with a lasting impact on PID or chapters that revisit such classics. For a recent example, see the list of cross-references below.
2. Journals: Students should read original research articles as early as possible. Journal articles are an indispensable resource for seminars and advanced courses. Secondary literature such as textbooks always contain a certain number of misconceptions and errors. Tertiary texts (e.g., excerpts from textbooks, class notes, and summaries prepared by students) contain even more misrepresentations and errors. Moreover, students sometimes share their notes with students who missed a class. Each of these "recycling" steps increases the risk of errors and moves the product further away from the original. Teachers are advised to counteract this erosion of quality. Assigning students the reading of original papers is the best means to this end. The most important outlets of PID are listed in the cross-references section below.
3. Online resources: The Internet is crowded with material about PID of all kinds and quality: presentations of teachers and students, theses, conference presentations, preprints, articles on authors' websites, Wikipedia pages, digital versions of books, figures, tables, and an ever increasing number of videos of presentations, interviews with scholars, and lectukres. In addition, most textbook publishers

provide online material to complement the book. Some of these diverse materials are excellent; others are misleading or just plain wrong. Beginning students will be overwhelmed by separating the wheat from the chaff and will therefore need guidance from the teacher.

4. Assessment resources: Some textbooks contain questions at the ends of chapters to help students self-assess their state of knowledge and comprehension. Online material provided by textbook publishers also sometimes includes such questions. For reasons of test fairness, these questions cannot be used for exams. But they can serve as exemplars for exam questions to be developed by teachers.
5. Associations of personality and individual differences: Teachers and students can seek advice in their search for resources from PID associations. Navigating their websites and those of their executive committees and members can be of great help in finding all kinds of helpful material and guidelines. The most important PID associations are listed in the next section.

Cross-References to Resources

Handbooks and Encyclopedias

- John, O. P., Robins, R. W., & Pervin, L. A. (Eds.) (2008). *Handbook of Personality: Theory and Research*. New York: Guilford Press.
- McAdams, D. P., Shiner, R. L. & Tackett J. L. (Eds.) (2019). *Handbook of personality development*. New York: Guilford Press.
- Rauthmann, J. F. (Ed.) (2020). *The Handbook of Personality Dynamics and Processes*. New York: Elsevier.
- Zeigler-Hill, V. & Shackelford, T.K. (Eds.) (2020). *Encyclopedia of Personality and Individual Differences*. New York: Springer.

Readers

- Corr, P. (Ed.) (2019). *Personality and individual differences: Revisiting the classic studies*. London: Sage.

Journals

European Journal of Personality
Individual Differences Research
Journal of Individual Differences
Journal of Personality
Journal of Personality and Social Psychology
Journal of Personality Assessment
Journal of Personality Disorders
Journal of Research in Personality
Personality and Individual Differences
Personality and Social Psychology Bulletin
Personality and Social Psychology Review

Personality Science
Social Behavior and Personality

Associations of Personality and Individual Differences
Association for Research in Personality
European Association of Personality Psychology
International Society for the Study of Individual Differences
Society for Personality and Social Psychology
World Association for Personality Psychology

Conclusions and Outlook

Individual differences in feeling, thinking, and behaving are pervasive and have substantial impact on peoples' lives and life outcomes (e.g., educational achievement, job success, health, marital satisfaction). PID is a fascinating research field that has revealed intriguing insights into personality structure, process, and development. These findings are not only fascinating in themselves. They also inform other basic research fields (e.g., developmental psychology, social psychology, and psychological assessment), and they deliver indispensable knowledge to all domains of applied psychology (e.g., clinical psychology, counselling, educational psychology, legal psychology, sport psychology, industrial and organizational psychology). For these reasons, PID should be taught in every basic psychology program (bachelor) and be included as an optional field of research in advanced psychology programs (master, PhD).

Like every scientific discipline, PID has undergone substantial changes over its history. These were due to the changing Zeitgeist, to the steady accumulation of knowledge, to the diversification of psychology, to controversies, and to the dramatic advances in digital technologies. The growth of computational power and digital interaction via the Internet has opened new avenues for the online collection of data and eased collaboration among research groups independent of their geographic location. Digital technologies have shifted PID research from classic paper-and-pencil methodology and behavioral observation in the lab to data collection via electronic devices in natural environments, virtual realities, as well as online interaction and communication settings. Moreover, linking digital data from multiple sources makes it possible to explore types of individual differences that were inaccessible before. Obviously, advancement in digital technologies does not only create new research opportunities but also poses ethical challenges that the scientific community must address.

Advances in digital technology have also changed and will continue to change the ways we teach. This chapter was written in during the COVID-19 pandemic that boosted the development of tools for online teaching and remote learning. Not all but many of these tools will continue to exist and will be improved, diversified,

and used in the future. Although it is difficult to predict in exactly which direction teaching in higher education will move, it seems safe to forecast that the times of exclusive in-class teaching are definitely over. Investigating empirically which blend of in-class and remote teaching contributes best to learning progress will be a task for education and psychology. PID should be a partner in this research because individuals differ in how they teach and learn best. From the perspective of PID, one size fits all approaches will be less successful as compared to adaptive teaching formats that take into account individual differences in abilities, skills, motives, interests, and personality traits such as the ones included in the prominent five-factor model.

References

Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin, 84*, 888–918.

Allport, G. W., & Odbert, H. S. (1936). Trait-names: A psycho-lexical study. *Psychological Monographs, 47*, 1–171.

APA (American Psychological Association) (2013). *APA Guidelines for the Undergraduate Psychology Major*. New York: APA.

Asendorpf, J. B., Conner, M., et al. (2013). Recommendations for increasing replicability in psychology. *European Journal of Personality, 27*, 108–119.

Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review, 11*, 150–166.

Bandura, A. (1977). *Social learning theory*. New York, NY: General Learning Press.

Baumert, A., Schmitt, M., et al. (2017). Integrating personality structure, personality process, and personality development. *European Journal of Personality, 31*, 503–528.

Blum, G., Rauthmann, J. F., Göllner, R., Lischetzke, T., & Schmitt, M. (2018). The nonlinear interaction of person and situation (NIPS) model: Theory and empirical evidence. *European Journal of Personality, 32*, 286–305.

Blum, G., & Schmitt, M. (2017). The nonlinear interaction of person and situation (NIPS) model and its values for a psychology of situations. In J. F. Rauthmann, D. C. Funder, & R. Sherman (Eds.), *The Oxford handbook of psychological situations* (pp. 1–17). Oxford, UK: Oxford University Press.

Brunswik, E (1952). *The conceptual framework of psychology*. Chicago: University of Chicago Press.

Buss, A. H., & Plomin, R. (1975). *A temperament theory of personality development*. New York, NY: Wiley.

Carroll, J. B. (1993). *Human cognitive abilities. A survey of factor-analytic studies*. New York, NY: Cambridge University Press.

Cattell, R. B. (1950). *Personality: A systematical theoretical and factual study*. New York, NY: McGraw-Hill.

Cattell, R. B. (1966). The data box: Its ordering of total resources in terms of possible relational systems. In R. B. Cattell (Ed.), *Handbook of multivariate experimental psychology* (pp. 67–128). Chicago, IL: Rand McNally.

Cattell, R. B. (1971). *Abilities. Their structure, growth, and action*. Boston, MA: Houghton Mifflin.

Cook-Sather, A. (2009). *Learning from the student's perspective: A sourcebook for effective teaching*. Boulder, CO: Paradigm Publishers.

Deary, I. J. (2014). The stability of intelligence from childhood to old age. *Current Directions in Psychological Science, 23*, 239–245.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York, NY: Plenum.

Denissen, J. A., Luhmann, M., Chung, J. M., & Bleidorn, W. (2019). Transactions between life events and personality traits across the adult lifespan. *Journal of Personality and Social Psychology, 116*, 612–633.

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology, 41*, 417–440.
Endler, N. S. (1975). A person - situation interaction model for anxiety. In C. D. Spielberger & I. G. Sarason (Eds.), *Stress and anxiety* (Vol. 1, pp. 145–164). Washington, DC: Hemisphere Publishing Corporation.
Endler, N. S., & Hunt, J. M. (1966). Sources of behavioral variance as measured by the S-R inventory of anxiousness. *Psychological Bulletin, 65*, 336–346.
Endler, N. S., & Magnusson, D. (1976). Toward an interactional psychology of personality. *Psychological Bulletin, 83*, 956–974.
Epstein, S., & O'Brien, E. (1985). The person-situation debate in historical and current perspective. *Psychological Bulletin, 98*, 513–537.
Eysenck, H. J. (1953). *The structure of human personality.* London, UK: Methuen.
Fleeson, W. (2001). Towards a structure- and process-integrated view of personality: Traits as density distributions of states. *Journal of Personality and Social Psychology, 80*, 1011–1027.
Funder, D. C. (2009). Persons, behaviors and situations: An agenda for personality psychology in the postwar era. *Journal of Research in Personality, 43*, 120–126.
Gardner, H. (2006). *Multiple intelligences: New horizons in theory and practice*. New York, NY: Basic Books.
Goleman, D. (1996). *Emotional intelligence: Why it can matter more than IQ*. New York, NY: Bantam Books.
Gottfredson, L. S. (2018). g theory: How recurring variation in human intelligence and the complexity of everyday tasks create social structure and the democratic dilemma. In R. J. Sternberg (Ed.), *The nature of human intelligence* (pp. 130–151). New York, NY: Cambridge University Press.
Gray, J. A. (1972). The psychophysiological nature of introversion-extraversion: A modification of Eysenck's theory. In D. Nebylitsyn & J. A. Gray (Eds.), *The biological bases of individual behaviour* (pp. 182–205). New York, NY: Academic Press.
Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology, 74*, 1464–1480.
Hartshorne, H., & May, M. A. (1928). *Studies in the nature of character: I studies in deceit*. New York, NY: Macmillan.
Holland, J. L. (1973). *Making vocational choices*. Englewood Cliffs, NJ: Prentice-Hall.
Jayawickreme, E., Zachry, C. E., & Fleeson, W. (2019). Whole trait theory: An integrative approach to examining personality structure and process. *Personality and Individual Differences, 136*, 2–11.
Kelly, G. A. (1955). *The psychology of personal constructs*. New York, NY: Norton.
Kenny, D. A. (1994). *Interpersonal perception: A social relations analysis*. New York, NY: Guilford Press.
Kuhl, J., Kazen, M., & Quirin, M. (2014). The theory of personality systems interactions (PSI). *Revista Mexicana de psichologia, 31*, 90–99.
Kuhl, J., Quirin, M., & Koole, S. L. (2015). Being someone: The integrated self as a neuropsychological system. *Social and Personality Psychology Compass, 9*, 115–132.
Lee, J. J., Wedow, R., et al. (2018). Gene discovery and polygenic prediction from a genome-wide association study of educational attainment in 1.1 million individuals. *Nature Genetics, 50*, 1112–1121.
Maslow, A. H. (1954). *Motivation and personality.* New York, NY: Harper and Row.
Mathews, A., & MacLeod, C. (1994). Cognitive approaches to emotion and emotional disorders. *Annual Review of Psychology, 45*, 25–50.
McClelland, D. C. (1987). *Human motivation*. Cambridge, MA: Cambridge University Press.
Mischel, W. (1968). *Personality and assessment*. New York: Wiley.
Murray, H. A. (1938). *Explorations in personality.* Oxford, UK: New York, NY.
Pavlov, I. P. (1927). Conditioned reflexes: An investigation of the physiological activity of the cerebral cortex. *Nature, 121*(3052), 662–664.

Plomin, R., DeFries, J. C., Knopik, V. S., & Neiderhiser, J. M. (2016). Top 10 replicated findings from behavioral genetics. *Perspective of Psychological Science, 11*, 3–23.

Rauthmann, J. F., Funder, D. C., & Sherman, R. (Eds.). (2017). *The Oxford handbook of psychological situations*. Oxford, UK: Oxford University Press.

Rauthmann, J. F., Gallardo-Pujol, D., et al. (2014). The situational eight DIAMONDS: A taxonomy of major dimensions of situation characteristics. *Journal of Personality and Social Psychology, 107*, 677–718.

Richard, F. D., Bond, C. F., & Stokes-Zoota, J. J. (2003). One hundred years of social psychology quantitatively described. *Review of General Psychology, 7*, 331–363.

Roberts, B. W., & DelVecchio, W. F. (2000). The rank-order consistency of personality traits from childhood to old age: A quantitative review of longitudinal studies. *Psychological Bulletin, 126*, 3–25.

Roberts, B. W., Kuncel, N. R., Shiner, R., Caspi, A., & Goldberg, L. R. (2007). The power of personality: The comparative validity of personality traits, socioeconomic status, and cognitive ability for predicting important life outcomes. *Perspectives on Psychological Science, 2*, 313–345.

Roberts, B. W., Luo, J., Briley, D. A., Chow, P. I., Su, R., & Hill, P. L. (2017). A systematic review of personality trait change through intervention. *Psychological Bulletin, 143*, 117–141.

Roberts, B. W., Walton, K. E., & Viechtbauer, W. (2006). Patterns of mean-level change in personality traits across the life course: A meta-analysis of longitudinal studies. *Psychological Bulletin, 132*, 1–25.

Rogers, C. R. (1954). *On becoming a person*. Boston, MA: Houghton Mifflin Company.

Rotter, J. B. (1954). *Social learning and clinical psychology*. New York: Prentice-Hall.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80* (1, No. 609).

Schaie, K. W. (1965). A general model for the study of developmental problems. *Psychological Bulletin, 64*, 92–107.

Schwartz, S. (1992). Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In M. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 25, pp. 1–65). Orlando, FL: Academic Press.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston, MA: Houghton Mifflin.

Shavelson, R. J., & Webb, N. M. (1991). *Generalizability theory: A primer*. Thousand Oaks, CA: Sage.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*, 4–14.

Skinner, B. F. (1969). *Contingencies of reinforcement: A theoretical analysis*. New York, NY: Meredith.

Spearman, C. (1904). General intelligence, objectively determined and measured. *American Journal of Psychology, 15*, 201–293.

Steyer, R., Mayer, A., Geiser, C., & Cole, D. A. (2015). A theory of states and traits-revised. *Annual Review of Clinical Psychology, 11*, 71–98.

Steyer, R., & Schmitt, M. (1990). The effects of aggregation across and within occasions on consistency, specificity. *and reliability. Methodika, 4*, 58–94.

Steyer, R., Schmitt, M., & Eid, M. (1999). Latent state-trait theory and research in personality and individual differences. *European Journal of Personality, 13*, 389–408.

Strack, F., & Deutsch, R. (2004). Reflective and impulsive determinants of social behavior. *Personality and Social Psychology Review, 8*, 220–247.

Strelau, J. (1998). *Temperament. A psychological perspective*. New York, NY: Plenum Press.

Thorndike, E. L. (1920). Intelligence and its use. *Harper's Magazine, 140*, 227–235.

Thurstone, L. L. (1938). *Primary mental abilities*. Chicago, IL: University of Chicago Press.

Vernon, P. E. (1950). *The structure of human abilities*. London, UK: Methuen.

Williams, J. M. G., Watts, F. N., MacLeod, C., & Mathews, A. (1991). *Cognitive psychology and emotional disorder*. Chichester, UK: John Wiley.

Teaching of Work and Organizational Psychology in Higher Education

22

Niclas Schaper

Contents

Abstract

Work and organizational (W/O-)psychologists are basically concerned with the experience and behavior of people in organizations and at work. The topics that W/O-Psychology deals with, both scientifically and practically, are enormously diverse and range from work analysis and work design as well as occupational health and safety to leadership, group work, and human factor issues to telework and corporate culture. This means that training in this discipline should also cover this breadth, at least in terms of the core areas, or it is offered a profile for specialization in one or more areas. W/O-psychologists usually work together with experts from other fields and are also required to familiarize themselves with new subject areas frequently. Therefore, they should be prepared for interdisciplinary cooperation and have special communication skills. Additionally, they

N. Schaper (✉)
Psychology, University of Paderborn, Paderborn, Germany
e-mail: niclas.schaper@upb.de

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should be trained to familiarize themselves quickly and effectively with new areas of application and obtain thorough methodological training to make well-founded decisions in practice and choose methodological procedures that are scientifically sound and tested. The scientist-practitioner model is the central concept W/O-Psychology programs are based on. According to this model, psychologists are to be trained in a way that integrates science and practice such that activities in one domain would inform activities in the other domain. This dual emphasis on theory and practice is needed regardless of a student's intended career path. W/O-Psychology sees itself first and foremost as an applied discipline. Therefore, instructional design in the discipline is primarily based on a high degree of application orientation; i.e., students should not only learn relevant psychological theories and methods in their study programs. They should also be confronted with practical requirements of the future professional areas, and they should be given opportunities to test their expertise and gain experience in dealing with practice-related challenges. Furthermore, it is important that the links between science and practice are already established and improved in lectures, seminars, and training courses. Therefore, it is recommended to try out and implement a variety of approaches like case-based training courses or research-based project seminars. Instructional improvement in W/O-Psychology can also be obtained by using a pedagogical double decker, which puts concepts into practice in the course that are parallely taught theoretically. Finally, a competence-oriented instructional design is recommended – including the use of the constructive alignment concept – to develop the professional competences of future W/O-psychologists effectively.

Keywords

Work and organizational psychology · Applied psychology · Scientist-practitioner model · Case-based learning · Research-based learning · Pedagogical double decker · Development of professional competences

Introduction

Work and organizational (W/O-)psychologists are basically concerned with the experience and behavior of people in organizations and at work. This has to be observed, described, and explained as well as predicted and changed (Schaper, 2019; Conte & Landy, 2019). The two major fields of application are therefore work and organization, although in many cases, a third field of application is added: personnel management and how it can be effectively operated from a psychological perspective (cf. Campbell, 2002). In Anglo-American contexts, this area is also often classified and taught under the heading of Organizational Behavior (e.g., Griffin, Phillips, & Gully, 2019).

With regard to the field of work, W/O-psychologists are primarily interested in the functions and significance of work in people's lives. The central object of study

in work psychology is thus the experience and behavior of people at work as a function of working conditions, work tasks, and the performance requirements necessary for this (Sonntag, Frieling, & Stegmaier, 2012). Other central topics of work psychology are theoretical concepts for the description, explanation, and prediction of work activities as well as for the motivation of work activities, strain and stress at work, job satisfaction, occupational safety, design of group work, training, and further education of employees.

W/O-psychologists are also interested in how the behavior and experience of organizational members are influenced by organizational characteristics and what effects result from this. The object of study in organizational psychology is thus the experience and behavior of people in organizations in general, but also as a function of various characteristics of organizational variables (structural, process, and goal characteristics of organizations) (Robbins & Judge, 2019). Central topics and issues in organizational psychology are theoretical concepts for describing and understanding organizational characteristics and structures, communication, interaction, and socialization processes and their role in organizations, leadership concepts, and diagnosing and changing organizations.

Finally, the third area of Work and Organizational (W/O-) Psychology deals with questions of personnel management in organizations. The main focus here is on analyzing how personnel management measures (selection, assessment, development) work and how they can be designed effectively (Campbell, 2002). Personnel psychology deals with aspects of behavioral control (e.g., through incentives or feedback) and how the aforementioned personnel functions can be effectively supported. These include, above all, issues relating to career choice and development, the analysis of occupational and task-related requirements, the recruitment of employees for organizations (personnel marketing), personnel selection, performance and potential assessment, and personnel development.

So, the topics that W/O-Psychology deal with, both scientifically and practically, are enormously diverse. They range from work analysis and work design as well as occupational health and safety to leadership, group work, and human factors issues to telework and corporate culture (cf. Conte & Landy, 2019; Schuler & Sonntag, 2008; Zedeck, 2011). Though, in the practice of W/O-Psychology, the focus is predominantly on personnel-related fields, e.g., training, recruitment and selection, and performance appraisal. Tasks concerning organizational and management development also fall into this context. Here, W/O-psychologists are active not only in conceptual and operational but also in managerial functions. W/O-psychologists perform these tasks as employees of industrial and service companies, public authorities, associations, and universities, as well as consultants and trainers in employed and self-employed forms. An employment survey of SIOP from 2011 reveals that 39.4% of W/O-psychologists in the United States work at universities (academia), 31.2% in consulting firms, 14.3% in private companies, 9.3% in governmental organizations, and 5.8% in other organizations (Spector, 2019). Concerning the question in what kind of organizations W/O-psychologists are active, it can be seen that this refers primarily to large industrial companies and service companies (SIOP, 2019). Much less often, W/O-psychologists are employed

in medium-sized companies as well as public administrations, hospitals, and recreational organizations.

The increase in the number of W/O-psychologists employed in business and consulting organizations, particularly in the 1990s, shows that they now form a recognized professional group that is seen as making significant independent contributions and is trusted to master key challenges in business and organizational contexts (Schaper, 2019; Conte & Landy, 2019). In particular, the increasingly significant role of psychologists in business illustrates that challenges and problems can not only be solved via business and technological solutions, but also require the human-centered design of work and organizational processes and/or the empowerment of employees to achieve high levels of technical, economic, and social performance. For the practical fields of application of W/O-psychologists, it is also true that their tasks rarely present themselves as purely "psychological." Rather, the practical work of W/O-psychologists usually requires cooperation with specialists from other disciplines (e.g., business economists, engineers, computer scientists, lawyers) (Conte & Landy, 2019). Knowledge and skills of the corresponding neighboring disciplines (e.g., in labor law, production management and technology, marketing, or software engineering) are therefore usually just as important. Finally, the professional self-image of a W/O-psychologist also includes reflection on their ethical responsibility, which arises from their research or practical activities. In particular, they should be aware of the responsibility that their work or the concepts they develop can significantly influence people's living conditions. Therefore, it is always important to raise the voice against claims and procedures in which people are regarded solely as a resource or production factor.

The history of an independent psychology, which has human work as its object of knowledge, is still comparatively short (cf., e.g., Aamondt, 2015). A major developmental path to the emergence of W/O-Psychology as an independent discipline can be seen in the establishment of applied psychology at the beginning of the twentieth century and the rationalization of industrial work and its study from the end of the nineteenth century. With the publication of "Psychology and Economic Life" in 1912, Hugo Münsterberg (1912) attempted to programmatically and systematically place applied experimental psychology at the service of economic life. He thus founded the economic branch of the "Psychotechnik" approach, which focused on questions of optimizing human performance (Sonntag et al., 2012). Under the influence of the "human relations" movement, work psychology, which had been individualistically oriented until then, subsequently focused on a more social-psychologically oriented view of human work behavior and thus also became an organizational psychology. The "Hawthorne experiments" of Mayo (1945) and Roethlisberger and Dickson (1939) at the Hawthorne Works of the Western Electric Company were particularly groundbreaking in this phase. They were the first to clearly identify the importance of attitudes and work motivation as well as social relationships in workgroups for operational performance. The work of the Tavistock Institute for Human Relations at the beginning of the 1950s in the English coal industry on the introduction of a new partially mechanized mining method and the associated problems (poor working

atmosphere, rising accident rates, etc.) and the development of the "socio-technical system" approach, which aimed at the joint optimization of the technical and the social system, was also very influential. Initiated by cognition and cybernetics research and the models of information processing, the cognitive structure of human work activities finally also increasingly became the subject of analysis and theory formation. Against this background, action regulation theory was developed to provide a comprehensive theory of the cognitive regulation of human work activities. Hacker (2015) and Volpert (1974) thus provide a theory on the basis of which it is possible to describe and explain in relatively concrete terms how humans deal with their environment in a goal-directed, thinking manner, change their environmental conditions, and also develop their personality at the same time. With the broad use of computer technologies in production, administration, and service and with the emergence of new forms of work (e.g., telework), the need for application-oriented work and organizational psychological knowledge has grown considerably in the current phase. Concepts of W/O-Psychology are thus a vital antagonist to counteract the adverse effects on people caused by the strongly technology-centered approaches within the framework of a human design of technology and work organization.

Central trends in disciplinary development can be identified above all for the following topics (Schaper, 2019):

- *Digitization of the world of work:* The ubiquitous introduction and use of computer technologies has triggered significant changes in the world of work. One key example of this is telecooperation or teleworking. This enables organizations and employees to perform or design work services and processes more flexibly. However, telecooperative forms of work also pose a number of potential risks (e.g., the risk of social isolation from colleagues or the lack of separation between work and private sphere), which have so far only been rudimentarily investigated.
- *Growth of service activities.* Service activities are also becoming increasingly important in our working world. This is due to their increasing prevalence. Service activities are primarily characterized by the fact that they are carried out in direct contact with the customer and place special demands on interaction skills and commitment. Which communication aspects, personal prerequisites, and organizational conditions contribute to the success or failure of such service relationships is still incompletely studied empirically. The stresses and strains arising from such demands, called "emotional work," also require intensive further research efforts.
- *Internationalization, globalization, and diversity.* The internationalization and globalization of the economy as well as the increasing cultural, demographic, and religious heterogeneity of workforces – called diversity – have resulted in changed requirements for human resource management (see, e.g., Hebl & Avery, 2013 or Kalargyrou & Costen, 2017). Specialists and managers who are sent abroad must be prepared in the process for their assignments abroad. In addition, new requirements for human resource management arise from increasingly

multicultural and heterogeneous compositions of workforces and workgroups (e.g., in multinational teams or mixed-age workgroups).

- *Increasing flexibilization and new forms of work.* The increasing flexibilization of the world of work, especially with regard to working hours and contractual ties, leads to increased employment risks for employees (e.g., through fixed-term employment contracts). Therefore, the latter should learn to assume personal responsibility to maintain their own employability and acquire skills for vocational self-management (cf., e.g., Gasteiger, 2007). Furthermore, new forms of work in the "platform economy" (e.g., Crowd or Gig-working) place new demands (e.g., be always ready for delivery on demand) and risks (e.g., to ensure their living in phases of no work) on the ‚employees of such platforms.

What conclusions can be drawn from this description of the disciplinary orientation? First of all, the description should have made clear that the topics of W/O-Psychology are enormously broad and diverse. This means that training in this discipline should also cover this breadth, at least in terms of the core areas. Alternatively, a profile for specialization in one or more areas can be developed and offered (e.g., for Personnel Psychology and HRM). It also became clear that in practice, W/O-psychologists usually work together with experts from other fields and are also required to familiarize themselves with new subject areas frequently. W/O-psychologists should therefore be prepared for interdisciplinary cooperation in their training. They should also have special communication skills and be trained to familiarize themselves with new areas of application quickly and effectively. Additionally, thorough methodological training is required so that W/O-psychologists are also able to make well-founded decisions in practice and choose methodological procedures that are scientifically sound and tested. Last but not least, it becomes clear that W/O-Psychology is a highly application-oriented science that derives its research and design topics primarily from problems and issues in practice. This should also be reflected in a high application orientation in the training of W/O-psychologists.

Objectives and Structure of Curricula in W/O-Psychology

The content of training in W/O-Psychology – which is mostly named, industrial and organizational psychology "in Anglo-American countries in contrast to the European countries where the title, work and organizational psychology" is relatively common – is taught at both the undergraduate and graduate level. At the undergraduate level, individual modules or courses are usually offered in generalist psychology programs or thematically related programs (e.g., management-oriented business study programs). On the other hand, there are also more extensive programs at the undergraduate level that focus on W/O-Psychology. In Germany, for example, a variety of Bachelor's degree programs in business psychology that cover a broad range of work and organizational contents are offered within Universities of Applied Science. More common, however, are extensive and in-depth training curricula in

W/O-Psychology in the context of graduate programs. At this level, a distinction is made in Anglo-American countries between master's and doctoral programs in W/O-Psychology. Graduate training in W/O-Psychology in the form of master's programs is usually limited to two to four semesters, and the focus is more on application and practice-oriented training. In the doctoral programs, which are often offered together with the master's programs, the focus is more on the training of scientific skills, and the programs are also more long-termed (about 4 years). All of the above educational offerings at both the undergraduate and graduate levels are subject to national accreditation requirements. Particularly for the more extensive master's programs, the respective national professional societies of W/O-Psychology have also developed educational guidelines to ensure content and professional standards of training (see, for example, the "Guidelines for Education and Training in industrial-organizational psychology" of the Society for Industrial and Organizational Psychology in the United States; SIOP, 2016/2017).

The scientist-practitioner model is the central concept W/O-Psychology programs are based on. Though it has its origins in clinical psychology, it is also mentioned as a central orientation for W/O-Psychology programs (Baker & Benjamin, 2000; Hays-Thomas, 2002). According to this model, psychologists are to be trained in a way that integrates science and practice such that activities in one domain would inform activities in the other domain. The application of the scientist–practitioner model in W/O-Psychology graduate training has been analyzed by Bartels, Macan, Gutting, Lemming, and McCrea (2005) in the US context. The authors found that 60% of master's and 63% of doctoral programs described their orientation as scientist-practitioner. Master's programs were more likely to describe themselves as "mainly applied" (30%), but doctoral programs were more commonly described as "mainly research" (26%). Among the scientist-practitioner programs, the most common technique for training in practice skills was reported to be supervised experience (88%). A similar analysis was conducted with W/O-Psychology academic training programs in Australia and New Zealand (Carless & Taylor, 2006), which came up with similar results. Even in the European context, the W/O-Psychology study programs refer to the scientist-practitioner model. This is mirrored in the ENOP-guidelines (1998), which present a reference model and minimal standards for study programs in W/O-Psychology in European countries.

This dual emphasis on theory and practice is needed regardless of a student's intended career path (Rupp & Beal, 2007). Those interested in academic careers need to understand both theory and practice to develop sound research. W/O-Psychology practitioners in industry, government, and consulting are required on the other hand to use their knowledge and skills to deliver services and intervention measures. Thus, students not only need to know each topic in a theoretical sense; they also need to know "how to" develop and implement associated services or intervention measures. Learning about a topic in a theoretical sense is not equivalent to the experience of applying that information. Doing it and having first-hand familiarity with the pitfalls, limits, and constraints of a technique (e.g., job analysis) is different from, and as critical as, theoretical knowledge.

Table 1 Two exemplary descriptions of the SIOP competences (SIOP, 2016/2017)

4. Professional skills (communication, business/research proposal development, consulting, and project-management skills)
In all employment sectors, success as a W/O-psychologist requires the development of a variety of professional skills. Communication, business development, and project management represent broad categories capturing some of the most essential professional skills Effective communication is critical and required to interact with and influence others regardless of the context. Communication skills encompass using technology, writing, and presenting. They also involve interpersonal, negotiation, and conflict-management skills in order to build and maintain relationships and an ability to navigate relationships in a politically savvy way. Communication skills are particularly important in team contexts. An understanding of how individual efforts facilitate group performance and the ability to contribute as a member of a group are essential. W/O-psychologists must be able to translate scientific research to professional and layperson audiences effectively (. . .)
10. Groups and teams
Much of human activity in organizations takes place in the presence of other people. This is particularly true of work behavior. The pervasiveness of interpersonal and task interdependence in organizations demands that I-O psychologists have a good understanding of the behavior of people in workgroups. It is also critical to have a familiarity with the growing teamwork literature. This requires an understanding that extends beyond familiarity with research and theory related to interpersonal behavior in small groups. The body of theory and research concerning groups and teams draws from social psychology, organizational psychology, sociology, and organizational behavior. A good background in group theory and team processes includes, but is not limited to, an understanding of leadership, motivation, interpersonal influence, group effectiveness, conformity, conflict, role behavior, and group decision making. Contemporary issues include but are not limited to multi-team systems, virtual teams, and cross-cultural teams

A SIOP report indicates that the primary goal of graduate training in W/O-Psychology is developing competences (Zelin et al., 2015). Taking a competence-based approach, these guidelines focus on the skills, behaviors, and capabilities necessary to function as a new member of the profession. Table 1 presents two exemplary descriptions of the SIOP competences (2016/2017), which show that both science and practice are inherent in each competence description.

In addition, there are, of course, a large number of other national guidelines that have been developed by the respective professional societies of W/O-Psychology. As an example, the guidelines of the German professional society may be mentioned here (Ellwart, Hertel, Lang, Trimpop, & Ohly, 2015), which are based on defined fields of work and the competences required there. Concerning the first aspect, four general fields of work in W/O-Psychology are mentioned: (1) Personnel and profession, (2) Work, health, and prevention, (3) organizational consulting and organizational development, (4) marketing and market research. Also, a framework of job-related competences is provided, resulting in a competence model with four successive stages (Table 2). Each level contains both scientifically based competences and a reference to application aspects. So, in addition to an empirical-theoretical foundation in W/O-Psychology training, the labor market with its practical occupation-related expectations is also taken into account. Therefore, the competence model serves to communicate to prospective students and the

Table 2 Competence level of the German education guidelines for Master's programs in W/O-Psychology (Ellwart et al., 2015)

Competence level 1: Orientation and structuring. At this level, the focus is on the systematic nature of the subject areas. Students know central concepts and theories of A/W-psychology and are able to present them systematically and relate them to each other
Competence level 2: Selecting and evaluating. At this level, students are able to evaluate diagnostic procedures or intervention measures in a well-founded and critical manner along with quality criteria, as well as to make recommendations for the selection of certain methods
Competence level 3: Apply and reflect. At this competence level, students can conduct, evaluate, and document instruments and procedures themselves. The focus goes beyond the application of classical quality criteria, as context and target group in the field of application have to be considered more strongly (e.g., social acceptance or practical usefulness). Students also develop their own skills (e.g., social and emotional competences) on the basis of experience and reflect on limits and development potential
Competence level 4: Designing and evaluating. At this level of competence, students are able to develop new procedures or interventions for specific areas of the application themselves and evaluate their effectiveness scientifically. They are able to develop and work on new problem areas in both practical issues and research-related contexts

labor market which competence acquisition is intended or which competences can be expected by the employer.

In summary, it becomes clear that study programs in W/O-Psychology exist at different levels of training and are relatively diverse overall. Despite this heterogeneity, attempts are made to ensure sufficient content-related and scientific quality of the study programs by means of educational guidelines of the national professional societies or an orientation toward higher-level standards (e.g., national accreditation guidelines).

Core Contents and Topics of W/O-Psychology

The contents and topics of W/O-Psychology are broadly diversified due to the diverse application possibilities of psychological concepts and methods in the world of work and organization. They refer to the application areas of work, organization, and personnel already presented in the introductory chapter. Further overviews of the relevant topics and contents of W/O-Psychology are provided by textbooks (e.g., Spector, 2019; Sonntag et al., 2012; Conte & Landy, 2019; Nerdinger, Blickle, & Schaper, 2019) as well as standards of various national professional societies of the discipline. As an example, we refer to the overview of SIOP (2016/2017), which presents the recommended areas of competence or knowledge to be developed in W/O-Psychology study programs (see Table 3).

In order to gain a structured insight into the different topics and professional areas of W/O-Psychology, the following text deals with different approaches to structuring these fields (Schaper, 2019). In connection with the classification of topics and core contents relevant for W/O-Psychology, different levels of observation and perspectives are often distinguished (e.g., Schuler, 2006):

Table 3 Areas of competence and knowledge to be developed in W/O-Psychology study programs (SIOP, 2016)

General knowledge and skills
1. Ethical, legal, diversity, and international issues
2. Fields of psychology
3. History and systems of psychology
4. Professional skills (communication, business/research development, consulting, and project-management skills)
5. Research methods
6. Statistical methods/data analysis
Core content
7. Attitude theory, measurement, and change
8. Career development
9. Criterion theory and development
10. Groups and teams
11. Human performance
12. Individual assessment
13. Individual differences
14. Job evaluation and compensation
15. Job/task/work analysis, competence modeling, and classification
16. Judgment and decision making
17. Leadership and management
18. Occupational health and safety
19. Organization development
20. Organization theory
21. Performance appraisal/management
22. Personnel recruitment, selection, and placement
23. Training: theory, delivery, program design, and evaluation
24. Work motivation
Related areas of competence
25. Consumer behavior
26. Human factors

- *Level of the individual:* The focus here is primarily on the behavioral and performance conditions of individuals in organizations as well as their diagnosis and development.
- *Level of groups or interaction relationships:* This level is primarily concerned with the forms, conditions, and processes of workgroups and leadership relationships.
- *Level of the organization as a whole:* At this level, the focus is on forms (e.g., functional organizations) and characteristics of the organization (e.g., organizational climate or culture) as well as the relationships of an organization to its environment.

With respect to a more process-oriented perspective, which puts a focus on the way objects of research and practice in W/O-Psychology are dealt with, the following distinctions are made:

- *Fundamental concepts:* Under this perspective, fundamental theoretical concepts (e.g., on the regulation of work actions) and issues (e.g., on the meaning of work) are primarily researched and developed.

- *Diagnosis:* This perspective focuses on the development of diagnostic methods in relation to the various objects of investigation in W/O-Psychology (e.g., methods for work analysis, aptitude diagnostics, and organizational and team diagnostics).
- *Intervention:* This involves the development of concepts and measures for changing and optimizing work, interaction, group, and organizational processes (e.g., through personnel development measures).
- *Evaluation:* This perspective focuses on reviewing the effectiveness of intervention measures at the various levels (e.g., individual training or team respective organizational development) and on the quality assurance of diagnostic instruments.

The mentioned classifications allow a further differentiation and structuring of objects and contents of W/O-Psychology, although the categories are not selective. However, they are quite useful as heuristic principles for differentiating different perspectives on the various objects of research and practice in W/O-Psychology.

W/O-Psychology sees itself first and foremost as an applied discipline because it finds its problems – similar to, e.g., clinical and educational psychology – predominantly in the practical world of human life. Since it also makes use of general theoretical concepts and findings as well as sophisticated scientific research methods, it is not a research discipline that is focused only on application. Its epistemological interest and research approaches are quite differently determined (cf. Sonntag et al., 2012):

- *Basic psychological research:* On the one hand, the cognitive interest of W/O-Psychology is shaped by the objectives and methodology of basic psychological research; i.e., W/O-psychologists are also interested in formulating generally valid statements (or theories). Therefore, they are testing their more fundamental hypotheses and models using systematically designed laboratory and field studies. In this context, the research topics arise in particular from questions and problems inherent in the theory and represent fundamental questions of W/O-Psychology (e.g., what role do goals play in motivating and controlling work actions).
- *Applied psychological research:* On the other hand, the interest in knowledge is characterized by procedures of applied psychology, which develops models and methods for problem solving with reference to one or more theories and disciplines. This approach generates concepts and instruments whose effectiveness for analyzing, predicting, and changing work- and organization-related problems is to be tested in a context-specific manner. By including situational variables, the explanatory models are generally more complex than in a more basics-oriented view. For example, to explain the effectiveness of training measures, not only learning concepts (e.g., on the effect of cooperative forms of learning), but also motivational concepts (e.g., on the expected benefits of learning outcomes) and socio-psychological variables (e.g., attitudes of supervisors toward the continuous development of their employees) are included in respective research approaches.

- *Practice-oriented analysis and development:* Furthermore, the epistemic interest can be characterized as practice-oriented since W/O-Psychology is also interested in the direct analysis and intervention in concrete individual cases. The object of development and investigation here is the optimal implementation and specific application of knowledge and methods of W/O-Psychology in order to meet the design needs of practitioners in organizations. Though, from a scientific perspective, this epistemic perspective is still a rather underdeveloped field, but also of particular importance in the training of practical skills in W/O-Psychology.

With regard to research methodological approaches, W/O-Psychology makes use of very different approaches (Blickle, 2019). In addition to predominantly quantitative research designs, qualitative designs are also used, either independently or in addition to quantitative designs. Furthermore, though the use of cross-sectional survey designs in W/O-Psychology is still predominant, longitudinal studies are very much increasing, and model-based analyses are also nowadays widespread in this discipline, with a large number of studies also based on multilevel models. Also, the application and use of different diagnostic methods concerning selection and appraisal methods, job and requirements analysis, or approaches of organizational diagnosis are essential tools of a W/O-psychologist. So, this research and diagnostic methodological knowledge and corresponding competences need to be addressed not only in research but also in practice-oriented study programs.

W/O-Psychology builds on various basic disciplines of psychology. So, it is also referred to as a cross-sectional discipline. General psychology, social psychology, and differential psychology play a special role here. For example, basic models of general psychology are usually used to clarify psychological issues of perception, thinking and learning, and motivation in work activities. Social psychology's theories and findings play a central role in the analysis and design of communication, cooperation, and conflict relationships between organizational actors and within workgroups or teams. Furthermore, the diagnosis of interindividual differences in employees' behavior, performance, and aptitude characteristics is inconceivable without reference to concepts and procedures of differential psychology. In addition, W/O-Psychology is also characterized by close links to other application areas of psychology. For example, in the context of psychological questions of personnel development as well as training and further education, there are relatively close thematic relationships to educational psychology.

Furthermore, the complexity and multifactorial nature of psychological problems in the world of work and organizations also requires W/O-Psychology to make use of the findings of other scientific disciplines and to cooperate with them in order to develop appropriate explanatory approaches and solutions. Significant neighboring disciplines are in particular economic and business science, medicine, computer science and engineering, sociology, law, and vocational or media education. For example, in order to determine and prove the economic benefit and efficiency of personnel development measures or personnel selection processes, reference to business cost-benefit models is required (Süßmaier & Rowold, 2007).

The overview of central contents and topics of W/O-Psychology illustrate how the teaching contents of the discipline can be structured from different perspectives. Not only do different aspects of content structuring come into play, but also the various application as well as research perspectives of W/O-Psychology. The design of the teaching should therefore also refer to this diversity of perspectives and the diversity of scientific approaches.

Teaching, Learning, and Assessment W/O-Psychology

In the following chapter, the main approaches to teaching W/O-Psychology with reference to its instructional design are presented. This covers the implementation of the scientist-practitioner model in W/O-Psychology teaching, case-based learning approaches, and principles of research-based learning in W/O-Psychology, as well as a pedagogical double decker approach.

Implementation of the Scientist-Practioner Model in W/O-Psychology Teaching

Instructional design in W/O-Psychology is primarily based on a high degree of application orientation; i.e., students should not only learn the relevant psychological theories and methods in their study programs. They should also be confronted with practical requirements of the future professional areas, and they should be given opportunities to test their expertise and gain experience in dealing with practice-related challenges. Therefore, the scientist-practitioner model was used as a guiding principle for the design of study programs in W/O-Psychology (see section "Objectives and Structure of Curricula in W/O Psychology"). However, the core idea of the scientist-practitioner approach has been only vaguely formulated and concretized with regard to its application (cf., e.g., Hays-Thomas, 2006; Rupp & Beal, 2007). However, one concrete aspect of the implementation of this model is that it is essentially pointed out that students should be guided and accompanied in internships by lecturers and practice supervisors who have experience or expertise in both areas – research and practice. Therefore, Shoenfelt et al. (2012) emphasize that internships play an important role in the education of master's and undergraduate-level W/O-Psychology students, as they provide applied learning experiences in organizational settings under qualified supervision. However, they also point to different problems concerning the implementation of adequate supervision and guidance for the interns (e.g., the frequency and quality of contact with the hosts). Furthermore, the interlocking of theory and practice in the course of studies should not only refer to the accompaniment of internships but should also be oriented toward an application-oriented design of teaching. However, few concrete suggestions are made in this regard in the educational guidelines of, for example, SIOP (2016/2017).

Design of Application and Case-Oriented Learning in W/O-Psychology

Although the scientist-practitioner model is certainly purposeful as a central principle for the curricular design, it is in great need of development concerning the instructional design of courses. In particular, more concrete recommendations are needed on how the links between science and practice can be established and improved already in lectures, seminars, and training courses of W/O-Psychology. For this purpose, a variety of approaches can certainly be used (Brame, 2016; Prince, 2004).

For example, in lectures with bigger audiences, the multimedia elements (e.g., videos of business cases) can be used to illustrate practical cases or to illustrate the application of a particular intervention methodology in practice (Han, Eomb, & Sug Shin, 2013). Furthermore, the inclusion of case-based elements, e.g., in the form of mini cases or case studies, has proven to be particularly useful for application-oriented didactics (Carloye, 2017). These instructional elements can also be integrated into seminars or training resp. exercise courses that accompany lectures. Additionally, role plays or role-play simulations can be used to gain experiences in taking on a specific professional task/role or applying and trying out certain techniques in professional communication or cooperation situations (DeNeve & Heppner, 1997). The authors implemented a role-play simulation in their work psychology course to transform students in leadership roles of a company and ask them to cooperatively solve different workplace or human resource-related problems (e.g., job dissatisfaction due to lack of challenge). This fostered student interest helped students apply the material to real-world situations, and improved the remembrance of learning contents well after the course ends. Furthermore, inviting practitioners into university courses to report on their experiences in implementing W/O-Psychology concepts or to talk to students about professional topics is also an effective element of application-oriented teaching that promotes motivation and learning.

However, in addition to integrating such application-oriented instructional elements, the entire course can be aligned with an application-oriented instructional strategy. For this purpose, e.g., complex case scenarios are suitable, which are to be solved by project groups (Farashahi & Tajeddin, 2018). Such case scenarios follow didactics of case-based learning (CBL), which means that the learners have to identify suitable solution concepts and the relevant state of research as well as to apply these concepts to the case and develop a context-adapted intervention approach. CBL is an instructional approach used across disciplines where students apply their knowledge and skills to real-world scenarios, promoting the application of complex concepts of a discipline and developing skills to transfer the knowledge by considering the context relevant conditions (He, 2015; Farashahi & Tajeddin, 2018). In CBL task assignments, students typically work in groups on case studies or stories involving one or more characters and/or scenarios. The cases present a disciplinary problem for which students develop solutions under the guidance of an instructor. This method involves guided inquiry and is grounded in

constructivism, whereby students learn to apply their knowledge by interacting with the case, their co-learners, and the instructor (Lee, 2012). Other instructional approaches that are helpful to design an application and action-oriented instructional arrangement are the 4C/ID model (van Merriënboer & Kirschner, 2013) or problem-based learning (e.g., Zumbach & Spraul, 2007), though they still have not been used to design W/O-Psychology courses.

Schaper, Soyka, and Depenbusch (2023) presented an example of such a case-based learning approach for a W/O-Psychology training course. In addition to a lecture teaching fundamentals of W/O-Psychology at the undergraduate level, a training course is organized, which deepens the topics (e.g., work and requirement analysis, work motivation, and satisfaction) in an application-oriented way by conducting case studies. A complex problem scenario is developed in the case studies, which describes a prototypical application case for a specific topic (e.g., improving one's leadership behavior) as the starting point (Schaper et al., 2023). In this description of the initial situation of the case, essential characteristics of the involved company are depicted (e.g., type of products or services offered, the economic condition of the company, etc.) in order to present the current problems of the company as vividly and concretely as possible (see Table 4 for an example). On this basis, an assignment is formulated or derived for a project group (approximately three to four students), which puts the group into the role of a team of experts (e.g., a consulting team) and confronts them with a realistic assignment to analyze the problem and to develop a context adapted solution approach. The overall assignment is subdivided into approximately four to five sub-assignments, which the case study group has to work on by using the theoretical and methodical concepts of the relevant topic presented in the lecture.

Initial evaluations with competence-oriented survey items show that this type of training course significantly improves participants' skills in analyzing complex cases, transferring theoretical concepts to practical problems, and designing psychological interventions taking into account their application constraints (Schaper et al., 2023). In addition, there are clear motivational effects with regard to a more intensive occupation with topics and issues of W/O-Psychology in practice and the joy of solving challenging problems of this domain. Vodanovich and Piotrowski (1999) also demonstrated that CBL can be implemented in an online course arrangement of an Internet-based graduate course concerning legal issues in W/O-Psychology.

Orientation Toward Principles of Research-Based Learning in W/O-Psychology

Since the focus of the training in W/O-Psychology is also to be placed on abilities for the scientific analysis of practice-related problems, approaches of research-based learning or research-oriented teaching are also appropriate instructional measures. Research-based learning in the sense of learning through one's own research (from the "real" question to the presentation of results) represents only one type. Huber

Table 4 Example of a case study assignment in W/O-Psychology

Case study "work motivation"
Initial situation: ProWare is a growing software company with around 4000 employees worldwide that develops and sells company-specific software solutions for customers in the financial services industry. The demand for such individually tailored programs has risen sharply in recent years, and an end to this trend is not in sight for the near future (. . .) ProWare works in large project teams, which are also structured relatively hierarchically and in which the areas of responsibility are divided up very meticulously at the start of the project and are primarily carried out by the respective (sub-)project managers. The team members have to adhere primarily to the instructions of this team leader and therefore gain little insight into the context of the overall project. Coordinating team meetings very often take place only in the circle of the project managers. The software developers at the lower level are hardly included in the conceptual meetings. They are primarily responsible for the implementation of the concepts developed in the leader circle together with the customers. This leads to a lot of dissatisfaction at the lower level of project staff because they do not feel sufficiently involved in the project. The project team members are paid well for their tasks, but unfortunately, there are also few opportunities to develop further in the teams, as there are hardly any changes of tasks or positions within and between the teams (. . .)
Case study assignment: As the head of HR at ProWare, you are asked by the management to analyze the lack of morale and turnover problems in the project teams and to take countermeasures
Consider the following questions to solve the case study: 1. Using the Job Characteristics Model, analyze which motivation problems exist among the software developers at ProWare 2. Make a corresponding analysis also on the basis of Vroom's VIE theory. What other theoretical concepts, if any, would you use to explain and analyze the motivation problems at ProWare? 3. Consider which measures would be useful to improve motivation in the software teams and, in particular, to increase the willingness to perform of the lower team members 4. Further elaborate on at least two of the measures. How would you design them and what should be considered? Which theoretical concepts of motivation theory can be used for this? 5. Finally, how can you evaluate or record whether employee motivation in your company has increased significantly after the implementation of the designed measures?

(2014), for example, divides research-based teaching into three types: In *research-based teaching*, learning is based on research, with students being introduced to the current state of research as well as the fundamental problems and initial questions of this research. *Research-oriented teaching* prepares students for independent research. Students should learn how to design the research process, with particular emphasis on the choice and implementation of research methods. Finally, *research-based learning* means that students conduct active and independent research, going through the complete research process. Therefore, "small formats" of research-based and -oriented teaching aim to practice the research-oriented view on certain questions and convey certain elements of research-oriented work. This could, for example, include smaller research tasks on subject-specific questions, the preparation of a review on the state of research on a certain topic, or the conception of a research design on a certain question. As a "large format" of research-based learning in W/O-Psychology, on the other hand, it is advisable to design and conduct research-oriented project seminars.

For this purpose, a project seminar for teaching W/O-Psychology was developed and evaluated (Schaper & Decius, 2023), which aimed at the research-based examination of practice-related topics or questions in W/O-Psychology. Based on project assignments given to project groups (approximately four to five students), the assignments usually refer to current topics or research questions (see Table 5 for an exemplary assignment), which has to be worked out by the project group both in terms of the current state of research and in terms of an own empirically based exploration (e.g., by interviews or surveys). First, the current state of research, including the underlying theoretical concepts or models and the state of development in practice, is researched and systematically evaluated. On this basis, the project groups derive their own research questions and research design. In the second project phase, the research designs are further elaborated and discussed with the instructor. In the next step, interviews and surveys are conducted with subjects relevant to the topics. Finally, the collected data have to be evaluated with the help of quantitative or qualitative methods (e.g., content analysis) and interpreted against the background of the state of research. Furthermore, practical implications and limitations of the own research approach as well as further research needs had to be worked out. In order to exchange and discuss these results with the other seminar participants, all project groups will present their results of the empirical phase.

The results of surveys of the participants at the end of the course (Schaper & Decius, 2023) showed that the students very much appreciate the instructional format of research-based learning because they have the opportunity to try out

Table 5 Exemplary project assignment for the project seminar on research-based learning in W/O-Psychology

Assignment sheet: *Relationship between work and family under conditions of the pandemic*
Project assignment: The Corona pandemic also led to the problem that many working parents have been confronted with considerable additional demands, i.e., work demands on the one hand and educational and care demands in relation to their children on the other. This is not only a matter of effective time management but also of dealing with transfer effects from one domain to the other (the so-called spillover effects) as well as boundary management in order to be able to live the two domains of life satisfactorily and to distinguish them appropriately from each other. This raises the question of how working parents have dealt with these particular demands, especially in different phases of lockdown, and how they have managed the conflicts that have arisen in this context
Learning objectives and project steps: • Review and systematically prepare literature on the topic of "work and family conflicts" with a focus on disruptive changes in the working world • (Internet) research of cases and examples in dealing with work-family challenges during the pandemic crisis • Prepare a presentation to present and discuss the state-of-the-art research on balancing work and family concerns and illustrative practical examples; also, derive research question for your own study • Plan and conduct structured interviews with working parents to identify, analyze, and discuss successful and problematic examples of balancing work and family concerns • Develop a concept or recommendations for balancing work and family concerns under pandemic conditions

scientific work and research with an authentic research topic and thus gain their own experience. The intensive supervision of the research work with corresponding support material was also judged positively because these are perceived as helpful for structuring and orienting the learning and research process.

Besides the described approach, "inquiry-based learning" or "experiential learning" are further approaches to reinforce scientific and critical analytic thinking that are needed to develop the scientific competences of future W/O-psychologists. Inquiry-based learning (IBL) is an educational approach that facilitates learning by engaging students in complex, authentic questions or problems (▶ Chap. 51, "Inquiry-Based Learning in Psychology"). In IBL, students typically apply methods and practices comparable to those of scientists, including the formulation of research questions and hypotheses and the testing of hypotheses through observation or empirical tests and experimenting. This process guides learners toward actively constructing new knowledge by discovering new insights in a domain. However, the results of meta-analyses (Furtak, Seidel, Iverson, & Briggs, 2012; Lazonder & Harmsen, 2016) show that it is essential to employ some level of guidance within IBL settings to help learners accomplish subtasks and overarching goals and to learn from the IBL activities effectively. Additionally, Gilardi and Lozza (2009) could show that an inquiry-based learning course in organizational psychology can successfully support professional identity development through reflective practice. Furthermore, "experiential learning" is another approach in higher education in which students gain knowledge through the application of theory (Clark, Threeton, & Ewing, 2010). Typically, students gain this experience in nonacademic settings, such as workplaces or a company, and the learning experience may be combined with research and the task of assisting a company. These approaches commonly make reference to Kolb's experiential learning theory, which is defined as "the process whereby knowledge is created through the transformation of experience" (Kolb, 1984). Luthanen, Sibert, Morris, Ohmer, and Lowden (2012) applied this approach as a field study that was conducted as an experiential learning research project. The goal of the project was to create an effective employee selection process (e.g., development of a situational judgment test) for this company. The authors resume that the project was a valuable experiential-learning opportunity for students and company members, which illustrates the importance of integrating the learning and research cycles in a manner that supports students and assists the company partner in meeting their needs.

Approach of the Pedagogical Double Decker in W/O-Psychology

Furthermore, Lisa Kath and colleagues (2021) have developed an interesting approach to instructional innovation and improvement of teaching in W/O-Psychology, which caused a lot of resonance and commentaries of other scholars (cf., e.g., Rogelberg, Summerville, & Ruggs, 2020). Their recommendations are to be understood in the sense of a "pedagogical double decker." That means that a course instructor not only teaches certain concepts but also uses the concept to

design the learning process (e.g., moderation techniques that are not only presented and demonstrated by the instructor but also used to moderate the discussion in the course); in other words, the instructor puts into practice in the course what he parallelly teaches theoretically or what he is "preaching." Kath and colleagues start from the assumption that W/O-Psychology has developed findings and methods that can be used effectively to improve teaching in one's own discipline. In this context, they develop recommendations for changing one's own teaching, which require different degrees of change or adaptation of existing teaching concepts. In doing so, they distinguish between recommendations that lead to small, medium, or large changes in the teaching concept. Their recommendations are based on evidence-based concepts from research in W/O-Psychology on the topics of "training and development," "diversity and inclusion," "groups and teams," and "leadership." Table 6 shows excerpts of the authors' recommendations for two areas.

In the approach of Kath et al. (2021), the idea of the "pedagogical double decker," which is otherwise primarily practiced in educational science courses, seems to be particularly worth emphasizing. By applying concepts of W/O-Psychology when parallelly teaching them, students receive a living example of how an exemplary application of, e.g., team or leadership development concepts can look. By experiencing and being involved in the implementation of these concepts, students

Table 6 Exemplary needs-assessment questions and recommended changes for the areas of "training and development" and "leadership"

Needs asssessment questions	Small changes	Medium changes	Large changes
Training/ development: Will your students retain what they learned well beyond the end of your course? Have you considered your teaching through the lens of any model of training design?	Encourage students to set goals focused on their own learning and behavior (rather than on their performance relative to other students)	Explain how course content might be useful to students in the near future	Ensure that students have repeated opportunities to practice in some fashion, receive feedback, and demonstrate that they paid attention to the feedback and improved
Transformational lead-ership: Are you modeling the type of leader you hope they will become? Are you able to create dynamic relationships that allow students to exceed typical expecta-tions, thereby trans-forming themselves?	Establish a shared vision for a course by explaining the "why" behind everything that goes into the course	Give more individual-ized feedback to stu-dents on their assign-ments, which can be done efficiently using well-designed rubrics	Assign team projects that allow the students to build efficacy and learn from each other

will gain and experience a more profound understanding, which can be used for reflection and professional development.

Lucas and Goodman (2015) reported a case study of project-based learning within an organizational psychology course that was designed to advance college students' knowledge on the intersection of leadership and well-being with reference to concepts of positive psychology. This was realized in the sense of a pedagogical double decker as the mentioned concept of leadership and well-being were not only used as central learning contents but also as significant concepts to provide guidance and support for the students. A major emphasis on this course was transforming the classroom into a laboratory where students applied relevant course concepts and interventions with client organizations. Evaluations of the course showed that the students were able to raise their self-assessment, stress management, and problem-solution abilities, as well as their resilience, self-efficacy, and social support.

Challenges and Lessons Learned

It has already been pointed out several times above that the training of W/O-psychologists requires a competence-oriented approach. This requirement is reflected both in a large number of framework recommendations of national professional societies and in the qualification framework models of higher education, especially in European countries. Study regulations and module descriptions of psychological study programs have concretized and implemented this recommendation in the form of corresponding learning outcomes. However, systematic implementation of competence-oriented didactics in teaching and the corresponding examination formats often does not yet take place in the elaborate and consistent manner that would be desirable. The lectures in W/O-Psychology are often still very theory based, the application tasks are not sufficiently related to the intended learning outcomes, and the examination formats and tasks also do not have a sufficient and systematic relationship to the learning outcomes, though there exist already effective concepts and tools to realize the desired level of competence orientation in W/O-Psychology (see section "Teaching, Learning, and Assessment Resources").

Another challenge is the appropriate and didactically meaningful use of digital media in higher education teaching. As already described above, on the one hand, they can be used very helpfully to present application examples and contexts in a more vivid, concrete, and lively way, which is of considerable benefit for application-oriented teaching. However, digital media should also be increasingly used in teaching W/O-Psychology to promote an active engagement with content and develop profession-oriented skills of analysis, evaluation, conceptual planning, and problem solving. All too often, teachers of W/O-Psychology still have to make their own efforts to create appropriate application scenarios for case- and problem-oriented learning instead of being able to use already proven and didactically sound collections of case studies or application scenarios.

Further challenges in the training of professionally oriented graduates in W/O-Psychology arise from the dynamic change in the world of work and the associated

development trends. This refers not only to the rapidly advancing digitization of work and business processes. Also, the increasing spread of work contracts in the platform economy and the associated working conditions, the expansion of in-house socio-technical systems to organizational ecosystems which are also networked with external partners and actors (e.g., in healthcare systems), and the changing role of human actors in such systems, the change in organizational processes and structures toward agile systems and the associated demands on those involved, as well as the design of learning and development-oriented work environments in the context of "new work" approaches are just some of the trends that are leading to significant changes in working conditions and requirements. These trends are also challenging future workers as co-designers of work processes and structures as well as human resource management and development. On the one hand, these trends and the resulting changes in the world of work must be taken up in the training of W/O-psychologists and considered in the form of appropriate theoretical and analytical concepts. On the other hand, it is also important to prepare students for dealing with this changing world of work in terms of adapted professional competences (e.g., in terms of skills for dealing with digital media or skills for developing virtual teams).

Last but not least, further developments in theoretical and empirical-methodological approaches in W/O-psychological research must also be continuously integrated and taken into account in training so that not only future researchers but also practitioners benefit from these approaches for their professional actions. This involves, for example, more complex causal-analytic research approaches such as multilevel analyses or the increasingly extended survey and evaluation approaches for longitudinal analyses (e.g., in the form of event sampling methods in data collection or growth curve models in statistical evaluation). Thus, the integration of such approaches into research-oriented education requires didactic approaches to how these complex empirical research approaches can be taught in the context of application-oriented instruction.

Teaching, Learning, and Assessment Resources

The central basis and starting point for planning courses in W/O-Psychology should be well-formulated learning objectives or learning outcomes (Schaper, 2012). After an initial determination of the learning and knowledge content to be covered in a course, therefore, the next step is to determine which learning objectives are to be achieved and which competences are to be developed. In this context, the formulation of learning outcomes helps to determine and document the intended development goals as precisely as possible. For the derivation and formulation of learning goals or learning outcomes, it is advisable to use proven learning goal taxonomies (e.g., the taxonomy of Anderson et al., 2001, which provides categories for systematizing and deriving cognitive learning goals resp. outcomes). Learning goal taxonomies are important tools not only for the formulation of learning objectives but also for the analysis of requirements in learning and examination tasks and its comparison with the requirements formulated in the learning objectives (with reference to the constructive alignment principle). In view of the fact that the courses should

contribute to the acquisition of competences by W/O-psychologists that are as professionally oriented as possible, learning outcomes for application-oriented learning as well as for the development of a research-oriented attitude in dealing with questions and problems of the organizational reality (in the sense of the scientist-practitioner model) must be taken into account.

The planning of courses in W/O-Psychology should, of course, also take into account the range of content required to prepare future W/O-psychologists (see the content catalogs of the professional societies in sections "Objectives and Structure of Curricula in W/O-Psychology" and "Core Contents and Topics of W/O-Psychology"). However, the learning content should be integrated into the curriculum in the context of a competence-oriented teaching strategy so that it can also be taught in a profession-oriented manner. Since a selection of learning content is necessary due to the large number of areas of application in W/O-Psychology, the professional societies recommend that reference should be made to the central fields of application of W/O-psychologists when selecting learning content.

Even when teaching the basics, teaching in W/O-Psychology should be oriented toward application *and* research. This can be achieved, for example, by integrating the so-called "small formats" of case-oriented learning, as already described above. In advanced study phases, the "large formats" of application- and research-oriented teaching should also be integrated into the curriculum. This is necessary with reference to the goals of a profession-oriented education in W/O-Psychology and to ensure that not only employment-relevant knowledge but also the respective skill elements are taught.

However, these more instructional approaches should be complemented by the integration of internship phases into the curriculum (cf. Shoenfelt, Kottke, & Stone, 2012). In the conception and implementation of such internship phases, it is crucial on the one hand that suitable internship offerings meet certain criteria (e.g., concerning the type and quality of support by the host organization). On the other hand, the internships should also be intensively supervised by the university. This includes support before the start of the internship (e.g., concerning the choice of an adequate internship or concerning the goals of the internship), but also during (e.g., concerning the support for practice projects) and after the internship (e.g., concerning the reflection of the internship experiences and the competence development). Appropriate supervision ensures that the experiences gained during the internship are also evaluated and used for professional competence development as well as the theory-practice interlocking. Other formats in which the inclusion of practice in teaching is in the foreground (e.g., inviting practitioners, projects with practice partners) should also be continuously included in the teaching of W/O-Psychology. This not only promotes the theory-practice linkage but also motivates students to develop their profession-oriented competences and attitudes.

Finally, when designing and implementing examination formats, care must be taken to ensure that the examination requirements are designed in accordance with the "constructive alignment" approach. At its core, constructive alignment is about matching (1) learning goals/learning outcomes with (2) instructional content and methods, as well as (3) examination forms and requirements when planning a course

(Biggs & Tang, 2011). This not only ensures the fit of the three central didactic resp. instructional elements of a course, but also ensures transparency about learning and examination requirements. Especially the examination tasks should appropriately reflect the learning outcomes and requirements of the learning tasks and activities in the courses. Constructive alignment thus prevents superficial learning and skill acquisition and calls for in-depth learning and targeted skill acquisition. Even in basic courses, exams should not only consist of knowledge questions but also require comprehension and application tasks as well as analysis and evaluation skills. Finally, to test learning performance in large formats of problem- or research-based learning, assessment forms other than written and oral exams should be considered to test the acquisition of competences adequately. If necessary, one should seek advice on this from instructional experts.

Following Kath, Salter, Bachiochi, Brown, and Hebl (2021), it can also be recommended not to always start with major changes in instructional redesign. Especially if one is inexperienced with instructional design and delivery, it is more appropriate to start with small changes in order to gain experience with implementing such changes. By this, novice or inexperienced teachers can learn how to prepare the changes, determine what should be considered during the implementation, and how to adequately evaluate the experiences made, etc. It can also be advisable to choose a subject area in which you feel confident and which you can use for instructional design in the sense of the pedagogical double decker.

Last but not least, it should be pointed out that it is highly recommended not to implement the instructional changes alone, but to coordinate the own projects with other lecturers, exchange experiences, and tackle joint projects of changing and innovating teaching. In this way, one better integrates one's strategy into the entire curricula of a study program. In addition, one protects oneself from mistakes and dead ends and benefits from the knowledge and experiences of others.

Further Reading

SIOP Web Site: The web pages of the US Society for W/O-Psychology (SIOP) offer a wealth of information about the research and practice fields of this psychological discipline. Furthermore, there is also a wide range of information about the pathways to undergraduate and graduate study and the professional establishment as a W/O-psychologist. As a professional society, SIOP also deals with the description and adoption of guidelines for the training of W/O-psychologists. In particular, the SIOP web pages include the Guidelines of Education and Training, described already in sections "Objectives and Structure of Curricula in W/O-Psychology" and "Core Contents and Topics of W/O-Psychology."

Textbooks of W/O-Psychology: In order to get an idea of the contents and subject areas of W/O-Psychology and get suggestions for the teaching of W/O-Psychology, reference can be made to various textbooks of the discipline. Paul Spector, as well as Jeffrey Conte and Frank Landy, have each written very well-founded and constantly updated textbooks that provide a good overview of the state of research and the body

of knowledge in W/O-Psychology. The textbooks by Michael Aamondt (2015) and Donald Riggio (2017), as well as the textbook on Organizational Behavior by Stephen Robbins and Timothy Judge (2019), are also recommended. They are not only written in a very catchy and comprehensible way but also contain a number of additional instructional elements (e.g., case studies, experiential exercises, ethical dilemma, controversial topics (point and counterpoint), review questions) that lead to an active engagement with the topics and provide creative ideas for teaching the content.

Hays-Thomas, R. (2006): *Challenging the Scientist-Practitioner Model: Questions About I-O Education and Training.* The author has done extensive research on the scientist-practitioner model and its transferability, as well as the status of its implementation in W/O-Psychology. In the mentioned article, she describes the limitations of this approach and contrasts the scientist-practitioner model with two other approaches (scholar-practitioner and local clinical scientist approach), which, in her view, more appropriately reflect and address the training requirements for scientist-practitioner training in W/O-Psychology. Against this background, she discusses various questions for the further development of training in W/O-Psychology in the sense of more effectively linking research and practice (e.g., with regard to the supervision of students in practice fields).

Shoenfelt, E. L. (2012): *Master's and undergraduate I/O internships: Databased recommendations for successful experiences.* This paper discusses the role of internships for training in W/O-Psychology and describes the design aspects that need to be met in order to achieve the training goals associated with internships. The paper is not only characterized by clear recommendations for action regarding the design of the framework conditions for internships in W/O-Psychology at the graduate level. In addition, empirical data from surveys of internship providers and interns are also presented regarding the extent to which the recommended design aspects are actually implemented in practice.

Rynes-Weller, S. L. (2012): *The Research-Practice Gap in I/O Psychology and Related Fields: Challenges and Potential Solutions.* The author examines the different types and causes of the research-practice gap systematically. She distinguishes the following gaps: awareness gaps (unawareness of research or practice findings), belief gaps (attitudes/convictions regarding research or practice concepts), and implementation gaps (lack of implementation of already well-established research or practice concepts). On this basis, she also develops conclusive suggestions for overcoming the gaps. The gaps are not only relevant for the professional practice of W/O-psychologists, but they also should be addressed as a significant topic in W/O-Psychology training. Among other things, this can significantly shape the professional self-image as a scientist-practitioner.

Cross-References

▶ Formative Assessment and Feedback Strategies
▶ Inquiry-Based Learning in Psychology
▶ Problem-Based Learning and Case-Based Learning

► Service Learning
► Teaching Engineering Psychology
► Technology-Enhanced Psychology Learning and Teaching

References

Aamondt, M. G. (2015). *Industrial/organizational psychology: An applied approach*, 8th ed. New York: McGraw Hill Education.

Anderson, L. W., Krathwohl, D. R., et al. (Eds.). (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Boston: Allyn & Bacon, Pearson Education Group.

Baker, D. B., & Benjamin, L. T., Jr. (2000). The affirmation of the scientist-practitioner: A look back at Boulder. *American Psychologist, 55*(2), 241–247. https://doi.org/10.1037/0003-066X.55.2.241

Bartels, L. K., Macan, T., Gutting, B., Lemming, M. R., & McCrea, R. M. (2005). Teaching the practitioner side of the scientist-practitioner model. *Industrial-Organizational Psychologist*. https://doi.org/10.1037/e579182011-007

Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university: What the student does* (4th ed.). Maidenhead: Open University Press.

Blickle, G. (2019). Methoden. In F. Nerdinger, G. Blickle, & N. Schaper (Eds.), *Arbeits- und Organisationspsychologie* (Lehrbuch) (pp. 29–44). Berlin: Springer.

Brame, C. (2016). *Active learning*. Vanderbilt University Center for Teaching. Retrieved [today's date] from https://cft.vanderbilt.edu/active-learning/

Campbell, W. J. (2002). Consideration of Consulting Psychology/Organizational Educational principles as they relate to the practice of Industrial–Organizational Psychology and the Society for Industrial and Organizational Psychology's education and training guidelines. *Consulting Psychology Journal: Practice and Research, 54*(4), 261–274.

Carless, S., & Taylor, P. (2006). Industrial and organisational psychology training in Australia and New Zealand. *Australian Psychologist, 41*(2), 120–129.

Carloye, L. (2017). Case study: Mini-case studies: Small infusions of active learning for large-lecture courses. *Journal of College Science Teaching, 46*(6), 63–67.

Clark, R. W., Threeton, M. D., & Ewing, J. C. (2010). The potential of experiential learning models and practices in career and technical education and career and technical teacher education. *Journal of Career and Technical Education, 25*(2), 46–62.

Conte, J. M., & Landy, F. J. (2019). *Work in the 21st century* (6th ed.). Hoboken: Wiley.

DeNeve, K. M., & Heppner, M. J. (1997). Role play simulations: The assessment of an active learning technique and comparisons with traditional lectures. *Innovative Higher Education, 21*(3), 231–246.

Ellwart, T., Hertel, G., Lang, J., Trimpop, R., & Ohly, S. (2015). Perspektiven für die AOW-Psychologie in Bachelor- und Masterstudiengängen. Verfügbar unter: http://www.fv-pasig.de/fileadmin/user_upload/Download_Texte/Perspektiven_AOW-Psychologie.pdf

ENOP-EAWOP. (1998). European curriculum reference model with minimum standards for W&O-Psychology: Basic and advanced. Verfügbar unter: http://www.eawop.org/uploads/datas/8/original/Enop%20-%20Eawop%20Reference%20model%202007.pdf

Farashahi, M., & Tajeddin, M. (2018). Effectiveness of teaching methods in business education: A comparison study on the learning outcomes of lectures, case studies and simulations. *International Journal of Management Education, 16*(1), 131–142. https://doi.org/10.1016/j.ijme.2018.01.003

Furtak, E. M., Seidel, T., Iverson, H., & Briggs, D. C. (2012). Experimental and quasi-experimental studies of inquiry-based science teaching: A meta-analysis. *Review of Educational Research, 82*(3), 300–329. https://doi.org/10.3102/0034654312457206

Gasteiger, R. (2007). *Selbstverantwortliches Laufbahnmanagement*. Das proteische Erfolgskonzept. Göttingen: Hogrefe.
Gilardi, S., & Lozza, E. (2009). Inquiry-based learning and undergraduates' professional identity development: Assessment of a field research-based course. *Innovative Higher Education, 34*(4), 245–256. https://doi.org/10.1007/s10755-009-9109-0
Griffin, R. W., Phillips, J. M., & Gully, S. M. (2019). *Organizational behavior: Managing people and organizations* (13th ed.). New York: McGraw Hill Education.
Hacker, W. (2015). *Psychische Regulation von Arbeitstätigkeiten*. Kröning: Asanger.
Han, I., Eomb, M. S., & Sug Shin, W. (2013). Multimedia case-based learning to enhance pre-service teachers' knowledge integration for teaching with technologies. *Teaching and Teacher Education, 34*, 122–129.
Hays-Thomas, R. (2002). Perspectives on the teaching of applied psychology. In D. C. Solly & R. Hays-Thomas (Eds.), *Mastering the future: Proceedings of the third national conference on master's psychology.* Pensacola/Richmond: CAMPP.
Hays-Thomas, R. (2006). Challenging the scientist – Practitioner model: Questions about I-O education and training. *Industrial-Organizational Psychologist, 44*(1), 47–53.
He, W. (2015). Developing problem-solving skills with case study in a conceptual management course. *Journal of Business Case Studies, 11*(2), 57–70.
Hebl, M. R., & Avery, D. R. (2013). Diversity in organizations. In N. W. Schmitt, S. Highhouse, & I. B. Weiner (Eds.), *Handbook of psychology: Industrial and organizational psychology* (pp. 677–697). Hoboken: Wiley.
Huber, L. (2014). Forschungsbasiertes, Forschungsorientiertes, Forschendes Lernen: Alles dasselbe? Ein Plädoyer für eine Verständigung über Begriffe und Unterscheidungen im Feld forschungsnahen Lehrens und Lernens. *Das Hochschulwesen, 62*(1–2), 32–39.
Kalargyrou, V., & Costen, W. (2017). Diversity management research in hospitality and tourism: Past, present and future. *International Journal of Contemporary Hospitality Management, 29*(1), 68–114. https://doi.org/10.1108/IJCHM-09-2015-0470
Kath, L., Salter, N., Bachiochi, P., Brown, K., & Hebl, M. (2021). Teaching I-O psychology to undergraduate students: Do we practice what we preach? *Industrial and Organizational Psychology, 13*(4), 443–460. https://doi.org/10.1017/iop.2020.47
Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Upper Saddle River: Prentice-Hall.
Lazonder, A. W., & Harmsen, R. (2016). Meta-analysis of inquiry-based learning: Effects of guidance. *Review of Educational Research, 86*(3), 681–718. https://doi.org/10.3102/0034654315627366
Lee, V. (2012). What is inquiry-guided learning? *New Directions for Teaching and Learning, 12*, 5–14.
Lucas, N., & Goodman, F. R. (2015). Well-being, leadership, and positive organizational scholarship: A case study of project-based learning in higher education. *Journal of Leadership Education*, 138–152. https://doi.org/10.12806/V14/I4/T2
Luthanen, A., Sibert, H., Morris, H., Ohmer, W., & Lowden, R. (2012). Experiential learning in industrial/organizational psychology: A case study. *Journal of the Indiana Academy of the Social Sciences, 15*(1), 95–110.
Mayo, E. (1945). *The social problems of an industrial civilization*. Cambridge, MA: Harvard University Press.
Münsterberg, H. (1912). *Psychologie und das Wirtschaftsleben. Ein Beitrag zur angewandten Experimental-Psychologie*. Leipzig: Barth.
Nerdinger, F., Blickle, G., & Schaper, N. (2019). *Arbeits- und Organisationspsychologie* (Lehrbuch). Berlin: Springer.
Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education, 93*, 223–231.
Riggio, R. (2017). *Introduction to industrial and organizational psychology* (7th ed.). New York: Taylor & Francis.

Robbins, S. P., & Judge, T. A. (2019). *Organizational behavior*, 18th ed. London: Pearson.
Roethlisberger, F. J., & Dickson, W. J. (1939). *Management and the worker*. Cambridge, MA: Harvard University Press.
Rogelberg, S. L., Summerville, K., & Ruggs, E. N. (2020). I-O psychology for everyone: Use of culturally responsive teaching to increase diversity and inclusion in undergraduate classrooms. *Industrial and Organizational Psychology, 2020*(13), 509–514. https://doi.org/10.1017/iop.2020.78
Rupp, D. E., & Beal, D. (2007). Checking in with the scientist–practitioner model: How are we doing? *Industrial-Organizational Psychologist, 54*(1), 35–40.
Rynes-Weller, S. L. (2012). The research-practice gap in I/O psychology and related fields: Challenges and potential solutions. In S. Kozlowski (Ed.), *The Oxford handbook of organizational psychology: Psychology, organizational psychology, psychological methods and measurement* (Vol. 1). Oxford, UK: Oxford University Press.
Schaper, N. (2012). *Fachgutachten zur Kompetenzorientierung in Studium und Lehre*. Bonn: Hochschulrektorenkonferenz, Projekt "nexus". Verfügbar unter: https://www.hrk-nexus.de/fileadmin/redaktion/hrk-nexus/07-Downloads/07-02-Publikationen/fachgutachten_kompetenzorientierung.pdf
Schaper, N. (2019). Selbstverständnis, Gegenstände und Aufgaben der Arbeits- und Organisationspsychologie. In F. Nerdinger, G. Blickle, & N. Schaper (Eds.), *Arbeits-und Organisationspsychologie* (4th ed., pp. 3–18). Heidelberg: Springer.
Schaper, N., & Decius, J. (2023). Ein Ansatz zum forschenden Lernen zur Förderung von Forschungskompetenzen in der Arbeits- und Organisationspsychologie. In. B. Behrendt, A. Fleischmann, N. Schaper, B. Sczcyrba & M. Wiemer (Hrsg.), *Neues Handbuch Hochschullehre*, Band 112. Berlin: DUZ.
Schaper, N., Soyka, C., & Depenbusch, S. (2023). Fallbasiertes Lernen zur Vermittlung des Anwendungsbezugs arbeits- und organisationspsychologischer Konzepte. In. B. Behrendt, A. Fleischmann, N. Schaper, B. Sczcyrba & M. Wiemer (Hrsg.), *Neues Handbuch Hochschullehre*, Band 111. Berlin: DUZ.
Schuler, H. (2006). Gegenstandsbereich und Aufgaben der Personalpsychologie. In H. Schuler (Ed.), *Lehrbuch der Personalpsychologie* (pp. 4–13). Göttingen: Hogrefe.
Schuler, H., & Sonntag, K. (2008). *Handbuch Arbeits- und Organisationspsychologie*. Göttingen: Hogrefe.
Shoenfelt, E. L., Kottke, J. L., & Stone, N. J. (2012). Master's and undergraduate I/O internships: Databased recommendations for successful experiences. *Teaching of Psychology, 39*(2), 100–106. https://doi.org/10.1177/0098628312437724
SIOP, Society for Industrial and Organizational Psychology. (2016/2017). Guidelines for education and training in industrial-organizational psychology. Verfügbar unter: https://www.apa.org/about/policy/industrial-organizational-guidelines.pdf
SIOP, Society for Industrial and Organizational Psychology. (2019). 2019 Income-and-Employment_Report. Verfügbar unter: https://www.siop.org/Research-Publications/Items-of-Interest/ArtMID/19366/ArticleID/4592
Sonntag, K., Frieling, E., & Stegmaier, R. (2012). *Lehrbuch Arbeitspsychologie*. Bern: Huber.
Spector, P. E. (2019). *Industrial and organizational psychology: Research and practice* (6th ed.). London: Macmillan.
Süßmaier, A., & Rowold, J. (Eds.). (2007). *Kosten-Nutzen-Analysen und human resources (HR)*. Weinheim: Beltz.
van Merriënboer, J. J. G., & Kirschner, P. A. (2013). *Ten steps to complex learning: A systematic approach to four-component instructional design* (2nd ed.). New York/London: Routledge.
Vodanovich, S. J., & Piotrowski, C. (1999). An Internet-based approach to legal issues in industrial-organizational psychology. *Journal of Educational Technology Systems, 28*(1), 67–73. https://doi.org/10.2190/a2ug-jb0j-6h98-lw31

Volpert, W. (1974). *Handlungsstrukturanalyse als Beitrag zur Qualifikationsforschung*. Köln: Pahl-Rugenstein.

Zedeck, S. (Ed.). (2011). *APA handbook of industrial and organizational psychology, vol. 2. Selecting and developing members for the organization*. Washington, DC: American Psychological Association. https://doi.org/10.1037/12170-000

Zelin, A. I., et al. (2015). Identifying the competencies, critical experiences, and career paths of I-O psychologists: Consulting. *Industrial-Organizational Psychologist, 52*(4), 122–130.

Zumbach, J., & Spraul, P. (2007). The role of expert and novie tutors in computer-mediated and face-to-face problem based learning. *Research and Practice in Technology Enhanced Learning, 2*(2), 161–187.

Teaching Engineering Psychology

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Sebastian Pannasch, Martin Baumann, Lewis L. Chuang, and Juergen Sauer

Contents

S. Pannasch (✉)
Faculty of Psychology, Technische Universität Dresden, Dresden, Germany
e-mail: sebastian.pannasch@tu-dresden.de

M. Baumann
Department of Human Factors, Ulm University, Ulm, Germany

L. L. Chuang
Institute for Informatics, Ludwig-Maximilians-Universität München, München, Germany

IfADo – Leibniz Research Centre for Working Environment and Human Factors, Dortmund, Germany

J. Sauer
Department of Psychology, University of Fribourg, Fribourg, Switzerland

J. Zumbach et al. (eds.), *International Handbook of Psychology Learning and Teaching*,
Springer International Handbooks of Education,
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Abstract

Engineering psychology addresses our interactions with systems – from personal wearable devices to urban environments – that are designed to serve specific purposes. Research and teaching in engineering psychology is highly interdisciplinary. It is increasingly relevant given the growing complexity of technical systems and their prevalence in safety-critical domains. This chapter outlines the specific characteristics of engineering psychology and provides an overview of the relevant teaching issues. We propose a curriculum of key topics and discuss several factors that influence the nature of teaching, such as learning goals, format of teaching (e.g., lecture, seminar), and target audience (e.g., students of psychology, engineering, or computer science). Three examples illustrate how topics of engineering psychology could be taught in different formats. We also propose how to deal with several challenges in this field (e.g., teaching students with diverse academic backgrounds and career goals). Finally, several textbooks are recommended for teaching engineering psychology.

Keywords

Engineering psychology · Interface design · Human-machine interaction · Human factors · Cognitive ergonomics

Introduction: The Realm of Engineering Psychology

Professional aspects of engineering psychology relate to the application of psychological knowledge to designing tasks, human-operated equipment, and human-machine systems, typically in collaboration with engineers (Fitts, 1958). Thus, the scientific aspects of engineering psychology address the mental representations that humans hold of designed systems. These representations govern how we use systems and are defined by contributions from the biological and social sciences. In the real world, problems can arise when our representations do not correspond with how systems truly work. This can cause bad user experience or, worse, fatal accidents. There are many contemporary examples whereby engineering psychology could (or should) have contributed to system design. The following three examples demonstrate such contributions at different levels: major accidents at the macro-level, automation in everyday life at the meso-level, and design principles at the micro-level.

Macro-Level: Chernobyl

April 26, 1986, witnessed one of the worst accidents in commercial nuclear power generation. Two explosions at the Chernobyl-4 reactor blew off the 1000-tonne concrete cap sealing, releasing molten core fragments into the immediate vicinity

and fission products into the atmosphere. Analyses of such accidents and failures are especially relevant to engineering psychology because they identify problems often obscured in complex systems, yet explainable by psychology. The Chernobyl disaster represents a case study where failures can be found across different levels in a hierarchy (Reason, 1990). First, there was a fallible management structure that was monolithic, remote, and slow to respond; for whom, safety ranked low in priority. Engineering psychology strives to understand such complex systems, which comprise interacting technical and human components, to identify potential problems and to involve the relevant stakeholders for implementing improvements. Second, the Chernobyl reactor was hazardous, complex, tightly coupled, opaque, and operated outside normal conditions. Third, there were operators with only a highly circumscribed and narrow understanding of the part of the system under their control. Engineering psychology should be involved in the design of such systems but also contribute to the definition of requirements with respect to the operators and their training.

Being involved in the design of such systems represents one of the main responsibilities of engineering psychologists in order to facilitate the control of complex but also simple systems.

Meso-Level: Automation in Everyday Life

Our everyday environment contains numerous automated systems. For instance, incoming phone calls usually provide, unprompted, the name and even a picture of the person calling. This simple automation helps us identify the caller readily without need to decipher the incoming phone number and to associate it with the caller's identity. In a different example, houses are typically equipped with thermostats or air conditioning that automatically controls the room temperature. Once the desired temperature is set, no further human monitoring or adjustment of the room temperature is required. The washing machine represents another example for everyday automation. The procedural labor required for various types of laundering is subsumed into the selection of the appropriate program and a press of the button. All of these automated systems facilitate processes in everyday life and allow humans increased capacity to divert toward other activities. However, problems (and even fatalities) can occur when humans misjudge the responsibilities of automation, for instance, when users of semi-automated vehicles stop looking at the road even when they are required to do so. This can result in the misuse, disuse, or abuse of automation (Parasuraman & Riley, 1997). Thus, engineering psychology plays an important role in designing automated systems according to our concepts and mental representations of how these processes might work. This challenging task requires particular efforts to design processes and interfaces in the way that users can operate and control such systems without difficulties. The importance should be obvious for everyone who struggled with particular mobile phone apps, who has been faced with confusing remote controls, or who has tried to find the appropriate option in a poorly designed technical system. To summarize, the real challenge for engineering

psychology lies in understanding technical systems and ensuring their compatibility to human cognition, conceptions, and expectations.

Micro-Level: Fitts' Law

Engineering approaches can serve to formalize psychological concepts. This allows for the parameterization of psychological concepts, which facilitates the systematic investigation of the fundamental properties of complex behavior, providing a common basis for designing systems that are sensitive to human capabilities. Describing the information capacity of human movement, Fitts' law is one of the most prominent examples of parameterizing a psychological concept (Fitts, 1966). By utilizing information theory, Paul Fitts was able to define human movements in terms of information requirements for changing one's motor actions. Difficult tasks that place high information requirements are those that involve highly precise movements, while simple ones are those that are less precise (i.e., it is easier to press a large button accurately than a small one because the former requires less precision). Besides size, limb movements are also more precise when they travel shorter distances compared to longer distances. With this in mind, the design parameters of size and distance can be readily employed to define the accessibility of elements in a human-machine interface. A familiar example is the placement of the minimize/maximize button of windows in most computer operating systems. Since the cursor cannot go any further than the corner of the screen, these buttons are infinitely large and easy to select, in spite of their small size and their large distance to the screen center.

Background and Interdisciplinary Character of Engineering Psychology

Three objectives characterize engineering psychology. First, it seeks to investigate how humans perceive, reason about, and interact with engineered systems – given their innate and acquired abilities to interact with the natural world in the first place. Unfortunately, engineered systems are not always compatible with our psychological concepts and expectations; non-psychological factors (e.g., production costs) can also influence how a system is designed. Second, engineering psychology aims to apply basic psychological methods and established theories of psychology to the design and optimization of systems. The goals are to promote user-centered systems that consider the user's psychological satisfaction as well as the implementation of effective support for the user-system interaction. While the former goal applies mainly to systems of everyday use, the latter addresses rather complex systems and workplace design. Third, engineering psychology research can identify how existing limitations of psychological processes and mechanisms (e.g., within-team communication, attention, memory, and reasoning) could benefit from an engineered solution (e.g., adaptive notifications, communication protocols).

Therefore, work in engineering psychology often aims to find answers to the following questions: (i) What are the problems that arise when humans interact with engineered systems? (ii) How can the cause of these problems be identified based on psychological theories, systematic investigations, and empirical research findings? (iii) How do behavioral phenomena observed in interaction with engineered systems contribute to confirming or extending psychological theories?

Given the interdisciplinary nature of engineering psychology, it is difficult to provide a precise definition of the field in relation to other disciplines – in fact, the authors of this chapter hold different views on these definitions, too. Following the distinction by Wickens, Hollands, Banbury, and Parasuraman (2016), engineering psychology can be understood as a subdiscipline of human factors. Together with other subdisciplines, such as physical ergonomics, engineering psychology endeavors to apply psychological and physiological principles to the design and engineering of products, processes, and systems. Thus, engineering psychology strives to provide a functional description of psychological concepts in a way that can inform the design of engineered (i.e., artificial) systems. It is distinct from human factors and work-related disciplines in that it does not necessarily seek to satisfy work domain requirements. In return, engineering psychology contributes to psychology by broadening the scope of existing theories, for instance, inspiring research on multiple attentional resources (Wickens, 1984). Work and organizational psychology is a close cousin to engineering psychology, given its interest in the relevance of psychological mechanisms to artificial systems (i.e., workspace design, management). Finally, engineering psychology is influenced by numerous disciplines outside of psychology that include, but are not limited to, economics, computer science, engineering science, and physiology.

Purposes and Rationale of the Curriculum in Engineering Psychology

For every individual teaching session, the instructor should decide on the weighted emphases across the following approaches: (i) definitions, theories, and models, (ii) empirical findings and practical applications, and (iii) methods relevant to this particular topic. When planning and preparing a teaching session, it can prove difficult to find the optimal balance between (i), (ii), and (iii). This decision is closely linked to the learning goals. Due to the characteristics of engineering psychology (see above), the field allows to focus on various learning goals in relation to the audience.

(i) *Definition, theories, and models*: This approach should focus on the understanding of abstract concepts. This means understanding the general concepts, research questions, and theoretical contributions related to the given topic. For instance, a session on usability would involve defining the term itself and discussing the different theoretical concepts that relate to it, across different use cases. Focusing on this learning goal would be most appropriate for

students at level 6 (e.g., bachelor's degrees) of the European Qualifications Framework (EQF, Bologna Working Group, 2005). Relying on theory means that students learn to appreciate how abstract (and more generalizable) knowledge can be applied to novel domains, ranging from the design of virtual websites to physical kitchen devices. On the one hand, this could also mean that students acquire less concrete and applicable knowledge (e.g., how to examine the usability of a specific kitchen device). On the other hand, this means that students are better prepared to solve problems in novel domains that are yet to be addressed by textbooks.

(ii) *Empirical findings and practical applications*: This approach should provide empirical findings and support for work practices. For instance, the instructor could explain how results in color perception research inform color palettes in website designs or traffic signs. It should demonstrate how evidence informs theory formation, which in turn allows for general application to practical questions. As a rule, teaching is clearer and enhances student motivation when concrete examples are provided that demonstrate how basic theoretical knowledge can be applied to answer issues in the design of everyday objects. Nonetheless, it might be difficult to select representative examples. For instance, discussing the details about the position of car backlights and the estimates of observer-car distance (Buchner, Brandt, Bell, & Weise, 2006) can be helpful to explain the mechanisms of perception in the context of everyday application. However, a detailed discussion of this topic might only touch briefly upon 3D perception and distance while neglecting other relevant topics such as 2D perception. As such, this approach could be particularly useful for students who already possess a background in psychology at level 6 as well as at level 7 of the EQF as it demonstrates the practical application of psychological knowledge.

(iii) *Methods*: This approach should provide insights into the planning and execution of empirical investigations to gather relevant data. In particular, students should understand the difficulties of generalizing from well-controlled studies in the laboratory to address applied research questions. It shall be noted that a survey among human factors/ergonomics professionals showed that basic design methods were ranked as highly relevant for their job (Rantanen & Moroney, 2011). Many tools are available, and this approach should provide information about these tools and how to use them. For instance, different measurement techniques for the same operational concept (see, e.g., for the concept of situational awareness, Endsley, Selcon, Hardiman, & Croft, 1998) should be explained. Understanding the relationship between the design and use of these tools requires a certain knowledge about the underlying concepts as well as some background information about previous work with these tools. We think that intensive teaching of methods would be particularly beneficial for advanced students in the field of engineering psychology, i.e., for teaching at level 7 (e.g., master's degrees) of the EQF. Furthermore, when thinking about the learning goals in relation to methods, one should consider that learning about methods should always imply the possibility of applying these methods.

Core Contents and Topics of Engineering Psychology

The following topics present what the authors consider as suitable and fundamental for teaching engineering psychology. Therefore, this list may not be exhaustive and, instead, represents a starting point. The topics suggested would be suitable for a single-semester course. An overview of the topics is presented in Table 1. These topics may be considered to be part of the core curriculum of engineering psychology. Other topics could be added to respond to the particularities of local teaching institution (e.g., focus on ergonomics of maritime systems).

For each of the topics proposed, we recommend a similar structure for teaching each session. With the exception of history and methods, they should consistently provide definitions, theories and models, empirical findings, and practical applications. This will help students establish links between the different topics and, hence,

Table 1 Suggestions for topics that may constitute a lecture on engineering psychology

Topics	Short description
History and definition of engineering psychology	Historic development of field, historic milestones, boundaries of the field, interdisciplinary nature
Fundamentals of human performance	Attention, perception, selection of action, decision-making, cognitive processing, strengths and limitations of human performance
Central theories and concepts of engineering psychology	Fitts' law, Hick-Hyman law, mental workload, situation awareness, multi-tasking, etc.
Displays and controls	Designing the elements of human-machine interaction, design of mobile devices, compatibility of displays and controls
Automation	Design options (e.g., static, adaptive, and adaptable automation), automation levels, complacency, trust, mental model
Human error and safety	Case studies of major disasters (e.g., Chernobyl), alarms, warnings, risk assessment, theoretical approaches
Overview of methods	Lab-based experiments, simulation (e.g., computer-based, virtual reality), objective performance measures, psychophysiology, eye tracking, signal detection theory
Design methods	Ergonomics design principles, regulations, guidelines, human-centered design methods; design of hardware, software, tasks, and jobs
Social aspects of human-machine interaction	Teamwork, social support, distributed systems
Personnel selection and training	Cognitive styles, competencies, work and system analysis
Stress	Designing for emergencies, work stress (e.g., task-related, physical, social)
Usability, user experience, and accessibility	Design and testing of interactive consumer products and websites; universal design
Application domains of engineering psychology	Aviation, air traffic control, surface transportation, industrial process control, etc.

develop a perspective that is uniquely shaped by the application domain that most interests them (e.g., aviation).

We would like to point out that across this range of possible topics, "methods" is especially important. This is because engineering psychology has the option of providing students with numerous methodological tools for field investigations (e.g., mental workload questionnaires, usability testing, task analyses). Engineering psychologists can use these methods to evaluate human-machine systems (e.g., whether humans with certain functional limitations can use a certain smartphone, whether the design of a ship's bridge is suitable for operations with a reduced team size). The results of these evaluations will provide input for computer programmers, engineers, and designers to redesign the systems. The methodological tools typically encompass the measurement of primary and secondary task performance, psychophysiological data, eye tracking, and subjective state data (usually by means of rating scales) such as fatigue and mental effort. The methodological competence of students in engineering psychology represents an asset for them in their future professional career (Table 2).

Teaching, Learning, and Assessment in Engineering Psychology: Approaches and Strategies

There are different formats of teaching in engineering psychology, as they are in most subdisciplines of psychology. We may distinguish between traditional lecturing, more interactive formats (e.g., seminars), and classes that are organized like a project (e.g., small group practicals or laboratory classes). Each of these formats has its strengths and weaknesses and should be selected in accordance with the primary learning goals to be achieved in the course. Of course, there is considerable literature that is designed to support teaching at the university, describing a great deal of general techniques and approaches relevant for good teaching in general (see, for instance, ▶ Chaps. 48, "Basic Principles and Procedures for Effective Teaching in Psychology," ▶ 49, "First Principles of Instruction Revisited," and ▶ 50, "Problem-Based Learning and Case-Based Learning," in this book as well as Fry, Ketteridge, & Marshall, 2008; Sambell, Brown, & Graham, 2017). Since the focus of this chapter is teaching engineering psychology, we will concentrate on aspects of teaching formats that are especially important for engineering psychology. Nevertheless, we strongly recommend that these general approaches and strategies are considered to create a teaching experience that engages students in their learning.

The format of lectures is mainly appropriate to provide a broad introduction to the field and pertinent topics of engineering psychology, as presented in Table 1. This format provides the students with the opportunity to become familiar with the most relevant concepts, theories, and methodological approaches of engineering psychology. The instructors' challenge is to create a coherent structure of the diverse field of engineering psychology for the students. In Table 3, we provide an overview of textbooks that might be of help for structuring the lectures. The lectures need to bridge the gap between the generality of theories and frameworks and singularities of

Table 2 Example of structure of a seminar on automation

Session	Short description
Introduction to automation (I)	The lecturer gives an overview of the field of automation
Lab-based practical	Presentation of a computer-simulated automatic system to students in laboratory, including active participation of students in system management
Introduction to automation (II)	The lecturer builds on the previous lecturer by making multiple references the practical experience gained in the preceding session
Discussion of scientific articles	Discussion of 1–2 key scientific articles from the field of automation
Scientific presentation of students (I)	Students in small groups will give short presentations on different topics (e.g., deskilling, trust and system reliability, adaptive and adaptable automation)
Small group project: Preparation	In class, an interview schedule is prepared for collecting information in organization using automatic systems
Small group project: Working out and presenting methodological approach	Presenting interview guideline and other data collection method to fellow students in class, discussing and improving proposed methodological approach practical project
Small group project: Conducting work in organization	Small groups of students collect interview and observational data in an organization of their choice
Scientific presentation of students (II)	Students in small groups will give short presentations on different topics (e.g., automation in aviation, industrial process control, car driving)
Small group project: Presenting findings	After data analysis, the findings are presented to fellow students, using the style of presentation of a business consultancy being hired by the organization
Summary of seminar content	The lecturer summarizes the content of the seminar and revisits the main learning goals, followed by a seminar evaluation by students
Assignment	This could be in form of a written exam using mainly open questions (e.g., "Describe the concept of automation complacency!") or an essay (e.g., "How will increasing automation level affect operator workload? Please discuss!")

different application domains. This is because engineering psychology focuses on the mechanisms of human information processing in different contexts of human-technology interaction, whereas the different contexts are of more importance for engineers and system designers.

The instructor's task is to demonstrate, explain, and emphasize the common theories and mechanisms that underlie problems across different application domains (e.g., issues related to selective attention in driving a car and piloting an airplane). Understanding the common features of problems within a domain allows the students to recognize and understand the general nature of theories and models in

Table 3 Recommended textbooks for teaching engineering psychology

Book reference	Comments
(i) *Engineering Psychology and Human Performance*by Wickens et al. (2016)	This introduction to engineering psychology provides a broad coverage of the field in 12 chapters, emphasizing theoretical and empirical research on human information processing and performance applied to the human-machine interaction. Looking at the problems in system design from the perspective of human information processing, it somewhat lacks chapters on design and evaluation methods. It is mainly intended for psychology and engineering students and practitioners in the field of engineering psychology
(ii) *Designing for People: An Introduction to Human Factors Engineering*by Lee, Wickens, Liu, and Boyle (2017)	This recent textbook provides a broad introduction to human factors engineering. It emphasizes design principles and methodologies, but nevertheless shows how these principles are derived from "humans' psychological, biological, and physical characteristics" (Lee et al., 2017, p. iv). Primary audiences are engineering or computer science students with no prior experience in psychology. But, according to the authors, it can be also used in applied psychology courses
(iii) *Human Factors in Simple and Complex Systems* by Proctor and Van Zandt (2018)	This textbook has a major focus on human factors and ergonomics in general. Therefore, the part I provides a good introduction in the field of human factors. In the parts II–IV, the perceptual, cognitive, and action factors are introduced and discussed with regard to applications. For students with a background in psychology, this part might largely repeat already known issues, but since this is all set in the context of application, it can provide a good foundation. Part V focuses on environmental factors and is therefore dedicated to aspects that traditionally are related to human factors
(iv) *Designing the user interface: Strategies for effective human-computer interaction* by Shneiderman et al. (2018)	This classical textbook focuses on the evolution of user interfaces. It covers theoretical foundations and addresses all relevant steps in the design process. The book is written for a broad audience with diverse backgrounds such as psychology, computer science, business, sociology, and education
(v) *Human Factors Engineering and Ergonomics: A Systems Approach* by Guastello (2014)	This is another classical textbook for the field of engineering psychology (also here labelled as human factors engineering). The goal of the book "is for the engineers to think more like psychologists, and the psychologists to think

(continued)

Table 3 (continued)

Book reference	Comments
	more like engineers" (Guastello, 2014, p. xvii). Therefore, the book is structured in chapters which follow relevant topics of engineering psychology, such as visual displays; stress, fatigue, and human performance; and human-computer interaction. Each chapter provides the necessary information for psychologists and engineers
(vi) *An Introduction to Human Factors Engineering* by Wickens, Lee, Liu, and Gordon-Becker et al. (2014)	The structure of this textbook is also in accordance with the topics in engineering psychology. The book offers a more psychological perspective by describing the capabilities and limitations of the human operator and how these should be used to guide the design of systems with which people interact
(vii) *Human Factors Methods: A Practical Guide for Engineering and Design* by Stanton et al. (2013)	This is not a classical textbook but presents a comprehensive and well-arranged overview about most of the commonly used methods in the field of human factors. This book therefore can be understood as a valuable supplement to the aforementioned textbooks. For the preparation of a lecture, relevant details about particular methods can be found. Also for seminars, this can be used for the discussion of certain methods

engineering psychology. This would enable them to broadly apply fundamental knowledge to different problems and to innovate methodological approaches derived from theories and models for novel situations. As engineering psychology focuses on supporting the design of human-machine systems in the real world, it is important for students to learn how to apply the theoretical concepts and the different methodological approaches to practical problems. Consequently, the ultimate goal of lectures should be to present the students with an overview of the field so that they are – to a certain extent – able to apply appropriate theories and frameworks and methodological approaches to new problems by being able to classify these new problems according to their underlying causes.

If possible, lectures should be accompanied by exercises where specific content of the lecture can be practiced, relevant research papers can be discussed in detail, or questions of the students can be discussed more thoroughly than in the lecture itself. Exercises provide the opportunity to involve the students more actively in the lecture content and thereby to deepen their understanding.

More interactive teaching formats, such as seminars, may focus on a sub-sample of the topics presented in the lecture (e.g., seminar on *automation* or seminar on *human error and safety*), but may also combine several topics into a coherent seminar topic for a given teaching period, such as semester or trimester (e.g., seminar on *errors in automation*). We suggest applying a basic structure within a seminar that

includes relevant general theoretical concepts, methodological approaches, practical exercises, and possibly domain-specific applications. Seminars provide the opportunity to explore relevant topics in greater depth. They should also address different viewpoints that are critically evaluated. In this format, the students are much more actively involved in the teaching and learning process than in traditional lectures, in particular if supported by hands-on activities (Moroney, 1995). Therefore, active learning approaches should be applied to ensure that the focus is shifted from the instructor delivering the course content to the students being actively engaged in the topics of the course. Examples of how to include hands-on activities in engineering psychology courses can be found elsewhere (e.g., Benne & Fisk, 2000; Jones, 1999). Possible teaching approaches include short presentations given by students on specific sub-topics, which are followed up by discussions in the class, or small group exercises where students apply the content of the previous short student presentation on real-world problems sketching out a possible solution. These possible solutions should then be discussed in the class again. This integration of general theoretical concepts and methodological approaches with their practical application to small real-world problems makes this teaching format an important element for teaching engineering psychology. It ensures that relevant topics can be taught in depth and, at the same time, that they are integrated into a broader context. Furthermore, seminars help to bridge the gap between theoretical knowledge and its practical application in the context of real-world problems. Last, but not least, the active involvement of students supports the development of a wide range of soft skills that are essential for any professional in the area of engineering psychology.

In laboratory classes, the focus is largely on the practical application of knowledge acquired in lectures and seminars in the form of student projects. In such formats, small groups of students or individual students work on a specific problem under the supervision of an instructor. Usually, the results are presented in a written report. However, we would encourage instructors to organize a final presentation session during which all projects are presented by students. The assigned projects can range from running an experiment to carrying out a usability test. Ideally, the projects are related to the research topics of the instructors or the institution responsible for the teaching unit. This will increase the probability that the students become familiar with very recent research topics, research findings, concepts, and methodological approaches, learning to apply them in practice. Including basic research questions from engineering psychology (e.g., addressed by a lab experiment) or rather applied projects (e.g., together with partners from the community in a service-learning project; see Furco, 2002) is in any case helpful to provide the students with hands-on experience, which they will later need as engineering psychology professionals in their daily work. This project-oriented format, especially when organized in small teams, supports the further development of project management skills.

The Importance of Case Studies

Case studies are indispensable when communicating the importance of considering the human operator as an integral component of engineered systems. There are

numerous examples of poor human-machine system designs that communicate the consequences of how simple oversights can result in catastrophes. Examples range from prominent accidents (e.g., Chernobyl, Herald of Free Enterprise) to constantly pressing the wrong button on the TV remote control. There is some literature that provide good accounts of such case studies, which can be used in teaching (e.g., Casey, 1988; Reason, 1990; Wogalter, 2019).

Target Audience

Engineering psychology is most likely to be taught to students who major in psychology, although students from other disciplines (e.g., engineering, computer science) may also participate. This topic may also be taught at a graduate level to mature students with work experience. Teaching a potentially diverse audience raises challenges in achieving a balanced focus. Nonetheless, it also presents a unique opportunity for students across psychology, engineering, and computer science to work collaboratively, as it would be mirrored in the real world. Cognitively diverse teams share a larger knowledge base and will allow students with different backgrounds to learn from each other.

To some extent, the format of teaching will determine whether this diversity can be leveraged. For example, seminars will benefit more from a highly diverse audience than a lecture. This is because in a seminar students will benefit from the input of other students with a different scientific background (e.g., in a discipline other than psychology) or a different level of expertise (e.g., work experience), whereas such student input is less prominent in lectures. Furthermore, lectures are less able to cater for differences in the competence levels in students. Therefore, it is advisable to adapt the format of teaching to the expected degree of student heterogeneity.

Involvement of Practitioners

To what extent should engineering psychology teach relevant skills for practice (e.g., interview techniques for root cause analyses)? Engineering psychology provides a unique opportunity to help students understand how theories from other subdisciplines relate to the design of real-world systems (e.g., how displays for low-light environments can be designed based on our understanding of visual perception). Given that students often lack the personal experience to appreciate the challenges of work domains, we believe that they can benefit from the involvement of practitioners. We will now suggest different ways in which practitioners can be involved, including an estimate of the resources required (i.e., in terms of time and budget) for each suggestions.

(i) *Co-teaching approach.* An academic member of staff and a practitioner could run the class jointly (high resource requirements).

(ii) *Customer-based approach.* The practitioner is a "customer" to whom input is provided by students to solve the practitioners' problem, such as improving the interface of a technical system (moderate to high resource requirements).
(iii) *External speaker.* A practitioner is invited as an external speaker to talk about an academic topic from a practitioner's point of view (e.g., "How is mental workload in aircraft cockpits measured by aircraft manufacturing companies?"). This involves low resource requirements.
(iv) *Site visits.* A similar approach represents visiting an external organization to talk to practitioners in their work environments (low to moderate resource requirements).
(v) *Internship (work placement).* Related to this issue is the completion of an internship, which is mandatory in many university courses. It provides a very good possibility to get to know real-world problems and in best case to transfer academic knowledge to them (low to moderate resource requirements).

Examples for Teaching

In this section, we will outline three specific cases that exemplify how different forms of teaching can be implemented. They may serve as a model for a range of classes to be taught in engineering psychology. In case 1, we will provide several suggestions for seminars that can be implemented in addition to a series of lectures, which might be planned according to the topics listed in section "Purposes and rationale of the curriculum in engineering psychology". Case 2 is an example for a series of seminars dedicated to specific topics (e.g., automation, aviation, ship navigation, etc.). Finally, case 3 provides suggestions for sessions with a practical orientation.

Case 1: Small Group Teaching

Topics in engineering psychology have the advantage of being directly relevant to our everyday experiences. This can motivate course participants, providing a unique opportunity to bridge theory to practice. There are various forms of small group teaching, such as tutorials, seminars, and problem-solving classes. Small group teaching accompanying a lecture is based on the idea that students are already familiar with the relevant theories and can now focus on real-world applications. A teaching session could therefore begin with a short presentation (5–10 min) given by a student participant. For example, such a presentation could address how attention in applied settings relates to operational concepts, such as "situational awareness." This could be followed by a practical part, wherein course participants will identify potential risks across different operational domains. For example, they could determine how limitations of selective visual attention might result in failures when using a particular in-vehicle display. They could also propose solutions to alleviate identified risks, such as the appropriate placement of in-vehicle displays. Alternatively, students could work on explaining how technology they use in their everyday life can be improved by using psychological theories.

An alternative activity would be to discuss research articles and accident reports. Course participants will read pre-selected papers before each teaching session, which is guided by questions provided by the instructor beforehand. Following a discussion, students would be requested to transfer their acquired knowledge to other problems or a different operational domain. This transfer can also be discussed in class or in the form of a short essay that is either evaluated by the instructor or by fellow students. The latter procedure provides the advantage that students will have to perform their own transfer as well as read and evaluate the approach of fellow students, hence benefiting from the diversity of applied research solutions and possibly different academic backgrounds.

Finally, linking small group teaching less strongly to the lecture allows focusing on only a few selected topics by studying specific problems in greater detail. As an example, one can think of the analysis of a website, a widely used piece of software, or a ticket vending machine. Following this approach would allow employing particular methods for the development of one or multiple alternative solutions. During the teaching sessions, methods can be discussed and even applied to evaluate the obtained solutions. Furthermore, such a procedure would provide the opportunity that students can work in different teams. Working in competitive teams might have the advantage to demonstrate that often several distinct approaches can be found and implemented to address a particular question. This can serve as a unique experience of the work in the field of engineering psychology.

Case 2: Seminar on Automation

It is a challenge to teach domain-related topics (automation, aviation, healthcare, etc.) to students who lack corresponding work experience. For example, students may not understand the system operations of a safety-critical domain (e.g., aviation) that prevent them from appreciating the benefits or added complexities of automation, for example, in terms of how automation is applied in landing an aircraft or controlling a chemical plant. As such, they may not empathize with the challenges experienced by human operators (e.g., boredom-induced fatigue during supervisory control) and might consider accidents as avoidable "human errors."

Two complementary approaches may overcome this familiarity problem. First, the seminar could focus primarily on examples from the students' personal experience, which bear similarity to the challenges in real work domains. For example, car park assistance systems or in-car navigation systems represent devices to which many students can relate. Second, using computer-based dynamic simulations of complex systems in the classroom may help students understand more easily the principal underlying features of automatic systems. Despite the reduced complexity of these lab-based simulation (compared to systems in the real world), they still allow students to experience the underlying features of the real-world system (e.g., in the case of industrial process control, this may be opaqueness and sluggishness of the system). Such computer-based simulations may also be used to model the different automation levels proposed by theoretical frameworks from the automation domain, such as the taxonomy of automation levels by (Sheridan & Verplank, 1978).

The seminar should offer a mixture of different activities. Table 2 provides an example of how a seminar on automation may be structured. The core elements of the seminar are the theoretical input provided by the lecturer and the hands-on experience of students at two levels, that is, in the form of a lab-based practical and a small group project to be carried out in an organization. Furthermore, it involves short scientific presentations on a particular aspect of automation and the discussion of journal articles, and, finally, the seminar ends with the completion of an assignment by the students.

There are multiple learning outcomes of this seminar. Students will be able to explain options of automation design by using automation models and examples. They will be able to design an interview guideline for analyzing the positive and negative consequences of automation in organizational settings. Finally, they will have gained a good understanding of the different options in automation design, including the advantages and disadvantages associated with each of them.

Case 3: Small Group Practicals Based on Real-World Examples of Engineered Systems

For students of engineering psychology who might go on to be human factors/ergonomics professionals, it is highly important to gain practical experience in methods as well as in applying theoretical concepts to addressing specific problems and research questions. Small group practicals are especially important for acquiring such experience. Practitioners are typically expected to define and evaluate systems, prior to implementing a proposed improvement that is subsequently validated (i.e., systems development life cycle; e.g., V-Model, Forsberg & Mooz, 1992), to perform root cause analyses of system inefficiencies, or to prepare accident reports. In addition, they are expected to be familiar with standardized norms by professional bodies (e.g., National Institute for Occupational Safety and Health). One goal of a practical class would be to familiarize students with these expectations, even if the professional training for a given domain is beyond the scope of a tertiary education.

In one example, students can be familiarized with basic techniques used by practitioners to improve systems and processes. One example, drawn from the Six Sigma process, is the SIPOC model, which is often performed to identify the *suppliers, inputs, process, outputs,* and *clients* of a given system (Stamatis, 2004). To relate this to an everyday experience, students could be provided with the scenario of doing the laundry. They would first identify the suppliers of critical inputs (e.g., water, electricity, dirty laundry, etc.) before detailing the process that utilizes these inputs to produce certain outputs, which are subsequently directed to clients. With this complete description of a system, they would then be tasked with identifying how the process could be optimized, perhaps by introducing an automated feature in the washing machine for ordering washing detergent. This activity could be extended by teaching students to formalize processes and the interactions between different system components with Unified Modeling Language (UML), whereby activity diagrams provide an overview of the workflow of activities of the user at different steps of a task and sequence diagrams describe the interactions

between the user(s) and different components of the system (e.g., display readout, buttons, etc.).

In a different example, students can be trained on investigative techniques to determine the root cause of undesirable incidents (e.g., accidents). Simple techniques, such as *Five Whys* and *Fishbone Diagram*, are used in practice to guide interviewers in systematically identifying potential reasons for system errors and accidents (Moaveni & Chou, 2017). Given that students often lack domain expertise, it is necessary to select problems from their daily lives. For example, they could be asked to identify the root causes of why their parents make "avoidable" mistakes with consumer electronics, or suboptimal administrative processes at the university, or a messy communal living environment. After acquiring some experience with these interviewing techniques, students could role-play the investigator of a well-known accident (e.g., Hudson River Plane Crash; popularized by the film "Sully") with other students who could, themselves, role-play as other actors in the accident (pilot, passengers, passers-by, etc.).

The basic procedure applicable to most small group practicals consists of a first phase where all students meet regularly. In this phase, the presented problem should first be defined, the relevant theoretical concepts and methods should be introduced, and some basic concepts of project management should be presented. After this phase, the students should form teams of two to four students that work together on the problem. If possible, the teams should be interdisciplinary in order to train students in coordinating different skillsets and transdisciplinary communication. At the beginning of this working phase, each team should define a project plan with tasks and milestones. During this working phase, we recommend regular meetings of the teams with the instructor to discuss individual questions and the current state of the project. We also recommend at least one meeting of all teams, where the teams present their current state to all other teams in the mid of the working phase. This will train the students' communication skills. It will support the exchange of ideas and experience with the application of concepts and methods and the mutual support of the teams. Such a small group practical should be concluded by a presentation of the results of all teams in a kind of mini-workshop. If possible, we recommend that a broader audience is to be invited to this final workshop. Additionally, either each individual student or the team as a whole should document their results in a written report. Again, this will train a different important set of communication skills.

Challenges and Lessons Learned

Given the rapid technological advancements, we expect the need for experts in engineering psychology to rise in the future. Therefore, universities and other institutions of higher education need to offer attractive curricula that will encourage students to take a degree in engineering psychology. However, apart from the issues discussed in this chapter, there are three further challenges that are relevant to the field of engineering psychology, which we will briefly discuss.

First, the design and optimization of human-machine interaction from a user-centered design perspective is the main focus of engineering psychology. When comparing the two parties involved, humans and technology, it becomes obvious that both evolve at a different pace. While there are anthropological speed limits on the human side, an enormous speed has been observed over the last decades in the development of technology. These differences are less problematic when only considered from a user-centered design perspective: It requires adjusting technology according to the respective state of the art in order to support the human user in an optimal way. However, it may impede the potential of innovation, since technological improvements are bound to the human perspective (see, for instance, Shneiderman, 2020). Beyond the constantly changing requirements for the research in engineering psychology, this also represents challenges for teaching in this field. For example, designing an optimal interface is a central topic in engineering psychology. With the evolution from physical to more virtual interfaces that become less visible and partly disappear in modern technical systems, this central topic requires fundamental revision as well as new methods and approaches. While the topics regarding the human aspects (e.g., human information processing, capacity limits, etc.) evolve at a rather slow pace, the fast developments regarding machines, interfaces, and technology require a permanent updating in order to teach an up-to-date curriculum.

The second point is related to the first issue and refers to the compatibility of academic teaching and the requirements of diverse professional fields. Teaching abstract theories and methods creates abstract knowledge that needs to be elaborated further in the concrete professional field, accompanied by on-the-job training. However, the rapid development of technology means that gaps can appear between the systems that are taught and the technology that graduates may work with. This situation might come across as a paradox. On the one hand, academic research is often at the forefront of technological development. On the other hand, an understanding of how such technology is deployed and implemented in the field might require many years of systematic research. Furthermore, implementation of a single technology might vary immensely across different domains. Thus, teaching should cover established aspects in human-machine interaction rather than seek to follow fads. This will equip the students with broad general knowledge on highly relevant concepts and methodological approaches for the solution of paradigmatic problems. It will give the students the capability to apply this knowledge to specific cases and develop their appropriate expertise in their respective domain in the interaction with real-world problems.

Finally, it is challenging to adjust the teaching content to the goals and capabilities of the target audience. Students from technical disciplines most often lack basic knowledge from psychology, while students of psychology rarely have technological knowledge. Teaching both groups in the same course requires a good balance to make it as beneficial as possible for both groups. Furthermore, the field of engineering psychology often provides to psychology students their first opportunity to see how psychological knowledge can be applied in everyday life settings. Therefore, they are interested and motivated to apply their knowledge gathered so far. The

opposite is often the case for students from technical disciplines. For them, it is more interesting and fascinating to learn about the theoretical foundations of human information processing. Given the constraints that have been discussed throughout this chapter, finding an appropriate balance for the target audience can be challenging.

This chapter provides some ideas and material that teaching staff in the field of engineering psychology may find helpful. The process of writing this chapter revealed – especially throughout the discussions among the authors – how complex and challenging teaching in such an interdisciplinary discipline can be. We hope that this chapter will stimulate discussions about what the best way of teaching this interesting subject would be.

Teaching, Learning, and Assessment Resources

There are several established textbooks, in the domain of engineering psychology, which may be used for teaching (see Table 3). These are listed under (i)–(vii) and provide a systematic and coherent overview of the most important topics in engineering psychology. We recommend these because their chapters typically build on each other, with cross-references that highlight these connections. These textbooks are mainly written for students and observe high pedagogical standards. This includes chapter summaries, further reading, and/or study questions at the end of the chapters. Furthermore, the length of each chapter, and depth of detail, is compatible with a course plan that addresses one topic per course session. Therefore, we believe that such textbooks are preferable to handbooks. In contrast, handbooks tend to be more diverse, with the different chapters (usually written by different authors) not being connected and not building on each other. The target audiences of handbooks are professionals that would like to be informed about a specific topic in a brief and concise way.

We acknowledge that these textbooks may not be universally compatible to every course program. One reason for this is the diverse application domains that engineering psychology pertains to. Our individual backgrounds might also bias our preferences to particular domains, such as aviation or surface transport. The fields of usability and UX or design methods are covered to the same extent in general textbooks on engineering psychology as other more traditional topics, such as attention, design of displays and controls, and workload. Therefore, they might be supplemented with chapters from handbooks and research papers. The selection of textbooks in Table 3 is highly selective and does not claim to be exhaustive. The selection is mainly based on the authors' experience with textbooks in their own courses on engineering psychology. Table 3 also contains a book that provides a comprehensive overview of the methods in the field of engineering psychology (vii).

In addition to these suggestions, there are available online resources that can be used for different teaching formats. We provide just a few examples here, such as the website of the Human Factors and Ergonomics Society (https://www.hfes.org/Resources/Education-Resources).

Additionally, educational material can be found at the website of the APA organization (https://www.apa.org/action/science/human-factors) or at MITOPENCOURSEWARE (https://ocw.mit.edu).

Furthermore, it is highly recommended to explore the content of journals where research findings and theoretical contributions from the field of engineering psychology are published. We suggest the following journals, which is a non-exhaustive list: *Human Factors*, *Ergonomics*, *Applied Ergonomics*, *Reviews of Human Factors and Ergonomics*, *Theoretical Issues in Ergonomics Science*, *Proceedings of the Annual Meeting of the Human Factors and Ergonomics Society*, *Journal of Applied Psychology*, and *Journal of Experimental Psychology: Applied*.

Cross-References

- ▶ Basic Principles and Procedures for Effective Teaching in Psychology
- ▶ Educational Psychology: Learning and Instruction
- ▶ Problem-Based Learning and Case-Based Learning

References

Benne, M. R., & Fisk, A. D. (2000). Teaching applied experimental psychology using a living laboratory. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 44*(9), 75–78. https://doi.org/10.1177/154193120004400902.

Bologna Working Group. (2005). *A framework for qualifications of the European Higher Education Area*. Bologna Working Group Report on Qualifications Frameworks (Copenhagen, Danish Ministry of Science, Technology and Innovation).

Buchner, A., Brandt, M., Bell, R., & Weise, J. (2006). Car backlight position and fog density bias observer-car distance estimates and time-to-collision judgments. *Human Factors, 48*(2), 300–317.

Casey, S. M. (1988). *Set phasers on stun: And other true tales of design, technology, and human error*. Santa Barbara, CA: Aegean Press.

Endsley, M. R., Selcon, S. J., Hardiman, T. D., & Croft, D. G. (1998). A comparative analysis of SAGAT and SART for evaluations of situation awareness. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 42*(1), 82–86.

Fitts, P. M. (1958). Engineering psychology. *Annual Review of Psychology, 9*(1), 267–294.

Fitts, P. M. (1966). Cognitive aspects of information processing III: Set for speed versus accuracy. *Journal of Experimental Psychology, 71*, 849–857.

Forsberg, K., & Mooz, H. (1992). The relationship of systems engineering to the project cycle. *Engineering Management Journal, 4*(3), 36–43.

Fry, H., Ketteridge, S., & Marshall, S. (2008). *A handbook for teaching and learning in higher education: Enhancing academic practice* (3rd ed.). New York, NY: Routledge.

Furco, A. (2002). Is service-learning really better than community service? In A. Furco & S. H. Billig (Eds.), *Service-learning: The essence of pedagogy*. Greenwich, CT: Information Age Publishing.

Guastello, S. J. (2014). *Human factors engineering and ergonomics: A systems approach* (2nd ed.). Boca Raton, FL: CRC Press.

Jones, D. R. (1999). Hands-on human factors and ergonomics education. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 43*(7), 535–538. https://doi.org/10.1177/154193129904300702.

Lee, J. D., Wickens, C. D., Liu, Y., & Boyle, L. N. (2017). *Designing for people: An introduction to human factors engineering* (3rd ed.). Charleston, SC: CreateSpace.

Moaveni, S., & Chou, K. (2017). Using the five whys methods in the classroom: How to turn students into problem solvers. *Journal of STEM Education, 17*(4).

Moroney, W. F. (1995). Strategies for teaching undergraduate human factors. In *Proceedings of the Human Factors and Ergonomics Society 39th annual meeting* (p. 405). Santa Monica, CA: Human Factors and Ergonomics Society.

Parasuraman, R., & Riley, V. (1997). Humans and automation: Use, misuse, disuse, abuse. *Human Factors, 39*, 230–253.

Proctor, R. W., & Van Zandt, T. (2018). *Human factors in simple and complex systems* (3rd ed.). Boca Raton, FL: CRC Press.

Rantanen, E. M., & Moroney, W. F. (2011). Educational and skill needs of new human factors/ergonomics professionals. *Proceedings of the Human Factors and Ergonomics Society, 55*, 530–534. https://doi.org/10.1177/1071181311551108.

Reason, J. (1990). *Human error*. Cambridge, UK: Cambridge University Press.

Sambell, K., Brown, S., & Graham, L. (2017). *Professionalism in practice: Key directions in higher education learning, teaching and assessment*. London, UK: Palgrave McMillan.

Sheridan, T. B., & Verplank, W. L. (1978). *Human and computer control of undersea teleoperators*. Cambridge, MA: MIT Press. (Technical Report, Man-Machine Systems Laboratory, Department of Mechanical Engineering).

Shneiderman, B. (2020). Human-centered artificial intelligence: Three fresh ideas. *AIS Transactions on Human-Computer Interaction, 12*(3), 109–124. https://doi.org/10.17705/1thci.00131.

Shneiderman, B., Plaisant, C., Cohen, M., Jacobs, S., Elmqvist, N., & Diakopoulos, N. (2018). *Designing the user interface: Strategies for effective human-computer interaction* (6th ed.). Boston, MA: Pearson.

Stamatis, D. H. (2004). *Six sigma fundamentals: A complete introduction to the system, methods, and tools*. New York, NY: Productivity Press.

Stanton, N. A., Salmon, P. M., Rafferty, L. A., Walker, G. H., Baber, C., & Jenkins, D. P. (2013). *Human factors methods: A practical guide for engineering and design* (2nd ed.). Boca Raton, FL: CRC Press.

Wickens, C. D. (1984). Processing resources in attention. In R. Parasuraman & R. Davies (Eds.), *Varieties of attention* (pp. 63–101). New York, NY: Academic.

Wickens, C. D., Hollands, J. G., Banbury, S., & Parasuraman, R. (2016). *Engineering psychology and human performance* (4th ed.). London, UK: Routledge.

Wickens, C. D., Lee, J. D., Liu, Y., & Gordon-Becker, S. (2014). *An introduction to human factors engineering* (2nd ed.). Harlow, UK: Pearson.

Wogalter, M. S. (2019). *Forensic human factors and ergonomics: Case studies and analyses*. Boca Raton, FL: CRC Press.

Cultural Psychology

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Luca Tateo, Giuseppina Marsico, and Jaan Valsiner

Contents

L. Tateo (✉)
University of Oslo, Oslo, Norway
e-mail: luca.tateo@isp.uio.no

G. Marsico
Department of Human, Philosophical and Educational Sciences (DISUFF), University of Salerno, Fisciano, Italy
e-mail: gmarsico@unisa.it

J. Valsiner
Centre of Cultural Psychology, Department of Communication and Psychology, Aalborg University, Aalborg, Denmark

Sigmund Freud Privatuniversität, Vienna, Austria

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Springer International Handbooks of Education,
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Abstract

The chapter presents an overview and the historical background of what can be considered the family of "cultural psychologies," that is, those approaches that, since the 1990s, have brought back the cultural context and the meaning-making at the center of psychological theories. First, the core principles of cultural psychology are defined. The historical roots and main authors are briefly presented, reconstructing the historical trajectory of an apparently new perspective with solid historical bases. Then, the current scholarly global landscape is sketched. The ideal curriculum of cultural psychology program is presented in terms of learning goals and descriptors. Afterward, selected instructional approaches are illuminated with examples of pedagogical scenarios that an instructor can implement and easily adapt to the different learning contexts. As a matter of conclusion, the challenges that cultural psychology is launching to the current curricula in psychology are presented. We emphasize the potentialities of cultural psychology to fertilize the different sub-areas of psychological sciences by introducing a perspective of integral humanism, that is, to re-appreciate the rich educational background that characterized psychology since its beginnings.

Keywords

Cultural psychology · Meaning-making · Qualitative experiment · History of ideas

I was. . . an intellectual first and a scientist in support. . . .I used psychology to pursue matters that existed for me in their own right. Psychology was (and remains) only one way to use mind in behalf of these pursuits. (Bruner, 1983, p. 77)

Introduction

Cultural psychology is a label that covers a range of theoretical and empirical approaches to the study of the relationship between meaning, mind, and human activities in the context of different cultural-historical systems. Cultural psychology's approaches – although coming from a long tradition, which dates back as earlier as the sixteenth century (Klempe, 2021; Tateo, 2015) – have been emerging since the 1980s as a productive and heterogeneous field. In this context, the approaches of psychology, gravitating around the use of the term "culture," dialogue with different disciplines, also interested in the developmental processes of the organism in its historicity and context, such as anthropology, ethnography, history, philosophy, epigenetics, ecology, human geography, theology, cultural studies, etc. (Valsiner, 2012). Cultural psychology embraces a truly transdisciplinary perspective.

The core question addressed by the manifold versions of cultural psychology (Boesch, 1991; Bruner, 1990; Cohen & Kitayama, 2019; Cole, 1996; Shweder,

1991; Wertsch, del Río, & Alvarez, 1995; Valsiner, 2014) is why do we need the concept of culture to understand the mind? The epistemological tenets of cultural psychology's approaches are:

- The centrality of the meaning-making processes
- The role of culture in the development of psychological functions
- The human agency, understood as both product and producer of culture
- The whole of systemic organism-environment relationships as unit of analysis
- The genetic-historical and temporal dimension of psychological processes

Following a general interest for the role of culture in the social sciences, contemporary "cultural psychologies" – understood as a way to look at psychic processes, rather than a specific academic discipline – formulated an explicit organization of the different perspectives that use the notion of culture in the beginning of the 1990s. A more detailed overview of what has happened since 1995 is overviewed in detail in various editorial summaries over the past 25 years of one of the main dedicated journals: *Culture & Psychology* (Valsiner, 1995, 1996, 2001, 2004, 2019).

Cultural psychology is decidedly theoretical in focus. It critically acknowledges the progressive detachment of psychology with basic human cultural phenomena, such as the complex intentional forms of feeling, thinking, and acting that characterize our everyday lives. Starting from the rewriting of its formal history, psychology has pursued the "scientific status" of the discipline by telling a story of empirical accumulation of "hard" data on rewarding or punishing humans with tokens of consumables – food, money, etc. – leading thus the way to its versions of explaining complexity by way of simple elementary "effects" of some variables. The scientific program of cultural psychology is to bring back under the spotlight the active persons – embodied soul-searchers filled with curiosity – who create, perform, and feel about theater, poetry, and music and who read novels, organize revolutions and political debates, and worry about cholesterol levels, diets, prices, and marriages.

Indeed, none of these precarious activities of unabashedly subjective human beings are explainable by way of lower psychological functions. Neither can they be captured in the form of simple variables or be unpacked in separated behavioral, physiological, or cognitive dimensions. In order to study complex psychological phenomena of the human beings, psychology needs to rethink the methodologies of the discipline in such ways so as to be able to address them (Valsiner, Marsico, Chaudhary, Sato, & Dazzani, 2016).

Historical Context

The focus on cultural phenomena – mostly music and language – antedates the birth of psychology as a separate discipline. A pioneer was the Italian philosopher Giambattista Vico (Tateo, 2015) in the early eighteenth century, who advocated the birth of a "new science" of the relationship between mind and culture through the mediation of language. A century later, the first systematic treatment of culture

appears in the language philosophy of Wilhelm von Humboldt (von Humboldt, 1836). Even the institutionalization of the interest in culture antedates the experimental turn by 19 years. Indeed, the first professorship in psychology proper was not that of Wilhelm Wundt in Leipzig (1879), but that of *Völkerpsychologie* for Moritz Lazarus in Bern (1859) (Jahoda, 1993). The dominant historical narrative of psychology as a laboratory-experimental discipline shadowed the interest in cultural processes. Similarly, the biographies of the official forefather of modern psychology – Wilhelm Wundt – have traditionally undervalued the presence of *both* experimental and *Völkerpsychologie* traditions in his work.

Cultural psychology once again takes on the general orientation of their predecessors' holistic, dynamic, and developmental emphases. In particular, four continental European traditions flourished at the beginning of the twentieth century: *Völkerpsychologie*, *Ganzheitspsychologie*, the introspection-based traditions of the *Würzburg School* of Oswald Külpe and colleagues, and the various branches of the Austrian traditions of Franz Brentano, particularly the *Graz School* of Alexius Meinong (Diriwächter, 2004).

The other relevant source of cultural psychology is the cultural-historical soviet psychology initiated by Lev Vygotsky and his circle, including scholars such as Lurja, Galperin, Leontev, and Bernstein (Valsiner, 2012). The interest for the work of Vygotsky arose in the West with the first, uncertain, English translations of his work in the 1960s. Since then, a progressive work of critical rediscovery and the improvement of the works available in English (Van der Veer & Valsiner, 1991) have made the cultural-historical perspective one of the most fruitful theoretical sources. In particular, cultural psychology has adopted from the cultural-historical approach the focus on:

- The sociogenesis of the higher psychological functions
- The genetic epistemology
- The mediation of symbolic forms in all higher psychological functions
- The whole of organism-environment relationship as unit of analysis in psychology
- The notion of system of activity (Brown, Heath, & Pea, 1999)

There are further relevant theoretical influences shared by many versions of cultural psychology. In the USA, the so-called "culture and personality" tradition (Kluckhohn, Murray, & Schneider, 1948), during the 1950s, established a dialogue between anthropology and psychology about the role of culture in shaping personality traits. Another relevant turn was the introduction of the ideas of the Russian philosopher and literary critic Mikhail Bakhtin into psychology, leading to the so-called dialogical perspective (Clegg & Salgado, 2011).

Another attempt of (re)introducing the notion of culture into psychology in a deep intellectual project was Jerome S. Bruner's contribution (1983, 1990) to place the meaning-making process at the core of the psychological functioning and to restore the dignity of the human mind as a relevant object of investigation. Since the origins

of the "cognitive revolution" in the 1960s, Bruner (1990) promoted a view of cognition embedded in culturally shared meanings. As Bruner (2012) pointed out:

> I am deeply convinced that psychology cannot go it alone. The life of mind is not isolated from or independent of the life of the cultural community in which it develops and lives. Nor is it independent of the history that has shaped that cultural community. Our fate as human beings is shaped not only by our individual qualities but by the cultural circumstances in which we live our lives. (2012, p. 12)

Finally, another interlocutor of cultural psychology is the theory of social representations by Serge Moscovici (Duveen, 1998; Sammut, Andreouli, Gaskell, & Valsiner, 2015), which shares the interest for common sense knowledge and the role of everyday communication in the psychological functioning.

Since the 1990s, we can observe several efforts to bring back culture into the core of psychological science. These efforts opened new avenues for psychologists' legitimate research practices – a turn toward the use of qualitative methods is on its way; theoretical schemes used often transcend the limits of psychology (e.g., borrowing concepts from sociology, like *habitus*, or from literary scholarship and music – such as *polyphony*).

Current Trends

The open, interdisciplinary, and critical nature of cultural psychology has fortunately avoided their crystallization into another disciplinary fence. Indeed, its openness allowed the constant dialogue with other psychological perspectives such as socio-constructivism, phenomenology, and dynamic humanist psychology. Thus, cultural psychology cannot be properly defined a disciplinary or academic field, rather a particular gaze on the way human psyche develops in relation to value-laden, collectively coordinated, and symbolically mediated everyday activities. In other words, cultural psychology is a special way of looking at human beings (Valsiner et al., 2016).

There are few established academic programs in cultural psychology, although related courses are often integrated in other psychology programs. A brief – although probably not exhaustive – list of sites would include the Centre for Cultural Psychology at Aalborg University in Denmark, the Laboratory for Comparative Human Cognition at University of California San Diego in the USA, the Hans Kilian and Lotte Köhler Center for Cultural Psychology and Historical Anthropology at the Ruhr-University Bochum in Germany, and Research Group on Social Interactions at the University of Salerno in Italy. Informal but very productive groups are active in Latin America especially in Brazil – at the Federal University of Bahia, Federal University of Pernambuco, University of Sao Paulo, and University of Brasilia – and in Chile at the Pontificia Universidad Catolica in Santiago. Other groups are active in Europe – Wien, Berlin, Neuchatel, and Luxembourg – and in Asia, Tokyo, Shanghai, and Yogyakarta.

It must be noted that – especially in the Anglo-Saxon cultural area – the term "cultural psychology" is sometimes used as synonym with "cross-cultural psychology" (see, for instance, Heine, 2020; Heiphetz & Oishi, 2021). This creates some confusion also to students, as the family of theories that we discuss in this chapter is in dialectic opposition to cross-cultural approaches, in epistemological, theoretical, and methodological terms. The idea of universal psychological constructs varying in magnitude depending on the influence of culture understood as independent variable is completely alien to cultural psychology (Anandalakshmi, 1974). Similarly, the idea of culture-free or context-independent methods and instruments to assess individual differences and aggregate them has been fully rejected by cultural psychology (Cole, 1996).

Purposes and Rationale of the Curriculum in Cultural Psychology

The curriculum in cultural psychology is inspired by the concept of *integral humanism* (Tateo & Marsico, 2021; Valsiner et al., 2016), that is, the recovery of the extensive educational background that characterized psychologists, especially in the European tradition, until the first half of the twentieth century. In the perspective of cultural psychology, the curriculum shall include the interest in the different branches of human activity and must be inherently interdisciplinary, not limited to the mere technical aspects of psychology. At BA and MA levels, the general learning goals of the curriculum include solid bases in the history, epistemology, and philosophy of psychology and a strong focus on qualitative methodologies and mixed methods and should explore its relations with humanities and liberal arts, linguistics and semiotics, social sciences, and developmental sciences (i.e., epigenetics, system theory, ecology, etc.).

After having completed a BA and MA program (level 7 of ETF) in cultural psychology, the student should have acquired the following knowledge, skills, and competences:

Knowledge

- Deep knowledge of history, epistemology, and methodologies of cultural psychology and its main theories
- Fundamental principles of linguistic and semiotics
- Fundamentals of history of ideas
- Fundamentals of cultural studies
- Deep knowledge of developmental, systemic, and ecosystemic approaches in human and social sciences
- Academic writing and research design in ecological settings
- Critical awareness of the main theoretical, epistemological, political, and methodological issues in psychological sciences

Skills
- Capability to work in multicultural environment and to effectively deal with ethno-epistemologies
- Skills in developing innovative and original methods and research designs adapted to local contexts
- Insights in the application of cultural psychological perspective to educational, professional, and therapeutic contexts

Competences, Responsibility, and Autonomy
- Competence in international scientific publishing
- Capability to establish and maintain international research and professional networks
- Competence in multimodal qualitative analysis
- Competence in innovative interventions in community empowerment and participatory research
- Competence to critically interpret, manage, and transform interdisciplinary and multicultural work contexts
- Competence to apply cultural psychology to pedagogy
- Open mindedness and critical capability to address ethical issues, social injustice issues, and inclusion issues

After having completed a doctoral program (level 8 of ETF) in cultural psychology, the candidate should have acquired the following knowledge, skills, and competences:

Knowledge
- Advanced knowledge of the cultural psychology theory, epistemology, and methodology
- Large interdisciplinary knowledge of the developmental sciences
- Large interdisciplinary knowledge of the study of human activity

Skills
- Advanced academic writing skills
- Capability to design innovative research methods
- Capability to identify critical issues in the current scientific or professional knowledge and to produce radical theoretical advancements

Competence, Responsibility, and Autonomy
- The doctoral candidate will become able to work in a borderless, international, and diverse environment, to adapt and travel across contexts with reflexive awareness.
- Demonstrate substantial intellectual autonomy and authority, professional integrity, and sustained commitment to the development of new ideas.

A completed education in cultural psychology is relevant for working in a multicultural environment and to address societal issues from a nonconventional perspective. Thus, it can be functional to work in social sciences research, education and social work, community development, and international cooperation.

Core Contents and Topics of Cultural Psychology

There are at least three major themes that compose the core contents of cultural psychology:

1) The recognition of the object of study as a whole
2) The definition of what is a psychological fact
3) The epistemological attitude of dealing with historically dynamic concepts, such as continuity and discontinuity, evolution and adaptation, tension, and ambivalence in the irreversible time

Wholeness as the Object of Study

Cultural psychology assumes the study not of the single person or the single psychological phenomenon occurring in a vacuum or in a neutral context (Valsiner, 2014). Persons, psychological processes, and contexts are part of a whole that we can call the phenomenon, in the sense of being in a systemic relationship. Hence, the first central focus in cultural psychology is the relationship between the parts of a whole. It is assumed that "a reductionistic approach to science involves an abstraction from wholeness and a focus on smaller and smaller parts, until encountering a part that appears manageable" (Piechocinska, 2005, p. 2). Psychology has generally pursued this way since the nineteenth century. For instance, memory, perception, language, and emotions have been treated as separate processes, albeit just for analytical purpose, and have been hardly reconnected again. According to Piechocinska (2005), quoting Heisenberg: "There is a fundamental error in separating the parts from the whole, the mistake of atomizing what should not be atomized. Unity and complementarity constitute reality" (Piechocinska, 2005, p. 3). Such a way to look at the history of the discipline helped the cultural endeavor of "rehabilitating" those approaches that focused on the realm of meaning, context, and wholeness of psyche, for a long time neglected.

Defining Psychological Facts

In general, psychology lacks a clear understanding of *what a fact is* – how it is created and how solidly it stands within the ocean of alternative interpretations.

Psychology as science is necessarily cultural in its core – as long as its object of investigation is the species of *Homo sapiens*. Members of that species do not merely

respond to stimuli or enact behaviors. Humans act, construct new meanings, think, develop strategies of coalition making in social units, and feel in ways that are not explainable by the mere fight or flight reactions from an event suddenly encountered in a forest. Humans articulate motives in value-laden and subjectively organized systems of motivation (Gonzalez Rey, 2015). Therefore, they construct firearms to go hunting for the bears and build complex systems of meaning and rituals to control and predict both the bear's behavior and the contextual factors that may affect the hunting, but also the mutual conducts of their fellow hunters, finding moral justification for killing the catch. In the same vein, they believe in the powers of weapons of mass destruction, which they condemn, eat with curious attachments to the body (such as chopsticks, forks, knives), turn the freshest – raw – food into cooked, believe in deities and stock markets, and the like. Ever since the first representative of the human species started to behave in such erratic manner, it has been through the construction of life-relevant instrumental artifacts that has allowed the species to survive.

Thus culture as a set of socially created action, feeling, and thinking tools is an evolutionary emergent and constitutes part of any psychological fact.

In cultural psychology (especially in the so-called semiotic turn), fact is not a given ("true") entity, but knowledge that has been created at the intersection of the object of study and the subject who studies the object. As such, what is constructed out of the object of investigation as a fact is a sign – some meaning that stands for some aspect of reality. "Facts," in contrast to other signs, are presented as if they were "the truth." Yet, in psychology there is no "truth" outside of context dependency that the sociocultural paradigms emphasize and that was prominent already in Gordon Allport's personality theory in the 1930s (Allport, 1937).

Ontogenesis and Time

The third theme concerns ontogenesis and time. Psychology deals with unique phenomena in irreversible time (Valsiner, 2014). This implies that every psychological event is unique, but it is treated and described as repeating in a similar way. The personal and cultural meaning of a number of life incidents emerges by the axiomatic uniqueness and the constructed similarity of events. The first word of a toddler, the first school day, the first kiss, the first day on the job, etc. are prepared, interpreted, and celebrated through culture-specific rituals that contribute to the construction of personal meanings. This calls for the appreciation of developmental axiomatic systems for psychology as science, which implies the rethinking of methodology in a developmental and processual form, as already clearly stated by Vygotsky (Van der Veer & Valsiner, 1991). This insistence is based on the basic assumption that in the case of irreversible time – which governs all living organisms – it is only an explicitly developmental framework that can acquire the basis for the science of psychology as a whole. Why that basic axiom? Why refusal to accept the (seemingly) simpler axiom of ontological being ("X exists") rather than insist upon the complexity of "X exists *in the becoming of X*"? The key here is in viewing stability –

a steady state of a system – as a temporary stabilization point in the life-course development of the system. Superficially, (a) and (b) look the same in their current view:

(a) Ontological axiom: X is X.
(b) Developmental axiom: X is *in becoming* X.

The focus on becoming is the crucial feature: "X" emerges from whatever was before and becomes something different later. In the human case, "something later" involves sign-mediated construction of lifeworlds (Valsiner et al., 2016).

The focus on the whole, the nature of psychological facts, and dynamic, historical, and developmental perspective form the fundamentals of cultural psychology that help to reformulate the traditional syllabi of general psychology. Therefore, the common disciplinary organizations of psychology (i.e., social, developmental, educational, clinical, etc.) are overcome by the focus on processes, such as teaching-learning (Bruner, 2020), *affectivating* (Cornejo, Marsico, & Valsiner, 2018), imagining (Tateo, 2020a), becoming and healing (Ho, 2019), etc.

Teaching, Learning, and Assessment in Cultural Psychology: Approaches and Strategies

Cultural psychology is heavily theory-driven, as they criticize the concept of "evidence" itself as a self-evident, self-standing result of an extraction process of inductive "data" from the reality. Data mining is a human collectively organized and value-led activity that takes place in specific historical conditions and materially organized settings. Besides, the emphasis is put on the becoming, rather than the actual condition, of the learner according to Vygotsky's strong developmental perspective.

The teaching-learning process of cultural psychology also cultivates researcher's critical educated intuition. The researcher herself becomes the first instrument of inquiry. Her reflexivity, as in the ethnographic approaches, is what triggers the development of theory, rather than the mere accumulation of empirical "facts" or "evidences."

The third pedagogical principle in cultural psychology is the systematic deconstruction of cultural taken-for-granted. The learners should constantly question and observe human activity as an "anthropologist on Mars" (Sacks, 1995), implying that cultures are neither internally homogeneous nor temporally stable. They are rather a process of constant construction, maintenance, and demolition of meanings in which people are both producers and products.

From the abovementioned principles, it follows that the teaching-learning process in cultural psychology is a continuous movement, back and forth, from the theory to the concrete observation of everyday life collectively coordinated human activities. In order to illustrate how the epistemological approach of cultural psychology can be

translated into concrete educational strategies and learning goals, we will provide some examples in the form of pedagogical scenarios.

Training Observation Skills

The first step of any training program in cultural psychology is the improvement of the capability to observe mundane human activities with a fresh gaze. As teaching strategy, we recommend that the instructors always introduce new concepts beginning with first-person experiences by the students (Table 1). For instance, the instructor can lead her class to a public space and give an observation task involving different aspects of individual conduct in collective context.

An alternative is to build some small-scale "social experiments" (Milgram, Sabini, & Silver, 1992), in which a familiar situation is potentially jeopardized by introducing minimal elements of perturbation. The temporary disruption of taken-for-granted, social suggestions and expectations (Table 2) will make visible the way

Table 1 Scenario making borders visible

Learning objective: improve observational skills by identifying visible and invisible borders in a public space
Description of the activity and task: Students walk in small groups around the site (e.g., the university building) and try to identify both *visible* and *invisible* kinds of borders. Then, they stop few minutes on the borders, take pictures, and draw a map of the place they have selected. They mark on the map all the borders they can discover Afterward, the group analyzes the experience with the instructor focusing on: • What is the *given structure* ("border as it seems to be") • What is the *given function* ("border as it seems to work") • *How can you describe the possibilities of direct modification of the present border*? (maximum of the movability of this border as it currently is) • *What kind of sign-mediated actions are possible to accomplish* on the border

Table 2 Scenario questioning interpersonal borders

Learning objective: improve observational skills and researcher's self-awareness by questioning interpersonal borders in a public space
Description of the activity: Students walk around the site in small groups of 2–3 (e.g., the campus or cafeteria). They stop an unknown person and ask if they can touch her hair. Students can of course explain that the action is for an academic task. One of the students is performing the task, while the other(s) act as observers and interviewers. The student preforming the touching can take time and touch the hair as she feels. Afterward, the interviewer asks the person who has been touched how did it feel. Answers can be recorded on paper or audio. Finally, also the student performing the touch shall be interviewed about her feelings Finally, the group analyzes the experience and the answers with the instructor focusing in particular on: • What kind of border has been experienced? • When the feeling of a border emerges? • There is any explicit marker of the border? • Any resistance? • What are the changes after crossing the border?

people make meaning of everyday situations, allowing the learner to reflect from a direct experience. Here, we provide a concrete example of two different scenarios, in which the instructor can introduce endless variations.

Scenarios 1 and 2 are examples of how to foster the systematic deconstruction of cultural taken-for-granted through the exercise of the students' direct observation and critical reflection among the ordinary action and things of everyday life. The following might be considered a showcase to how cultural psychology might be taught to better understand the cultural component of our psychological processes and individual and collective level.

Training Cultural *Defamiliarization*

In the diametrically opposite direction of cross-cultural psychology, cultural psychology understands "culture" as local set of solutions that human collectives produce to answer general existential problems (e.g., how to give birth and reproduce, how to coordinate and manage conflicts, how to deal with death, what is healthy, what is a happy life, etc.). The local solutions, built through different sets of messages, practices, organization of places, and artifacts, constitute local ecosystems (Tateo, 2020b). The cross-cultural is based on a common theoretical construct, supposedly universal, by which local systems are compared, collecting inductive evidences about personal variations of the construct between cultural (meaning national) groups and eventually finding just some similarities and some differences (Fig. 1).

Both variability and similarity would be grouped in a limited number of binary dimensions (e.g., dependence/independence, collectivistic/individualistic, attachment styles, etc.) and explained by the belonging to a given, and internally homogenous, culture. The universality of the theoretical construct is assumed in virtue of an ethnocentric epistemology, whose validity is cross-cultural by default. Recently, Bhatia (2018) has proved such an assumption to be false. Cultures are instead unique instances of local complex configurations of interacting elements that nevertheless follow generalizable laws. Constructs are thus the product of indigenous, historically situated scientific traditions. Some specific traditions, namely, the Western positivistic social science, have been particularly functional to the colonialist process,

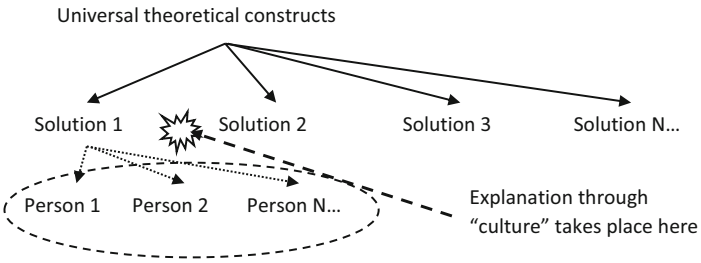

Fig. 1 Cross-cultural approach

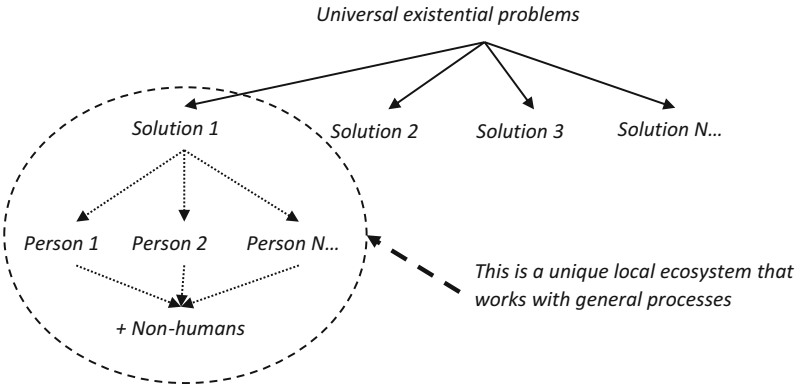

Fig. 2 Ecosystemic approach to cultural differences

which has legitimated this perspective as the only scientifically valid in return (Bhatia, 2018).

By deconstructing this set of assumption, the pedagogical goal of cultural psychology is to educate the learner to exert a new look at the local ecosystems of cultures. Human meaningful conduct cannot be generalized by observing and comparing its outcomes. Students must learn to discern and understand the processes beneath those variable outcomes. One can generalize the existential problems that human beings face both individually and collectively, not compare the local solutions developed in a specific space-time (Fig. 2) (Tateo, 2020b).

Through the systematic deconstruction of "familiar" cultural practices, the learner will be able to "defamiliarize" and recognize the sub-parts (both human and non-human elements) of a unique local configuration, without losing the whole, that is, the peculiar solution to existential problems that one can call "culture," such as "how do we organize family relationships" or "how do I differentiate myself from the other, but at the same time I do not appear an alien."

Yet, this learning process cannot be implemented by the learner alone, and it can emerge only in the context of social relationships of research as collective effort. Thus, we propose an innovative and culturally sensitive model of international learning mobility called "research tandem" (Xu & Marsico, 2020) as example (Table 3).

Training Dialogical Skills

The collective nature of scientific enterprise requires the learner to grasp the role of dialectic confrontation and collaborative construction of knowledge in psychology. For this sake, we propose a model of socialization to collaborative scientific work called "kitchen seminar." Invented as weekly face-to-face and videoconference meeting since 1997 by Jaan Valsiner at Clark University, the "kitchen seminar" is an informal group discussion of new or unfinished projects (e.g., research designs,

Table 3 Scenario the research tandem

Learning objective: improve collaborative research skills and cultural sensitivity through *defamiliarization*
Description of the activity: The innovative research/learning device, which can be implemented in students' international mobility, is called "research tandem." The idea of the device is to form a pair of one insider (host country student) with and an outsider (incoming student) based on common, previously explored research interests. In this process, both sides will be exposed to the experience of "defamiliarization": incoming students will be faced with totally a very different cultural and educational context, while host students will need to respond to their experienced doubts about their own cultural and educational context and curiosity for the other students' perspective. In the process, both sides need to re-examine their cultural beliefs and premises, which they have been taken for granted in their daily practice. The encounter between the students provides an opportunity for the "epoché" of phenomenology, opening to deeper analysis of the issues of inclusion (Xu & Marsico, 2020)

drafts of publications, new ideas for research, etc.). It operates on the basic principles of full equality of expression of constructive ideas independent of seniority or discipline. Its key restriction is the explicit avoidance of political discussions (of science, as well as of society). While these are important issues for sure, they also can divert scientists from concentration on research problems that need to be solved. Scenario 4 provides some hints on the discussion format that can become a powerful context for the socialization of students to cultural psychology (Table 4).

Challenges and Lessons Learned

From the abovementioned teaching-learning strategies, it adamantly appears that cultural psychology requires not only a complex, methodologically eclectic, interdisciplinary, and historically deep syllabus but also a highly stimulating, diverse, and unconventional learning environment.

It is of fundamental importance the student's early direct and indirect contact with different cultural backgrounds. This is particularly challenging considering a general academic trend to limit the quality and quantity of higher education curricula to short, rigid, strongly practice-focused, and temporally constrained programs. The challenge is to provide a teaching-learning experience including the following affordances:

- Providing international and diversified literature of the topic to be discussed, which should not be limited to a single cultural area of origin. A good example would be, for instance, the study of the Self in a Western university from an Eastern perspective.
- Offering pedagogical support to questions rather than to acknowledge the accredited set of theories and authors.
- Promoting the theoretical elaboration (aside from the descriptive level of the phenomena under investigation).

Table 4 Scenario kitchen seminars

Learning objective: improve international scientific collaboration skills and ethic of research through collective development of ideas
The general rule of the format is that everybody can come and go whenever one desires, so the focus that keeps people together is joint interest in the topic discussed. The setting is informal and usually fueled by an abundant provision of coffee on the table Every week, a person provides her own draft together with background readings to be discussed and sends the materials to a mailing list by the previous weekend. The list distributes these on directly to all the kitchen seminars list members. The author of the materials under discussion gives a short (10 min or so) introduction that further specifies in which direction she wishes the discussion could go and what are the open questions she needs to address. It is assumed that the participants will have read the materials – in reality it may sometimes be quick reading, requiring reminders of the relevant details. The discussion then starts for a couple of hours (giving time to the thought development is crucial), with some specific features: • No formality (no introductions, beyond name if the person is new). Powerpoints are to be avoided (since these indicate ready-made presentational style) and are used only if there are materials that feed into discussion • The tradition is not to think of time (even if, for technical reasons, the time is specified by the 2-h slot). This has been marked by the rule that "we start when the coffee is ready" • When coffee is ready, it is directly being served (often starting from the most junior or new members in the group). This is important (in contrast to "coffee is out there, take it if you want" mentality) since it is a social gesture of offering. The offer for coffee is being made all through the 2-h period (until coffee resources last), so the offering by the server is constantly in the background of the discussion. There are often foods on the table – cookies or cakes – that are passed around by the participants from one another • The group creates consensual local social norms that involve breaking (in small ways) the regular social norms of society. Through that, a specific unity of the group is being created and maintained for the event. • The usual rule of conversations to honor one another's "keeping the floor" while speaking is blatantly violated in the discussions. People – when enthusiastic about an idea – "jump in" with elaboration of the idea at any moment, and that is the local social norm, accepted for the time of the event by all participants (but would be considered very rude in regular interactions). It allows for lively – yet at times highly diverse – collective growth of ideas, without boundaries. The mentality is we are here trying to solve the problem; if I have an insight, it should "burst out." of course, it is not always simple to accept that local convention of spontaneity. However, the spontaneity is not required – a participant can remain silent while observing others "burst out" ideas. This changed social norm is the centrally important feature of the event as it grants its freshness and creativity

- Combining different perspectives on the same topic (see the research-tandem strategy mentioned above).

Science Is One, and It Is Universal

Despite taking different forms – some European, some North-American – cultural psychologies are unified as being a part of science. In its ideal form, science has no national boundaries. There are no separate "American psychology," "Australian psychology," "Russian psychology," "indigenous psychology," etc. – but one general science that benefits from the work of scientists in every

country. Yet, such ideal is far from being a reality in psychology, where the sociopolitical power structures either explicitly (by direct imposition of some classificatory scheme from one country to another) (e.g., APA telling clinical psychology programs in Canada to emphasize "cultural minorities" and evaluate these programs based on their inclusion of such "minorities") or implicitly monopolize the given discipline. In its history, psychology has moved from European to North-American dominance, with the latter resisting internationalization of the discipline's investigative practices at equal terms. Yet, it is precisely that restoration of international nature of the knowledge creation's enterprise that brings psychology back from having become a social tool, of any country's dominance over another on the epistemic markets of sciences, to universal domain of knowing (*Wissenschaft*).

Cultural psychology – a (re)new(ed) direction at the intersection of social and developmental psychology on the one hand and cultural anthropology on the other hand – is one of our contemporary efforts to break out of the closed circle of national dominance fights in psychology (Tateo & Marsico, 2019). Its emergence was prepared by the transposition of traditional empirical research on group comparisons to include materials from different societies. At the present time, cultural psychology has moved in a direction that is open to new theoretical models and to integration of approaches with cultural anthropology, social and developmental psychology, history, and sociology.

Teaching and Learning Resources

A list of fundamental readings to teach cultural psychology shall include the following books:

Boesch, E. E. (1991). *Symbolic action theory and cultural psychology*. Berlin: Springer-Verlag Publishing.

Bruner, J. (1990). *Acts of meaning*. Cambridge, MA: Harvard University Press. Cohen, D. & Kitayama, S. (Eds.) (2019), *Handbook of cultural psychology*. New York: The Guilford Press.

Cole, M. (1996). *Cultural psychology: A once and future discipline*. Cambridge, MA: Harvard University Press.

Shweder, R. A. (1991). *Thinking through cultures: Expeditions in cultural psychology*. Cambridge MA: Harvard University Press.

Valsiner, J. (2014). *An invitation to cultural psychology*. Sage.

Valsiner, J. (2021). *General human psychology*. Springer Nature.

Valsiner, J., Marsico, G., Chaudhary, N., Sato, T., & Dazzani, V. (2016). *Psychology as the science of human being*. The Yokohama Manifesto. Springer Nature.

Wertsch, J. V., del Río, P., & Alvarez, A. (Eds.). (1995). *Sociocultural studies of mind*. Cambridge UK: Cambridge University Press.

Some of the source journals, representing the range of approaches in cultural psychology, are (in alphabetical order):

- *Culture and Psychology*. Sage
- *Human Arenas*. An Interdisciplinary Journal of Psychology, Culture, and Meaning. Springer
- *Integrative Psychological and Behavioral Science*. Springer
- *Mind, Culture, and Activity*. Taylor & Francis

Online resources are available at:

- Institute of Cultural Psychology and Qualitative Social Research (https://ikus.cc/english-information/)
- Laboratory of Comparative Human Cognition (LCHC) (http://lchc.ucsd.edu/home)
- Centre for Cultural Psychology, Aalborg University (https://www.ccp.aau.dk/)
- Hans Kilian and Lotte Köhler Center for Cultural Psychology and Historical Anthropology (KKC) (http://www.kilian-koehler-centrum.de/)
- Research Group on Social Interactions - Laboratory of Psychology "Giovanni Abignente" University of Salerno (https://sites.google.com/unisa.it/gris)

Cross-References

- ▶ Developmental Psychology: Moving Beyond the East–West Divide
- ▶ Epistemology of Psychology
- ▶ Qualitative Methodology
- ▶ The Methodology Cycle as the Basis for Knowledge

References

Allport, G. W. (1937). *Personality: A psychological interpretation*. New York, NY: Holt.

Anandalakshmi, S. (1974). How independent is the independent variable? Problems and perspectives form New Delhi. In J. L. M. Dawson & W. J. Lonner (Eds.), *Readings in cross-cultural psychology* (pp. 79–89). Hong Kong, China: Hong Kong University Press.

Bhatia, S. (2018). *Decolonizing psychology*. New York, NY: Oxford University Press.

Boesch, E. E. (1991). *Symbolic action theory and cultural psychology*. Berlin, Germany: Springer-Verlag Publishing. https://doi.org/10.1007/978-3-642-84497-3

Brown, J. S., Heath, C., & Pea, R. (1999). *Perspectives on activity theory*. New York, NY: Cambridge University Press.

Bruner, J. (1990). *Acts of meaning*. Cambridge, MA: Harvard University Press.

Bruner, J. (2012). What psychology should study. *International Journal of Educational Psychology, 1*(1), 5–13.

Bruner, J. (2020). *The culture of education*. Cambridge, MA: Harvard University Press.

Bruner, J. S. (1983). *In search of mind: Essays in autobiography*. New York, NY: Harper and Row.

Clegg, J. W., & Salgado, J. (2011). From Bakhtinian theory to a dialogical psychology. *Culture & Psychology, 17*(4), 520–533.
Cohen, D., & Kitayama, S. (Eds.). (2019). *Handbook of cultural psychology*. New York, NY: The Guilford Press.
Cole, M. (1996). *Cultural psychology: A once and future discipline*. Cambridge, MA: Harvard University Press.
Cornejo, C., Marsico, G., & Valsiner, J. (Eds.). (2018). *I activate you to affect me*. Charlotte, NC: Information Age Publishers.
Diriwächter, R. (2004). Völkerpsychologie: The synthesis that never was. *Culture & Psychology, 10*(1), 85–109. https://doi.org/10.1177/1354067X04040930
Duveen, G. (1998). The psychosocial production of ideas: Social representations and psychologic. *Culture & Psychology, 4*(4), 455–472.
Gonzalez Rey, F. L. (2015). Human motivation in question: Discussing emotions, motives, and subjectivity from a cultural-historical standpoint. *Journal for the Theory of Social Behaviour, 45*(4), 419–439.
Heine, S. J. (2020). *Cultural psychology: Fourth international student edition*. New York, NY: WW Norton & Company.
Heiphetz, L., & Oishi, S. (2021). Viewing development through the lens of culture: Integrating developmental and cultural psychology to better understand cognition and behavior. *Perspectives on Psychological Science*. Online first, July 2021. https://doi.org/10.1177/1745691620980725
Ho, D. Y. (2019). *Rewriting cultural psychology: Transcend your ethnic roots and redefine your identity*. Irvine, CA/Boca Raton, FL: BrownWalker Press.
Jahoda, G. (1993). *Crossroads between culture and mind: Continuities and change in theories of human nature*. Cambridge, MA: Harvard University Press.
Klempe, S. H. (2021). *Sound and reason*. New York: Palgrave.
Kluckhohn, C., Murray, H. A., & Schneider, D. M. (Eds.). (1948). *Personality in nature, society, and culture* (2nd ed. Rev.). New York: Knopf.
Milgram, S., Sabini, J. E., & Silver, M. E. (1992). *The individual in a social world: Essays and experiments*. New York, NY: McGraw-Hill Book Company.
Piechocinska, B. (2005). *Physics from wholeness: Dynamical totality as a conceptual foundation for physical theories* (PhD dissertation, Acta Universitatis Upsaliensis). Retrieved from http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-5915
Sacks, O. (1995). *An anthropologist from Mars: Seven paradoxical tales*. London, UK: Picador.
Sammut, G. E., Andreouli, E. E., Gaskell, G. E., & Valsiner, J. E. (2015). *The Cambridge handbook of social representations*. Cambridge, MA: Cambridge University Press.
Shweder, R. A. (1991). *Thinking through cultures: Expeditions in cultural psychology*. Cambridge MA: Harvard University Press.
Tateo, L. (2015). Giambattista Vico and the principles of cultural psychology: A programmatic retrospective. *History of the Human Sciences, 28*(1), 44–65.
Tateo, L. (2020a). *A theory of imagining, knowing, and understanding*. Cham, CH: Springer Nature.
Tateo, L. (2020b). The school as semiotic intercultural arena. In *Social ecology of a Chinese Kindergarten* (pp. 117–128). Cham, CH: Springer.
Tateo, L., & Marsico, G. (2019). Introduction: Framing a theory of ordinary and extraordinary in cultural psychology. In Marsico G. & Tateo, L. (Eds) (2019). *Ordinary things and their extraordinary meanings* (pp. xi–xxix). Charlotte, NC: InfoAgePublications.
Tateo, L., & Marsico, G. (2021). The creative synthesis and the global psychology. *Human Arenas, 4*(1), 1–4. https://doi.org/10.1007/s42087-021-00201-6
Valsiner, J. (1995). Editorial: Culture & psychology. *Culture & Psychology, 1*(1), 5–10. https://doi.org/10.1177/1354067X9511001
Valsiner, J. (1996). Editorial: After the first year. *Culture & Psychology, 2*(1), 5–8. https://doi.org/10.1177/1354067X9621001

Valsiner, J. (2001). The first six years: Culture's adventures in psychology. *Culture & Psychology, 7*(1), 5–48. https://doi.org/10.1177/1354067X0171002

Valsiner, J. (2004). Three years later: Culture in psychology – between social positioning and producing new knowledge. *Culture & Psychology, 10*(1), 5–27. https://doi.org/10.1177/1354067X04040925

Valsiner, J. (2014). *An invitation to cultural psychology.* London, UK: Sage.

Valsiner, J. (2019). *Culture & Psychology*: 25 constructive years. *Culture and Psychology, 25*(4), 429–469.

Valsiner, J., Marsico, G., Chaudhary, N., Sato, T., & Dazzani, V. (2016). *Psychology as the science of human being. The Yokohama manifesto*. New York, NY: Springer.

Valsiner, J. E. (Ed.). (2012). *The Oxford handbook of culture and psychology.* New York, NY: Oxford University Press.

Van der Veer, R., & Valsiner, J. (1991). *Understanding Vygotsky: A quest for synthesis*. Oxford, UK: Blackwell Publishing.

von Humboldt, W. (1988 [1836]). *Über die Verschiedenheit des menschlichen Sprachbaues und ihren Einfluss auf die geistige Entwickelung des Menschengeschlechts. – Wilhelm von Humboldt's gesammelte Werke. Kuudes nide*. Berlin, Germany: Walter de Gruyter.

Wertsch, J. V., del Río, P., & Alvarez, A. (Eds.). (1995). *Sociocultural studies of mind*. Cambridge, UK: Cambridge University Press. https://doi.org/10.1017/CBO9781139174299

Xu, S., & Marsico, G. (Eds.). (2020). *Social ecology of a Chinese Kindergarten: Where culture grows*. Cham, CH: Springer Nature.

Teaching Media Psychology

25

Or How Do I Distinguish the Data from the Dumpster Fire?

Christopher J. Ferguson

Contents

Abstract

The effects of cultural media can be one of the most difficult and controversial topics for psychology instructors to teach. It does not help that many textbooks get the subject matter wrong, claiming that effects are much stronger and better supported by evidence than they actually are. In fact, new evidence, particularly

C. J. Ferguson (✉)
Stetson University, DeLand, FL, USA
e-mail: cjfergus@stetson.edu

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from preregistered studies, suggests that in most realms of media effects, whether media violence, body image, suicide-themed media, or pornography, effects on viewers' attitudes and behaviors are far less than was once imagined. Media effects research provides an excellent opportunity, however, to teach students how to weigh conflicting evidence and apply critical thinking to complicated, nuanced, and morally valenced debates.

Keywords

Media violence · Body image · Video games · Pornography · Sexualization · Suicide · Mass media · Aggression

Introduction

I will start with the premise that, as teachers of psychology, we often unwittingly lie to our students. Looking back on over 20 years of teaching, I cringe when I think now of the various origin myths and morality tales I passed along from introductory psychology texts to fascinated students as if I were a storyteller, passing along fables to youth around a campfire. The amazing story of the murder of Kitty Genovese and the 38 witnesses who did not help her (not true it turns out; Manning, Levine, & Collins, 2007). I described Zimbardo's Stanford Prison Experiment revealing how easily power corrupts us (now descending into chaos and accusations of experimenters pressuring participants to behave as the experimenters wished; Blum, 2018). We could probably think of countless other bits of nonsense we wish we could retract, writing furious e-mails to former students. "Remember when I told you that great story about X, Y, Z? Well, turns out it's not true. Sorry about that!" It is one of the greatest challenges of teaching psychology: separating the good data from the nonsense, particularly when teaching in areas that are not our specialty.

It is even more difficult when so many topics of human behavior, society, and welfare touch upon emotionally and morally valenced topics. Take, for example, the issue of whether males have more variance in IQ (thus resulting in both more cognitively impaired males than females, but also more geniuses). From an empirical view, it is a perfectly valid and testable hypothesis, but also one about which certain results could be upsetting to some people. Do textbooks, then, come under pressure to promote beliefs that advance certain moral agendas at the expense of clear data? Or, for that matter, are they biased in the direction of promoting psychology as a wonderland of clear results and fascinating stories when the reality is much murkier and sometimes embarrassing, such as for psychology's current replication crisis? One thing we know is that introductory textbooks are full of errors (Ferguson, Brown, & Torres, 2018; O'Donohue & Willis, 2018), and I have little confidence in upper division textbooks as well. So, what are teachers and professors to do?

The effects of media on behavior can be one of those difficult topics to teach for several reasons. First, the involved research fields have historically been very messy because of numerous problems with poor methodologies (Savage, 2004; Want, 2014;

Whyte, Newman, & Voss, 2016). Second, and related, there is overreliance on the Bandura bo-bo doll studies which, as I will discuss below, may be less informative than students are often told. The Bandura studies, small and flawed as they actually are, have become a kind of *origin myth* of psychology not unlike the now discredited Stanford Prison Experiment (Blum, 2018). Third, the widespread adoption of social learning theory (SLT) by psychology has undoubtedly created a bias in favor of evidence supporting media influences and against evidence questioning those influences. This creates an institutional bias in scholarly and professional organizations around the world, including the American Psychological Association (APA) and the World Health Organization (WHO), and results in the release of multiple seriously misleading policy statements on media effects (Elson et al., 2019). Fourth, issues of media effects are highly wrapped up with moral beliefs and moral advocacy related to a "saving lives" mentality. Fifth, many individuals including textbook authors and individual instructors have very strong opinions on the topic that may blind them to evidence conflicting with their personal views. And last, it has been well documented that there is a high rate of error in introductory psychology textbooks related to the issue of media effects, typically in the direction of vastly overstating the evidence for effects (Ferguson et al., 2018).

Taken together, these factors create a high degree of potential for instructors to *misinform* rather than inform students on this particular set of issues. Given that we have documentation that many introductory psychology textbooks (and certainly social psychology and other textbooks as well) have serious errors and biases about media effects and that even the APA's public statements have been discredited (also see Ferguson, Copenhaver, & Markey, 2020), covering this field in class creates significant challenges for psychology instructors. (I cannot say these challenges are unique, as textbooks are rife with biases on other morally and ideologically valenced topics.) Indeed, it is safe to say that many declarative statements made by textbook authors and instructors on the issue of media effects are false, particularly as illustrated by recent preregistered research. I will begin this chapter on teaching media psychology by taking a look at the violence in media debate before more briefly discussing several other related media effects realms, then offering some thoughts on how to refocus these debates into opportunities to engage students with critical thinking and appropriate scientific skepticism rather than to indoctrinate them in ideological or moral beliefs.

Media Effects in the Classroom

In most cases, media effects will be taught in classes outside of a course or module devoted specifically to the topic. Introductory psychology and social psychology textbooks typically, though briefly and often poorly, consider the topic of media violence. The potential impact of a "thin ideal" media on body image may be considered in courses on the psychology of women, or sexual behavior. Pornography effects may likewise be presented in courses on sexuality or gender. In most cases, though, textbooks struggle to present the research accurately, often falling back on misleading and morally valenced claims of public-health level effects that cannot, in fact, be supported by the evidence base in these areas. Indeed, psychology

instructors' primary risk when talking about these matters is that they may hold and teach inaccurate information.

Relatively few universities offer "niche" courses that focus specifically on media effects, even though they are popular with students. At my university, I teach two of them; one is a seminar on media effects in general for third-year students, and the other is a first-year seminar for graduate students that focuses specifically on the effects of video games. Such media classes are typically taught at the undergraduate level; graduate-level examples are particularly rare other than at the few programs dedicated specifically to media psychology. Thus, in most cases, students' limited exposure to data on media effects may be in classes that are not devoted to the topic and are taught by instructors who are not particularly familiar with the issues at hand, relying on textbooks that are not particularly accurate in conveying the complexities of data and debate in these areas.

The Cautionary Tale of Media Violence

Interest in the idea that media might have deleterious effects on youth is nothing new and can be traced back to at least the ancient Athenians, some of whom worried about the effects of Greek plays on youth delinquency (Kutner & Olson, 2008). History is replete with societal concerns over new media and technology including, though not limited to, religious texts such as the Bible, phones, comic books, various styles of music (from waltzes through jazz, rock, and rap), Dungeons and Dragons, and, more recently, television and video games. In all such cases, the concern is generational, with older adults concerned about the new media creating a moral panic of alarm (Cohen, 1972). For instance, with video games, this same pattern has been demonstrated among the general public (Przybylski, 2014), clinicians (Ferguson, 2015a), and even scholars who study video games (Ferguson & Colwell, 2017). In each case, age (itself conflated with experience with games) as well as dislike of youth themselves was associated with greater belief in the harmfulness of video games. These surveys also show the inevitable death of moral panics as well. . .typically as the audience of older adults who believe the panic dies, the panic itself dies. This is why few people today worry about the deleterious effects of, say, the radio despite that academic journals in the 1940s published articles warning about its harming youth (e.g., Preston, 1941). In the surveys of clinicians and scholars noted above (see also Quandt et al., 2015), the belief that aggressive video games contribute to societal aggression is a minority view, typically espoused by 10–15% of scholars, with clinicians a bit higher at 39.5%, though once again mostly overrepresented among older clinicians.

Bandura's Origin Myth of Aggression

Most of psychology's unfortunate obsession with violent media can be traced back to the original Bobo doll studies with children. (I do not refer to them as studies of

children's aggression as they are not, for reasons that will become clear in a moment.) These were not the first studies related to media violence by any means, but they helped (falsely) cement in the minds of many psychologists that children learned to become aggressive by watching adult models. The gist of these studies is probably known to most psychologists, so I will not repeat them in detail here. However, many flaws and limitations of these studies are typically glossed over when teaching them to students, such that these studies have become part of psychology's origin myths.

By origin myths, I mean that some studies and anecdotes are highlighted to students in order to represent psychology's power, although the stories themselves are flawed or simply untrue. As noted already, the parable of Kitty Genovese and the 38 witnesses and the debunked Stanford Prison Experiment are two such examples, but there are others, including exaggerations of the power of Watson's Little Albert experiment (Griggs, 2014), revelations that Milgram's obedience studies may be the product of demand characteristics and hypothesis guessing rather than real effects (Perry, Wanner, & Stam, in press), and the sensationalization of Phineas Gage's injuries and lack of coverage of his recovery (Griggs, 2015). Still other origin myths come from textbooks' failure to correct popular but low-quality studies in the context of psychology's replication crisis. Some phenomena that were once considered firmly established, such as social priming (Pashler, Coburn, & Harris, 2012) and stereotype threat (Stoet & Geary, 2012), now appear to be in serious trouble empirically, yet may be repeated to students by teachers and textbooks without mentioning replication failures. The issue of media violence effects, too, appears to be in this category.

To return to Bandura, his studies are often taught to students as if they tell us something about aggression, but, in fact, they are not aggression studies at all. Part of the problem relates to the severe limitations of a Bobo doll as an instrument through which to measure aggression, and part relates to flaws in the experimental design. It has long been understood that the Bobo doll paradigm is, in fact, a weak one for understanding aggression (Tedeschi & Quigley, 1996). After all, the Bobo doll is a toy whose *sole purpose* is to be hit! Generalizing from this play-like roughhousing to real-life aggression was always ill-advised. As Tedeschi and Quigley (1996) put it, "The Bobo modeling paradigm may not examine aggression at all, rather, imitative behavior of 'rough and tumble play' in which there is no intent to harm." Consider this thought experiment in which young children are exposed to videos of an adult hitting kittens with a hammer and are then brought into a room filled with kittens and hammers. Would most of the children imitate the behaviors they saw in the video? I doubt it. In fact, they likely would be traumatized by what they saw.

Indeed, one can see Bandura's Bobo studies as experiments on compliance, not aggression. He and others have made the arguably incorrect assumption that the children in the the study *felt* aggressive and wished to harm the doll. Yet, no evidence is offered to support that assumption. The children were shown the video, after which they entered the room where the Bobo doll awaited, but *given no other instructions.* Absent from further instructions from the experimenter, the children may well have assumed that the video had presented instructions as to what they

were expected to do next. In effect, the results of Bandura's studies may have been strongly affected by *demand characteristics,* specifically, that when research participants figure out what experimenters want them to do, they tend to do it, even if it is not their natural inclination (Orne, 1962).

If this analysis is correct, the Bandura studies tell us nothing about aggression, as it is unlikely the children were feeling aggressive, and therefore tell us nothing about the impact of media violence. With these points in mind, I suggest that teachers of psychology should not encourage students to accept the descriptions found in many textbooks that link Bandura's results to conclusions about the dangers of media violence. Doing so would deprive students of a significant opportunity for critical thinking. Indeed, fully exploring the Bandura studies and their flaws can become an important learning experience. We can ask students what they do and do not consider convincing about the Bobo doll studies. Are there better ways to quantify aggression in the laboratory? Given ethical limitations, is it even possible to study aggression in the laboratory in a way that means anything for the real world? To what extent do we know that participants are responding in a study in a manner that reflects how they actually feel as opposed to what they think the experimenter wants them to do? Is human psychology really as straightforward as those of Bandura, Milgram, and Zimbardo suggest?

Some argue that the Stanford Prison Experiments should be dropped entirely from psychology courses (see Gray, 2013), and in the context of psychology's replication crisis, it may be time for us to let go of many other of these older cohort studies that have attained the status of origin myths. At the very least, these studies should be used as opportunities to dissect psychology's limitations, not as exemplars by which we indoctrinate students into believing nonsense.

The Pitfalls of Media Violence Research

Armed with Bandura's Bobo doll studies, psychology set upon a quixotic multi-decade effort to link media violence to everything from schoolyard bullying to mass shooting events. This effort has now crashed and burned. It is difficult to think of another field that went so rapidly from public prominence and the embrace of presidential-level politics to become a figurative dumpster fire and exemplar of how science should not be done.

I invoke the term "dumpster fire" to mean that the field has descended into both chaos and acrimony, and I do not do so lightly, but unfortunately the term is apt. This is because, in my view, some researchers in psychology (and some American psychological organizations such as the APA) have engaged in and supported pseudoscience or even antiscience in relation to the impact of media violence. Caught out finally during the replication crisis, the result has been the toppling of a house of cards, with considerable negative fallout for scientific credibility, professional relationships, and individual careers.

By the early 1970s, media researchers along with policy makers were adamant that television and movie violence (and, later, video game violence) were major

causes not only of aggression but also criminal violence. Scholars claimed that perhaps half of all homicides (Centerwall, 1992) or 30% of all violent crime (Strasburger, 2007) could be attributed directly to media violence, and other scholars compared the effects to smoking and lung cancer (Bushman & Anderson, 2001). Ironically, some scholars aggressively bullied any who would question this belief, using ad hominem attacks, falsely claiming industry conflicts of interest where none existed, or comparing more skeptical scholars to Holocaust deniers (for specific examples, see Ferguson, 2015b). Statements by scholars believing in media violence effects became increasingly extreme, with frequent references to mass shootings and even the 9/11 attacks and comparison to important medical effects (for examples, see Markey, Males, French, & Markey, 2015).

Early on, however, some scholars (e.g., Freedman, 1984; Savage, 2004) were already warning that the evidence for these assertions was not strong and that inconsistent findings with weak effect sizes were being presented as more significant and certain than they actually were. These critics also pointed out other problems in the media field, including lack of standardized measures, and a tendency to ignore research results that were inconsistent with the emerging gospel. These warnings were either shouted down in print rebuttals or simply ignored. Not only did organizations like the APA fail to step in to provide scientific correction, but they also largely parroted researchers' most extreme claims in policy statements that ultimately proved to be erroneous and misleading (Elson et al., 2019). The American Academy of Pediatrics (2000) cited a pop psychology book in repeating the apocryphal claim that of 3500 studies of media violence only 18 failed to find harmful effects. In fact, at the time, there were only about 200 such studies, and the results were far more mixed (Freedman, 2002). In short, the history of media violence research is a case study of a remarkable lack of restraint or oversight of this research field, but in fairness it must be noted that acceptance of flawed research was influenced by the correlation between increased television viewing and an increase in the US crime rate that stretched from the 1970s through the mid-1990s. Similar correlations appeared in Canada and South Africa (Centerwall, 1989), though not in other countries (Zimring & Hawkins, 1997). Still, the idea of a link between media violence and violent behavior stuck.

The heyday of the media violence hypothesis lasted with only sporadic opposition until the early 2000s, at which point two things had become apparent. First, the crime wave in the United States that peaked in 1993 had evaporated; crime rates are now about where they were in the 1960s (though, it should be said, early data suggest a significant increase in 2020, likely due to a combination of unique events in that year). This is remarkable because the reduction in crime began just as violent video games were being introduced in the United States (Ferguson, 2015c), thus removing one pillar of the argument for the negative public health level effects of media violence. Ironically, many scholars who once pointed to increasing crime rates as evidence for those effects began to argue that decreasing crime rates were unimportant. But one cannot have it both ways. Certainly, violence is multiply

determined. Yet, such a large negative correlation between recent media violence consumption and societal violence, coupled with the *sheer amount* of media violence consumed by society, provides a persuasive correlational argument against the notion that, at the very least, one-third to one-half of violent crimes are caused by media violence, or the effects are similar to smoking and lung cancer.

The second major recent development in the media violence research field is that the quality of some media violence studies improved and, by the mid-2010s, in the United States, at least, many of them began to be preregistered. This means that the researcher publishes his or her hypotheses, methods, and data analysis plans before collecting any data. Preregistration is important because, previously, most aggression measures used in media violence studies were unstandardized, allowing researchers to pick and choose data that best fit their hypotheses. Indeed, with some of the common measures used, it was possible with the *same sample* to show that violent media either increased, decreased, or had no effect on aggression by extracting data creatively from a single aggression measure (Elson, Mohseni, Breuer, Scharkow, & Quandt, 2014). During this time, it became clear that psychological research on media violence (and on many other topics) was unreliable and that many apparently well-established beliefs and theories were proving to be false under more rigorous testing. The problem was due in part to scholars injecting personal beliefs into their research by *p-hacking* or rerunning their analyses in creative ways until they got the results they expected or wanted. P-hacking is more difficult, though not impossible, following preregistration. Most preregistered studies of media violence have focused on violent video games, and almost none of them supports negative effects (Ferguson, 2020). In other words, the best preregistered research that uses standardized measures finds that media violence does not reliably affect violence, bullying, or milder aggression. Although most preregistered studies now focus on the effects of violent video games; to my knowledge, only one looked at the impact of movies (Mubarak & Ferguson, 2020).

What Is a Teacher to Do?

In a perfect teaching world, psychology teachers would have a set of definitively determined facts which we impart to students. Unfortunately, we often do not have clear facts about media psychology, or about other aspects of psychology. Add to this the fact that some textbooks contain significant biases, misinformation, or outright myths, and the psychology teacher's job becomes particularly challenging.

In the preceding section, I offered a synopsis of media violence research that may differ significantly from what you are likely to find in some textbooks. I believe it is the correct synopsis, but media psychology in general, and research on media violence in particular, is a field characterized by much continued debate, some of which is quite acrimonious. But all this debate and disagreement means that media psychology courses lend themselves particularly well to creating lively teaching and learning experiences focused on critical thinking. With this in mind, I offer a few suggestions.

Embrace the Debate

Teaching students that a field is in conflict is not necessarily a bad thing. Certainly, imparting definitive facts can be satisfying and exciting, but the truth is that psychology (and real life) is often messier than what appears in textbooks. So it can be even more satisfying and exciting to give students disparate pieces of evidence, ask them to weigh opposing arguments, and come to their own conclusions. Class exercises can be built around this. You can assign students to read review articles from both sides of the academic debate on the effects of media violence (or other course topics) and report on their conclusions. You can also organize in-class debates between students, perhaps asking them to represent the side of the issue that they personally oppose. Exercises like these help to give students a fuller view of science which, rather than discovering facts in a linear fashion, often proceeds in fits and starts, lumbering and lurching toward self-correction.

Highlight the Politics of Science

Ideally, science should be value neutral, with pieces of data carrying no moral or political value. But in psychology and other behavioral and social sciences, this is often not the case. This point is exemplified by media violence research, which though undoubtedly undertaken in good faith has taken on both political and moral valence. In the United States, its results played a role when the Supreme Court was considering the constitutionality of increased restrictions on free speech by artists (in this case, the authors of video games) in the name of *protecting children*. The court was not persuaded by the argument that violent games cause youth aggression and clarified that both game creators and players enjoy substantial free speech protections (Brown v EMA, 2011). The decision came as a disappointment to the many scholars, politicians, activists, and leaders of professional guilds such as the APA who had misrepresented research results (or disseminated misrepresentations) so as to make the research say what they *wanted* it to say, not what it actually said.

Introducing students to the politics of media violence research provides a relatively safe way to get them thinking about the more general problem of politics in psychological science. It is a problem that applies to many other fields in which data collected and analyzed in an utterly neutral way could have explosive emotional, political, and moral repercussions. Research related to race, gender, sexuality, and the like are obvious examples of topics which can be political minefields. We should be explaining this to our students, especially in media psychology courses, because the truth about human behavior may not always align with our cherished beliefs about the world, and misalignments may not sit well with those in the media who would preserve those beliefs at all costs. Students need to understand that scientists are influenced, consciously or not, by the impact their research can have on society, and that this influence may lead them to choose designs, analyses, and conclusions that are neither unbiased nor value free. To reinforce this point, we should ask

students to consider what would happen to scientists who find data that supports certain aspects of racial stereotypes. What if they find evidence that there really are biological and genetic components to gender or ethnic differences? What if their data suggests that intelligence is a real, single construct that plays a major role in determining life success? What if college entrance exam scores are actually good predictors of college grades for all students, and what if students' evaluations are accurate measures of their teachers' performance? Asking such questions can help students begin to understand that, for scientists studying value-laden topics, there is an inherent tension between doing good science and the political agendas of the right or the left.

Arguments to Authority

One of the issues to emerge from the media violence debate is that a lot of very smart people can be extremely wrong. This goes back to Bandura, who undoubtedly was very smart, acted in good faith, and revolutionized our approach to psychology, but who I would argue did more to damage our understanding of how aggression works than any other single individual. I do not mean this assertion as a personal criticism. Sometimes, academics just get things wrong, and science must self-correct. That is the process, but we should be sensitizing our students to the danger of deifying individual psychologists as if their word on a matter is treated as evidence. This is the classic logical fallacy of *argument to authority.*

The same goes for professional guilds such as the APA. Students should be allowed to consider the argument that these organizations are not science organizations, rather that they exist to promote professions. Consequently, they tend to release public policy statements that benefit the profession or just the APA, even if the statements are not necessarily accurate. This general argument has been presented for some time (e.g., O'Donohue & Dyslin, 1996) and has been more recently focused on the APA's flawed policy statements on media violence (Elson et al., 2019). Presenting this information can help stimulate students to critically evaluate the worth of statements made by professional bodies.

The Limits of Meta-Analyses

Especially in advanced courses on media psychology, discussion of research on media violence provides an opportunity to highlight the limits and misuse of certain methodological approaches, especially meta-analyses. These analyses combine the results of individual studies into a pooled mass of data in order to examine mean effect sizes. They have mushroomed in popularity over the past several decades, but they can have serious flaws that threaten the validity of the conclusions drawn from them.

In most research fields, the pooled mean effect size between studies is not very meaningful, as that effect size may be driven by systematic methodological flaws

rather than actual effects that exist in the real world. Also, given that meta-analyses are statistically powerful, and few mean effect sizes are exactly zero, poorly used meta-analyses tend to give undue advantage to the alternative hypothesis. In many, perhaps most, cases, effect sizes are tiny but are nonetheless interpreted as supporting hypotheses with little concern for methodological issues that can cause false positive results. As a result, meta-analyses are often misused as tools for dismissing the significance of between-study inconsistencies and allowing researchers to declare results in a field to be more consistent than they actually are.

As an example, for their 2015 Task force on media violence (mainly focused on video games), the APA conducted a meta-analysis on 18 studies (far fewer than 3500!) and declared them to provide consistent evidence for the effects of violence on aggression, though not on violent crime (APA, 2015). However, a more recent reanalysis found that the APA task force missed dozens of studies, included five studies that actually did not compare violent games to nonviolent controls, and that the evidence presented did not, in fact, support the hypothesis that violent games contributed to aggression (Ferguson, Copenhaver, & Markey, 2020). Other recent meta-analyses have found that publication bias (the tendency to publish positive findings but not negative ones) has been widespread in this field, which also limits the utility of meta-analysis (Hilgard, Engelhardt, & Rouder, 2017). Understanding the limits of meta-analysis can help students put their contribution into proper perspective.

Other Media Effects Fields

The observed discrepancy between public rhetoric and available data is not limited to the field of media violence. It appears to be endemic to most media effects theories, particularly those that warn of the dangers of morally naughty fictional media. Such fields tend to undergo a standard pattern, albeit over varying lengths of time: First, a hypothesis is formed, typically with a moral component to it. Second, data are collected, often heavily reliant on college student participants and usually employing laboratory analogues of stress or aggression that are not directly representative of aggression or gun violence or whatever topic that society is worried about. Third, a narrative process begins in which claims are made and for which data are *superfluous*. Indeed, data that do not confirm the claims are typically ignored; proponents of the asserted theory pretend those data do not exist. Inconsistent results are dressed up as consistent, and meta-analyses are employed to launder away between-study inconsistencies. Typically, the narrative pushes a moral narrative that scientists and society must *do something* to protect children or other groups from mental illness or even death. Fourth, professional guilds such as the APA, perhaps sensing a way to use this field to market the profession, release policy statements that, as already noted, rarely reflect the realities of the science, but typically further the moral and ideological agenda of the organization.

One of the best-known examples of this pattern can be found in the literature on the alleged causal link between thin-ideal media messages (i.e., that idolize slender

models and actresses) and the occurrence of eating disorders in women, particularly anorexia nervosa. It might surprise your students to learn that there are exactly zero empirical studies that support the existence of such a causal link. You can explain that anorexia nervosa is exceedingly rare (occurring in 1% or less of women) making it difficult to obtain relevant research samples. Thus, most studies rely on either self-report surveys of eating disorder *symptoms* (some of which, like dieting to lose weight, are quite common and mild on their own), or a nonclinical condition called *body dissatisfaction.* Most studies are conducted with college students and use research designs that make it easy for participants to guess what the researchers' hypothesis is, thus causing some participants to respond or behave in accordance with what they think the experimenters want to see. Also, many studies do not use appropriate control groups. In an experiment on the impact of "thin ideals," the stimuli for the experimental group should be thin and attractive models, whereas control participants should see stimuli that are larger, but equally attractive. This arrangement separates the impact of thinness from that of, say, general attractiveness. However, many studies compare the impact of thin models to that of household appliances like refrigerators, not average-sized humans. This kind of control condition does not allow researchers to isolate the specific impact of thinness, or even humanness.

In short, serious methodological flaws run rampant in this field (Want, 2014), and as a result, the evidence is quite inconsistent. One of the best examples of flawed data being dressed up as more convincing than they are occurred in the "Fiji study," which examined the prevalence of eating disorders before and after the introduction of television on the island in the mid-1990s (Becker, Burwell, Herzog, Hamburg, & Gilman, 2002). On the basis of self-report surveys, the researchers concluded that eating disorders among Fijian girls increased after the introduction of television. However, a close examination of their main results indicates numerous inconsistencies with that conclusion (Ferguson, 2018). Although self-reported vomiting to reduce weight increased, as did overall eating symptoms, binging symptomatic of bulimia nervosa did not, nor did BMI decline as one might expect when girls embrace a thin ideal. A multivariate analysis of TV ownership and self-reported eating disorder symptoms became nonsignificant when only controlling for sample year (samples were collected in 1995 and 1998), and it is likely that effect sizes would have been further attenuated had other theoretically important variables been controlled. Thus, although the Fiji study reported increases in some, but not all, *self-reported* symptoms after television became available, there was no evidence that television resulted in actual weight-reducing behaviors among adolescent girls. Further, given the small sample size (63–65 girls), and the fact that the study design did not make it possible to isolate media effects from those of other social changes occurring in Fiji at the time, the Fiji study – though often interpreted as clear evidence for a media effect – does not provide strong support for that effect.

Indeed, for men and most women, there is no convincing evidence that thin-ideal media messages cause body dissatisfaction, let alone clinically diagnosed eating disorders, yet the studies that fail to find the claimed link tend to be ignored

(Ferguson, 2013). Ironically, those studies tend to be the ones with the best experimental designs (e.g., Bruns & Carter, 2015; Roberts & Good, 2010; Veldhuis, Konijn, & Seidell, 2014; Whyte et al., 2016).

After summarizing this body of evidence, it might be instructive to ask your students to consider other ways in which media messages might be related to eating disorders. One possibility is that, for women who *already* experience body dissatisfaction (caused by genetics, family influences, or peer competition), seeing thin models in the media may remind them of that dissatisfaction and amplify it.

Research on the impact of pornography is another which has long been heavily influenced by morality, but often divorced from good data. Even today, some scholars argue that pornography is a cause of sexual violence (e.g., Guggisberg, 2020), despite a dire lack of evidence to support that causal connection (e.g., Ferguson & Hartley, in press; Seto, Maric, & Barbaree, 2001). In fact, at the societal level, there is strong evidence for an inverse relationship between the availability of pornography and sexual violence.

Other false narratives about media influences abound. For example, it was briefly claimed that a US TV series called *13 Reasons Why,* which included the graphic suicide of a teenage girl, might be causing teen suicides until a closer examination of suicide data found no relationship to the release of the show (Romer, 2020). In the mid-2010s, both the US Centers for Disease Control and Prevention (CDC, 2017) and the United States Surgeon General (US Department of Health and Human Services (2014) had begun claiming that tens of thousands of Americans were dying each year as a result of having taken up smoking after watching movie or TV characters do so. The data supporting this claim appear to have been largely invented or extrapolated from very weak studies that actually, in the aggregate, found that movie smoking has little effect on teen smoking (Ferguson, Nielsen, & Markey, 2020).

Two more examples of debunked claims about media effects include that the movie *Jaws* was responsible for shark depopulation (that depopulation began before the movie was released and is related entirely to the impact of commercial overfishing), and that a radio broadcast of H.G. Wells' *War of the Worlds* in 1938 sent thousands of Americans fleeing for their lives because they thought the Earth was being invaded by Martians.

However, research on advertising provides strong evidence for causal effects of media messages, particularly on children (e.g., Emond et al., 2019). Making this point should stimulate your students to ask questions about what makes the effects of advertising more influential compared to those of video games, TV shows, or other fictional media. One possible answer is that the behaviors being influenced are relatively trivial (e.g., switching from Coke to Pepsi, eating French fries instead of apple slices) compared to those alleged to be caused by fictional media (increasing aggression, violent crime, or eating disorders). Another possibility is that advertisements are presented as repeated statements of fact (e.g., that X is the best shampoo or that Y is the best mobile phone) that are designed to tell (or more subtly persuade) consumers to change their behavior in some way. This format, like other forms of strong social influence, is likely to have a

stronger causal impact than, say, seeing someone on TV shoot someone else. Couching advertisements as truth, accompanied by requests to make relatively minor behavior changes, may serve to circumvent cognitive and biological processes that normally help us to distinguish truth from fiction, processes that begin as early as age 3 (Petty, Cacioppo, & Kasmer, 2015; Woolley & Van Reet, 2006). A discussion of differences between advertisements and fictional media can be illuminating for students, and also helpful for pointing out that every hypothesis discussed in media psychology courses must be tested independently. It cannot be assumed that because one class of media has effects (advertisements) all of them do.

Tips for Teachers

As should by now be clear, media effects research is very controversial and people, whether scholars, politicians, or students, have passionate opinions about it. The suggestions below pertain mainly to helping teachers make good use of the debate, less as a way to inform students about *facts* (as these are often in dispute), but rather as an opportunity to teach critical thinking and how to debate controversial topics in a civil manner. For teachers who are so inclined, classroom analysis of the media effects controversy also creates an opportunity to discuss matters pertaining to free speech.

Check the Textbook

If you are teaching psychology in a country where it is traditional to assign a textbook for your courses, it is obviously important to choose your books with care. Having studied the content of introductory psychology textbooks (Ferguson et al., 2018), one thing that struck me is that the level of student engagement created by a book is a poor indicator of its accuracy. Put simply, some reader-friendly textbooks contain quite inaccurate information about media matters and other topics, whereas some less-engaging texts are far more accurate. Although few, if any, textbooks are entirely without sin, it would appear that serious errors in content tend to cluster in particular chapters, so if you find biased or erroneous coverage in a few key areas, there may be accuracy problems elsewhere, too. I suggest that you start your evaluation with the section on media or video game violence, which is usually in the chapter on learning. Does that section cover the debate in a fair and balanced manner? Does it take one side, while dismissing (or failing even to report) evidence to the contrary? Check a few other well-known problem areas for textbooks such as the Kitty Genovese fable or the Stanford Prison Experiment. If there is consistent misreporting across multiple areas, it may be wise to consider a different book. Correcting the text in a few areas is fine, but having to do so continuously during the academic term is likely to confuse students and make them wonder why you chose the book they are reading.

Highlight the Replication Crisis

Psychology is currently going through a massive realignment of knowledge based on an awareness of poor research practices in the past. Yet, we also want to get students excited about psychology, so how can we do that while also acknowledging psychology's serious failures? Discussion of research on media effects can help. The decline of the narrative about media-driven violence from "definitely true" into what has been called a dumpster fire provides an excellent perspective from which to discuss psychology's larger replication crisis. That discussion can lead to the realization that the news is not all bad. The process of self-correction in science is hardly ever peaceful and pleasant, and by reading articles in this field, students can study scientific self-correction in action. The classroom discussion might be intense, but handled correctly it can help students see that criticism of scientists by fellow scientists is what separates science from other ways of inquiring about the world (including, it may be worth noting, in nonscience disciplines). Far from depressing students about psychology, teachers have an opportunity to get them excited about possibly becoming part of the process of scientific self-correction.

Focus on Research Methods

Part of the problem with many studies on media effects is that the vast majority of them are simply of poor quality, including Bandura's Bobo doll studies. It should be easy for students, even in lower-level or introductory psychology classes, to identify the flaws in these studies, and as mentioned already, doing so provides excellent opportunities for critical thinking. So instead of presenting the Bobo doll studies as holy writ (as is often the case in psychology classes), you can encourage students to examine the design and methodology and ask themselves if the results really can be used to make sweeping claims about the nature of human aggression and on factors that influence it.

This kind of analysis also provides the opportunity to reinforce the "correlation doesn't equal causation" mantra, but, more than that, to point out that many scholars (and politicians) eschew this basic tenet when it suits their purposes. Both the Centerwall studies of television violence and violent crime and the Fiji study of thin-ideal media essentially drew causal conclusions from correlational data. Ask students to consider why scholars do this when they obviously should know better?

Promote Civil Debate

Media effects research presents an opportunity for students to learn how to disagree on a topic, but to do so civilly. As I write this, civil debate has all but broken down in North America, Europe, and elsewhere. As teachers, we have a role to play in helping students to focus on facts and methods and scientific reasoning rather than to allow themselves to be governed by political outrage and moral self-righteousness neither of which is healthy or scientific.

I suggest that you encourage your students to examine the pros and cons of media effects research while helping them to build skills in debate that takes a data-based approach rather than one that relies on emotion, personal attack, or anecdotal evidence. These skills take practice, yet teachers of psychology too seldom give students an opportunity to engage in that practice. Many classroom "debate" presentations are actually rather dry, and there is little in the way of exchange of ideas. Instead of having preplanned oral presentations, students could stage a formal debate, with opposing teams, clear rules – including an emphasis on civility – and a vote for winners (that should not affect course grades). Debates can also occur in the context of less formal group discussions.

Legitimize Uncertainty

Many scholars and professional guilds, and certainly many teachers, feel societal or student pressure to have *the* answer when it comes to issues like media effects. This pressure to find or present *the* answer has been the devil's lure, leading some scholars, teachers, and the APA to offer public statements or lectures that are faulty, and in some cases, deliberately misrepresentative of the research landscape. The APA, for example, has been told that its statements are wrong, in one case by a group of 230 scholars (Consortium of Scholars, 2013), yet failed to correct them. It is difficult to explain that failure without referring to the organization's need to create a sense of certainty about its science.

I suggest that you discuss with your students the possibility that the efforts of scholars and organizations to establish certainty where there is none can be attributed in part to concerns that it is difficult to market psychology as a science while admitting that it does not have definitive answers to many key questions. Ask them to consider the long-range consequences, such as that the certainty mindset may have actually damaged rather than burnished psychology's credibility because it results in causal claims that go out on scientifically fragile limbs. What is the alternative? Help students to see that one option is to recognize uncertainty can be acceptable, even exciting, because it drives psychological scientists toward new hypotheses and better data. Teaching students to be alright with uncertainty can be a valuable lesson.

Emphasize the Value of Free Speech

Media effects literature is rife with moral crusading and calls to restrict speech. As already documented above, scholars have been quick to generalize weak findings to create massive public health concerns, including claims that thousands of people are dying every year as a result of certain kinds of media depictions. That such ludicrous claims are readily repeated by otherwise smart people demonstrates how easily emotion and moral self-righteousness can overwhelm critical thinking. If we begin to restrict every kind of speech that someone somewhere passionately believes to be

dangerous, what will remain? Who gets to decide what speech is protected and what is not? Are we content with the limits of the First Amendment, even though private multinational corporations may ultimately censor our online dialogues? On the other hand, when people are engaged in free but pernicious and ugly speech, how can we as individuals fight against that while maintaining free speech values?

The topic of freedom of speech as a civic value may not seem central to a course in media psychology, but it is. It is essential to the science of psychology, a science whose research results often challenge society's assumptions about the human condition. Our students, like the rest of us, tend to think of themselves as free speech advocates until they come across speech they do not like, and at that point may seek to restrict it in some way. A media psychology course in general, and an analysis of media effects in particular, can provide an arena in which to sensitize students to this issue.

Concluding Thoughts

Has psychological science royally screwed up the study of media effects? Absolutely. But the next chapter of that story tells how newer, better science is reevaluating old questions with better data. Teaching about media effects effectively in an introductory psychology course (or elsewhere) requires asking students to shift their thinking away from a search for "final answers" to embracing the controversy and debate generated by conflicting results. Helping students to do this will take them beyond rote memorization of course material and stimulate their skill at critical thinking, scientific evaluation, and civil debate. So although research on media effects may be a messy area for instructors to wade into, it is also full of potential for helping students to tolerate uncertainty and to thrive.

Cross-References

- ▶ Developmental Psychology: Moving Beyond the East–West Divide
- ▶ General Psychology Motivation
- ▶ Learning and Teaching in Clinical Psychology
- ▶ Teaching Social Psychology Effectively

References

American Academy of Pediatrics. (2000). Media violence policy statement. *Pediatrics, 108*(5), 1222–1226.

American Psychological Association. (2015). *APA review confirms link between playing violent video games and aggression*. Retrieved from: https://www.apa.org/news/press/releases/2015/08/violent-video-games.aspx

Becker, A. E., Burwell, R. A., Herzog, D. B., Hamburg, P., & Gilman, S. E. (2002). Eating behaviours and attitudes following prolonged exposure to television among ethnic Fijian

adolescent girls. *British Journal of Psychiatry, 180*(6), 509–514. https://doi.org/10.1192/bjp.180.6.509.

Blum, B. (2018). The lifespan of a lie: The most famous psychology study of all time was a sham. Why can't we escape the Stanford prison experiment? *Medium.* Retrieved from: https://gen.medium.com/the-lifespan-of-a-lie-d869212b1f62

Brown v. Entertainment Merchants Association, 131 S. Ct. 2729. (2011). Retrieved from: http://www.supremecourt.gov/opinions/10pdf/08-1448.pdf

Bruns, G. L., & Carter, M. M. (2015). Ethnic differences in the effects of media on body image: The effects of priming with ethnically different or similar models. *Eating Behaviors, 17*, 33–36. https://doi.org/10.1016/j.eatbeh.2014.12.006.

Bushman, B., & Anderson, C. (2001). Media violence and the American public. *American Psychologist, 56*, 477–489.

Centers for Disease Control (2017). *Smoking in the movies.*. Retrieved from: https://www.cdc.gov/tobacco/data_statistics/fact_sheets/youth_data/movies/index.htm

Centerwall, B. (1989). Exposure to television as a risk factor for violence. *American Journal of Epidemiology, 129*, 643–652.

Centerwall, B. S. (1992). Television and violence: The scale of the problem and where to go from here. *Journal of the American Medical Association, 267*, 3059–3063.

Cohen, S. (1972). *Folk devils and moral panics*. London, UK: MacGibbon and Kee.

Consortium of Scholars. (2013). *Scholar's open statement to the APA task force on violent media*. Retrieved from: http://www.scribd.com/doc/223284732/Scholar-s-Open-Letter-to-the-APA-Task-Force-On-Violent-Media-Opposing-APA-Policy-Statements-on-Violent-Media

Elson, M., Ferguson, C. J., Gregerson, M., Hogg, J. L., Ivory, J., Klisanin, D., . . . Wilson, J. (2019). Do policy statements on media effects faithfully represent the science? *Advances in Methods and Practices in Psychological Science, 2*(1), 12–25.

Elson, M., Mohseni, M. R., Breuer, J., Scharkow, M., & Quandt, T. (2014). Press CRTT to measure aggressive behavior: The unstandardized use of the competitive reaction time task in aggression research. *Psychological Assessment, 26*, 419–432. https://doi.org/10.1037/a0035569.

Emond, J. A., Longacre, M. R., Drake, K. M., Titus, L. J., Hendricks, K., MacKenzie, T., … Dalton, M. A. (2019). Influence of child-targeted fast food TV advertising exposure on fast food intake: A longitudinal study of preschool-age children. *Appetite, 140*, 134–141. https://doi-org.stetson.idm.oclc.org/10.1016/j.appet.2019.05.012

Ferguson, C. J. (2013). In the eye of the beholder: Thin-ideal media affects some but not most viewers in a meta-analytic review of body dissatisfaction in women and men. *Psychology of Popular Media Culture, 2*(1), 20–37.

Ferguson, C. J. (2015a). Clinicians' attitudes toward video games vary as a function of age, gender and negative beliefs about youth: A sociology of media research approach. *Computers in Human Behavior, 52*, 379–386.

Ferguson, C. J. (2015b). Pay no attention to that data behind the curtain: On angry birds, happy children, scholarly squabbles, publication bias and why betas rule metas. *Perspectives on Psychological Science, 10*, 683–691.

Ferguson, C. J. (2015c). Does movie or videogame violence predict societal violence? It depends on what you look at and when. *Journal of Communication, 65*, 193–212.

Ferguson, C. J. (2018). The devil wears Stata: Thin-ideal media's minimal contribution to our understanding of body dissatisfaction and eating disorders. *Archives of Scientific Psychology, 6*, 70–79.

Ferguson, C. J. (2020). Aggressive video games research emerges from its replication crisis (sort of). *Current Opinion in Psychology, 36*, 1–6.

Ferguson, C. J., Brown, J. M., & Torres, A. V. (2018). Education or indoctrination? The accuracy of introductory psychology textbooks in covering controversial topics and urban legends about psychology. *Current Psychology, 37*(3), 574–582.

Ferguson, C. J., & Colwell, J. (2017). Understanding why scholars hold different views on the influences of video games on public health. *Journal of Communication, 67*(3), 305–327.

Ferguson, C.J., Copenhaver, A. & Markey, P. (2020). Re-examining the findings of the APA's 2015 task force on violent media: A meta-analysis. *Perspectives on Psychological Science 15*(6), 1423–1443.

Ferguson, C. J., & Hartley, R. D. (in press). Pornography and sexual aggression: Can meta-analysis find a link? *Trauma, Violence & Abuse*.

Ferguson, C. J., Nielsen, R. K., & Markey, P. (2020) Movie smoking and teen smoking behavior: A critical methodological and meta-analytic review. *Psychology of Popular Media Culture, 9*(2), 247–254.

Freedman, J. L. (1984). Effect of television violence on aggressiveness. *Psychological Bulletin, 96* (2), 227–246. https://doi.org/10.1037/0033-2909.96.2.227.

Freedman, J. L. (2002). *Media violence and its effect on aggression*. Toronto, ON: University of Toronto Press.

Gray, P. (2013). Why Zimbardo's prison experiment isn't in my textbook. *Psychology Today.* Retrieved from: https://www.psychologytoday.com/us/blog/freedom-learn/201310/why-zimbardo-s-prison-experiment-isn-t-in-my-textbook

Griggs, R. A. (2014). The continuing saga of Little Albert in introductory psychology textbooks. *Teaching of Psychology, 41*(4), 309–317. https://doi-org.stetson.idm.oclc.org/10.1177/0098628314549702

Griggs, R. A. (2015). Coverage of the Phineas Gage story in introductory psychology textbooks: Was Gage no longer Gage? *Teaching of Psychology, 42*(3), 195–202. https://doi-org.stetson.idm.oclc.org/10.1177/0098628315587614

Guggisberg, M. (2020). Sexually explicit video games and online pornography – The promotion of sexual violence: A critical commentary. *Aggression and Violent Behavior, 53*, 101432. https://doi.org/10.1016/j.avb.2020.101432.

Hilgard, J., Engelhardt, C. R., & Rouder, J. N. (2017). Overstated evidence for short-term effects of violent games on affect and behavior: A reanalysis of Anderson et al. (2010). *Psychological Bulletin, 143*(7), 757–774. https://doi.org/10.1037/bul0000074.

Kutner, L., & Olson, C. (2008). *Grand theft childhood: The surprising truth about violent video games and what parents can do*. New York, NY: Simon & Schuster.

Manning, R., Levine, M., & Collins, A. (2007). The Kitty Genovese murder and the social psychology of helping: The parable of the 38 witnesses. *American Psychologist, 62*(6), 555–562. https://doi.org/10.1037/0003-066X.62.6.555.

Markey, P. M., Males, M. A., French, J. E., & Markey, C. N. (2015). Lessons from Markey et al. (2015) and Bushman et al. (2015): Sensationalism and integrity in media research. *Human Communication Research, 41*(2), 184–203. https://doi-org.stetson.idm.oclc.org/10.1111/hcre.12057

Mubarak, N., & Ferguson, C. J. (2020). Pride and prejudice and zombies. . .and statistics: Effects of powerful female role-models in media on attitudes towards women, and female viewer anxiety. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*. https://doi-org.stetson.idm.oclc.org/10.1007/s12144-020-00605-7

O'Donohue, W., & Dyslin, C. (1996). Abortion, boxing and Zionism: Politics and the APA. *New Ideas in Psychology, 14*(1), 1–10. https://doi.org/10.1016/0732-118X(95)00025-C.

O'Donohue, W., & Willis, B. (2018). Problematic images of science in undergraduate psychology textbooks: How well is science understood and depicted? *Archives of Scientific Psychology, 6* (1), 51–62. https://doi-org.stetson.idm.oclc.org/10.1037/arc0000040.supp

Orne, M. T. (1962). On the social psychology of the psychological experiment: With particular reference to demand characteristics and their implications. *American Psychologist, 17*(11), 776–783. https://doi.org/10.1037/h0043424.

Pashler, H., Coburn, N., & Harris, C. R. (2012). Priming of social distance? Failure to replicate effects on social and food judgments. *PLoS One, 7*(8). https://doi-org.stetson.idm.oclc.org/10.1371/journal.pone.0042510

Perry, G., Wanner, A., & Stam, H. (in press). Credibility and incredulity in Milgram's obedience experiments: A reanalysis of an unpublished test. *Social Psychology Quarterly.*

Petty, R. E., Cacioppo, J. T., & Kasmer, J. A. (2015). The role of affect in the elaboration likelihood model of persuasion. In L. Donohew, H. Sypher, & E. Higgins (Eds.), *Communication, social cognition, and affect (PLE: Emotion)* (pp. 117–147). New York, NY: Psychology Press.

Preston, M. I. (1941). Children's reactions to movie horrors and radio crime. *The Journal of Pediatrics, 19*, 147–168. https://doi-org.stetson.idm.oclc.org/10.1016/S0022-3476(41)80059-6

Przybylski, A. K. (2014). Who believes electronic games cause real world aggression? *Cyberpsychology, Behavior and Social Networking, 17*(4), 228–234. https://doi-org.stetson.idm.oclc.org/10.1089/cyber.2013.0245

Quandt, T., Van Looy, J., Vogelgesang, J., Elson, M., Ivory, J. D., Consalvo, M., … Mäyrä, F. (2015). Digital games research: A survey study on an emerging field and its prevalent debates. *Journal of Communication, 65*(6), 975–996.

Roberts, A., & Good, E. (2010). Media images and female body dissatisfaction: The moderating effects of the five-factor traits. *Eating Behaviors, 11*(4), 211–216. https://doi.org/10.1016/j.eatbeh.2010.04.002.

Romer, D. (2020). Reanalysis of the Bridge et al. study of suicide following release of 13 Reasons Why. *PLoS One*. Retrieved from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0227545

Savage, J. (2004). Does viewing violent media really cause criminal violence? A methodological review. *Aggression and Violent Behavior, 10*, 99–128.

Seto, M. C., Maric, A., & Barbaree, H. E. (2001). The role of pornography in the etiology of sexual aggression. *Aggression and Violent Behavior, 6*, 35–53.

Stoet, G., & Geary, D. C. (2012). Can stereotype threat explain the gender gap in mathematics performance and achievement? *Review of General Psychology, 16*(1), 93–102. https://doi-org.stetson.idm.oclc.org/10.1037/a0026617

Strasburger, V. (2007). Go ahead punk, make my day: It's time for pediatricians to take action against media violence. *Pediatrics, 119*, e1398–e1399.

Tedeschi, J., & Quigley, B. (1996). Limitations of laboratory paradigms for studying aggression. *Aggression and Violent Behavior, 2*, 163–177.

US Department of Health and Human Services. (2014). *The health consequences of smoking – 50 years of progress*. Retrieved from: https://www.surgeongeneral.gov/library/reports/50-years-of-progress/index.html

Veldhuis, J., Konijn, E. A., & Seidell, J. C. (2014). Negotiated media effects. Peer feedback modifies effects of media's thin-body ideal on adolescent girls. *Appetite, 73*, 172–182. https://doi.org/10.1016/j.appet.2013.10.023.

Want, S. C. (2014). Three questions regarding the ecological validity of experimental research on the impact of viewing thin-ideal media images. *Basic and Applied Social Psychology, 36*(1), 27–34. https://doi.org/10.1080/01973533.2013.856783.

Whyte, C., Newman, L. S., & Voss, D. (2016). A confound-free test of the effects of thin-ideal media images on body satisfaction. *Journal of Social and Clinical Psychology, 35*(10), 822–839. https://doi.org/10.1521/jscp.2016.35.10.822.

Woolley, J. D., & Van Reet, J. (2006). Effects of context on judgments concerning the reality status of novel entities. *Child Development, 77*(6), 1778–1793. https://doi.org/10.1111/j.1467-8624.2006.00973.x.

Zimring, F., & Hawkins, G. (1997). *Crime is not the problem: Lethal violence in America*. New York, NY: Oxford University Press.

Unfurling the Potential of the Counselor

26

A Perspective on Training

Sujata Sriram and Swarnima Bhargava

Contents

Abstract

Counseling and psychotherapy training in countries around the world have been imbued with theories and models developed in the Euro-American perspective. This chapter looks at the role of the therapist, therapist competence, and development as integral to therapy process and outcomes, from the perspective of developing countries in Asia. Training and education for counselors and therapists with reference to models of training, entry points, content of training programs, supervision, personal therapy, and deliberate practice have been examined. The lack of regulation and licensing and their impact on the professionalization of the field have been commented on. Encouraging open communication and dialogue across countries can help facilitate a culturally grounded approach to the training and supervision of therapists. Creating national bodies with the mandate of examining pedagogy and curriculum development in counseling training institutes across Asia may further help to establish common goals as well as enable sharing unique sociocultural specific practices and insights. Recommendations have been laid out for meeting the challenges to

S. Sriram (✉) · S. Bhargava
School of Human Ecology, Tata Institute of Social Sciences, Mumbai, India
e-mail: sujatas@tiss.edu

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global mental health resulting from the sociopolitical changes of the twenty-first century. The need to develop multicultural sensitivity and locally relevant codes of ethical standards is paramount.

Keywords

Counseling · Psychotherapy · Training · Supervision · Curriculum · Ethics · Multicultural sensitivity

Counseling and psychotherapy as professions have spread across the world, as means of alleviating distress for people with mental illness and difficulty. However, while the professions have benefitted multiple individuals, the methods used are often based on models and theories that have evolved in the Euro-American frameworks. While there is recognition that culture influences mental illness and wellness, counseling and psychotherapy practice and training have been slow to accept and include culture in the curricula used to train counselors. This chapter offers a perspective for training in counseling and psychotherapy from Asia.

From the Beginning: The Emergence of Counseling and Psychotherapy

People have turned to priests, gurus, philosophers, and doctors for guidance and advice in times of distress and confusion. The cure of mental suffering, earlier called "madness," has a long history from ideas of mental illness caused by evil spirits, to the present. Those who displayed any form of mental affliction were treated harshly and cruelly; they were whipped, beaten, starved, and isolated. In the United States, conditions for the mentally ill improved when the Quakers under the empathic guidance of Benjamin Franklin opened the first hospital in Pennsylvania "to care for the sick-poor and insane who were wandering the streets of Philadelphia." This gave rise to the Asylum Act of 1845, from which the profession of psychiatry evolved, for the care of the "insane," now referred to as "mentally ill."

From medicine and psychiatry evolved psychotherapy. The earliest physicians to call themselves psychotherapists were Van Renterghem and Van Eeden, who opened a clinic of Suggestive Psychotherapy in Amsterdam in 1887 (Ellenberger, 1970). By the late nineteenth century, psychotherapy was forged through the path-breaking work of pioneers like Freud.

In the twentieth century, Western counseling and psychotherapy have developed on three theoretical "schools" of thought: the psychodynamic, the behavioral, and the humanistic. Each had their views of human behavior; the psychodynamic school was based on unconscious urges and childhood antecedents; the behavioral school-based personality on learning and conditioning; and finally the humanistic school which introduced person-centered counseling and promoted the view of self-development. In the twenty-first century, myriad theoretical approaches have

developed using these three perspectives as a base. Besides these three perspectives, other theoretical orientations have arisen, subsumed under the "fourth force" of psychology, such as transpersonal counseling, family systems approaches, feminist psychology, multicultural psychology, and ecopsychology. The social justice perspective in therapy has emerged in the context of the twenty-first century, as a fifth force, rooted in the human rights and social justice movements (Fleuridas & Krafcik, 2019).

Counseling vs. Psychotherapy The terms "counseling" and "psychotherapy" have dominated psychology literature since the inception of the field. Counseling encompasses a broad domain of helping professionals including specialist professional workers, but also encompasses paraprofessionals, volunteers, and those whose practice is embedded within other occupational roles. Psychotherapy involves deeper work, usually over a longer period of time with more disturbed clients. Essentially both groups do the same type of work, which is providing the client a confidential space to explore conflicted emotions. However, counseling has been portrayed in a "little sister" role in relation to psychotherapy. Counseling is still placed in a lesser position, while psychotherapy jobs are of a higher status and better paid than counseling posts, even when they involve doing equivalent work.

For the purpose of this paper, the term "psychotherapy" and "counseling" will be used synonymously to denote the talking cures used to alleviate distress.

Counseling and psychotherapy have their roots in the fields of medicine and psychiatry, and the term "psychological therapies" is used to denote the work of psychotherapists. A few countries make it mandatory to have a degree in psychology to gain training in psychotherapy. Apart from psychology, psychotherapy has been influenced by other fields such as philosophy, theology and religion, literature, and the arts. In recent times, psychotherapy has been influenced by Zen Buddhism. Mindfulness-based practices originating from the teachings of Buddhism have found their way into psychotherapy practice and have been used successfully along with cognitive therapies (Segal, Williams, & Teasdale, 2001. The field of arts, in particular, expressive arts such as music, dance, art, play, and drama, along with sculpture, and other visual media have evolved as modes of psychotherapy. In recent years, psychodrama and art therapy have developed their own distinctive theoretical models, training courses, and professional journals. Specific literature-based techniques have also been employed in counseling, such as autobiography, journal writing, poetry writing, and bibliotherapy.

Religion has played an important role in the evolution of psychotherapy. Since the 1800s, the Christian church believed that faith could heal people, and religious counseling, for example, the use of the confessional, was an important source of comfort, advice, and direction for distressed people. The work of theorists such as Wundt, Freud, and later Jung resulted in replacement of the moralistic flavor of counseling propagated by the church with a more spiritual and secular approach. As psychotherapy grew in prominence, it "took over" from religion by offering explanations for events that are difficult to understand, offering answers to the existential

question "what am I here for?," defining social values, and supplying ritual ways of dealing with grief and other forms of distress. At present, the question that concerns therapists is not whether to include religion and spirituality while working with believers, but the manner and the timing of the inclusion. Literature has indicated that the adaptation of therapy to include religious and spiritual elements has been found to be demonstrably effective for clients who were oriented towards religion and spirituality (Gonsiorek, Richards, Pargament, & McMinn, 2009; Hook et al., 2019; Post & Wade, 2009).

Counseling and Psychotherapy in Asia

Literature on counseling and psychotherapy from Asian countries such as Korea, Japan, Taiwan, China, and India is limited. The need for counseling in many Asian countries has been recognized; however, mental health and illness have never received the attention that physical illness has received (Kumaraswamy, 2007). There is stigma associated with mental illness and a lack of awareness about ways of dealing with the same. Foo, Merrick, and Kazantzis (2006) write about how South-East Asian cultures which emphasize honor and self-esteem prevent individuals from actively seeking help. The entry of psychotherapy as a discipline in Asian countries such as India, China, Hong Kong. and Taiwan has been recent, largely due to the return of scholars trained in the West. The origins of the discipline are rooted in the colonial past, which has persisted in education, theory, and praxis. The twenty-first century increase in cultural interchange and exchange as a result of globalization has contributed to the expansion of psychotherapy and the recognition of the need to internationalize the discipline (Duan et al., 2011; Sriram, 2016).

Counseling in China In China, while the work of Freud was translated in the 1920s, psychology as a discipline was banned by Mao Zedong in the 1960s, and psychiatry followed a biomedical model. In the present times, there is a scarcity of psychiatrists; and psychology has reemerged as a profession, accompanied by the understanding that psychotherapy can play a role in alleviating mental distress. Younger, city dwelling, more educated individuals are more accepting of therapy instead of drugs as compared to older individuals. However, fundamental contradictions between Western psychotherapy and Chinese cultural traditions exist. Western therapy emphasizes the development of the individual self, which goes against the eastern belief of the need to overcome the self. Many Western philosophers emphasize the individual, while the person in context is what is emphasized in most Chinese thought (Brannigan, 2014; Duan et al., 2011).

In the early part of the twenty-first century, many therapists were certified by the Ministry of Labor through programs which had no clinical exposure at all, resulting in poorly trained professionals. The passing of the Mental Health Law in China in 2013 resulted in restrictions on those who can practice psychotherapy. The Law has resulted in psychotherapy being used by psychiatrists and practitioners in hospital

settings. The Mental Health Law in China was passed because of the need to professionalize the field, to ensure that practitioners below standard levels of training could not practice. However, psychological services are concentrated in urban areas mostly situated at clinics in universities, medium-size and large general hospitals, and professional centers for psychotherapy and counseling services (Chang, Tong, Shi, & Zeng, 2005). Chinese individuals with severe mental problems visit hospitals and are treated as patients akin to those with physical problems; and the therapists are identified as psychological doctors (xinli yisheng) (Hou & Zhang, 2007). Mental health issues are thus often equated with mental diseases.

In order to comply with the Law, university-trained therapists used the term counseling for their practice. The effort is being made to professionalize the field by improving training provided both by private institutions and the university system (Clay, 2019; Huang, 2015; Zhao, 2014). The Chinese Psychological Society (CPS) sets up a registration system for professional organizations and individual practitioners in clinical and counseling psychology, aimed to regulate and improve counseling and psychotherapy in China. In 2007, the Chinese Psychological Society registration criteria for professional organizations and individual practitioners in clinical and counseling psychology and the Code of Ethics for clinical and counseling psychological practice of the Chinese Psychological Society (CPS, 2007) were decreed. Other professional bodies such as the Chinese Association for Mental Health (CAMH) were re-established in 1985 (Chen, 2005) after a long suspension since 1936. The first issue of the Journal of Chinese Mental Health was published in 1987. In 1990, the Committee of Counseling and Psychotherapy in CAMH was created; and in 1991, the Committee of Counseling College Students in CAMH was set up (Qian, 1994). The Committee of Clinical and Counseling Psychology in the Chinese Psychological Society was created in 2001, and the first national conference on counseling and psychotherapy was held in 2003 (Zeng, Zhao, & Zhu, 2003).

Counseling in India While there have been rapid strides made in the development of counseling in India, concerns have emerged alongside. While education for the training of counselors is available in many colleges and universities in the country, it is a harsh reality that the number of professionally qualified counselors and therapists in India is barely adequate to serve the needs of the population (Bhola, Kumaria, & Orlinsky, 2012; Malhotra, Chakrabarti, & Shah, 2013; Manickam, 2010). While there has been a proliferation of professional training programs and courses for counselor education in India, there is no standard curriculum followed. The need for licensing and regulation of the profession has been expressed by practitioners and academics in the field; however, there have been limited efforts to regulate the profession. There has been limited research in India related to the field of counseling psychology and the effects of counseling and therapy on issues and individuals. The existing research is scattered and rarely disseminated to academics and practitioners in the field (Bhola et al., 2012; Manickam, 2010; Sriram, 2016)

Schoonover et al. (2014) in a study on perceptions of traditional healing for mental illness in rural Gujarat found that patients sought the help of traditional

healers first. Despite recognizing that doctors were more effective in treating mental illness as compared to traditional healers, there was tremendous faith reposed on the traditional healers, indicating the degree to which they were integrated into the local community. The findings indicate the necessity for collaboration between medical practitioners and faith healers for the treatment of mental illness. Until recently in India, specialized services of counseling offered by trained professionals did not exist; however, forms of counseling were available within social relationships, such as the "guru-shishya parampara" (teacher–disciple tradition) wherein the guru (teacher) had the onus of molding the lives of the students, and by general practitioners, indigenous doctors, and lay therapists (Bhola et al., 2012).

Economic reforms over the past three decades have transformed lifestyles and enhanced the pace of change. There are more individuals and families who require professional assistance to deal with changes in their lives, often due to the unavailability of supportive interventions. The role of counselors and counseling services becomes more necessary and relevant in these situations and contexts. Despite the economic progress made by India, it has been seen that about 80 percent of those who need mental healthcare are outside the purview of treatment. Community healthcare services in India are scarce, and mental health service providers are unevenly distributed (Kumar, 2011; Thara & Patel, 2010). The problem of service delivery is compounded by negative attitudes and lack of knowledge among the population, which prevents the timely seeking of help. Recent regulations in the field of psychology have come into practice with the introduction of the updated Mental Health Care Act 2017, which proposes a more patient-centric role and attempts a definition of mental health professionals (Mental Healthcare Act, 2017).

Mental health literacy is one of the aims of the National Mental Health Program (NMHP) through public awareness with information, education, and communication material. One of the added tasks of the NMHP is the reduction of stigma and discrimination meted out to persons with mental illness in both rural and urban areas. Enhancing mental health literacy of people will contribute to better access to services and provide a more conducive environment for individuals with mental illness and their families. Data from India indicate that mental health education needs are yet to be met (Gaiha, Sunil, Kumar, & Menon, 2014). Western approaches to psychology form the basis of most available counseling services and models for training in the discipline in India. These approaches are not always based on the Indian cultural context, wherein relationships are given importance over individual notions of the self. Kapur, Shamasundar, and Bhatti (1996), p. 6.) cite the importance for theoretical constructs suitable to Indian social reality, without which the entire process of learning and practice of psychotherapy would appear abstruse. At times therapists grieve that Indian patients are unsuitable for psychotherapy. The level of awareness of the social reality is in direct proportion to the depth of the understanding, training, and practice of psychotherapy. In the absence of a consolidated Indian model of psychotherapy, it is important that therapists do not blindly follow Western models. Much of the training done for counselors in India draws from Western models and therapies. There are few attempts to consider how to contextualize these Western models to Indian contemporary reality. The need to develop indigenous

models of therapy has been expressed often; however, the development of such contextual models has been slow (Arulmani, 2007; Kapur et al., 1996; Sidhu, 2017; Sriram, 2016).

Counseling in Japan Iwakabe (2008) writes about how psychotherapy in Japan has developed slowly, primarily due to cultural factors associated with mental illness. Social stigma and shame still prevent individuals from seeking help for psychological distress. Mental illness has been seen as a weakness and a failure of self-discipline. This results in reluctance to seek help when needed and postponing help-seeking till it is unavoidable. The first line of assistance is usually medical personnel for psychosomatic complaints; if these do not provide ease, the individual is referred to psychiatrists who use medication instead of therapy. Psychiatrists in Japan indicate that patients are not comfortable with speaking about themselves and prefer directive advice from experts and rarely provide therapy as seen in the West. Changes in therapeutic practice in Japan were seen over the last three decades, with an increase in problems associated with children and adolescents, which brought about the development of child and adolescent psychotherapy. School counseling has developed over the last two decades in response to the problems of school refusal and bullying (Yagi, 2008).

Japanese psychologists prefer the use of the term counseling to psychotherapy, as the latter is associated more with treatment. In 2002, the President of the Japanese Association of Counseling Science formed a special committee tasked with conceptualizing counseling and officially declaring the definition to the members of the Association as well as to the public (Tagami & Ozawa, 2005). However, confusion persists in Japan regarding counseling and counselors. Professionalization of counseling in Japan has been described as a challenge due to some aspects of the Japanese Association of Counseling Sciences which has been recognized as the only professional organization since 1968. Its membership is still open to individuals and groups who are engaged in any kind of "caring" and "human service" work without any special qualifications. Japanese Clinical Psychology programs typically offer a master's degree which enables holders to apply for registration and certification as a clinical psychologist (through the Japan Society of Certified Clinical Psychologists) or as a psychotherapist (through the Japan Federation for Psychotherapy). However, the government does not license or regulate psychological practice. The Japanese government licenses medical doctors (including psychiatrists) and social workers. Psychologists are not able to seek reimbursement for services through the Japanese national health insurance system, unless theyreceive this reimbursement indirectly by working under the direction of a licensed psychiatrist, typically in a hospital setting (Watanabe-Muraoka, 2007).

Counseling in South Korea Counseling has steadily grown as a profession in South Korea with the advent of school and career counseling to practices and models that cater to the diverse mental health needs of the population (Lee, Suh, Yang, & Jang, 2012). The Korean Counseling Association was established in 2000; however,

a national licensure system for professional counselors has not yet been established. Bae, Joo, and Orlinsky (2003) bring out the problems faced by therapists in Korea, in adapting the practice to the cultural context. McDonald (2011) brings to the forefront aspects arising from religious and cultural contexts of Korea, which emphasize stoicism, diligence, and modesty, where individual concerns are secondary. Koreans prefer to see fortune tellers rather than mental health professionals. Bae et al. (2003) remarked upon efforts at adapting Western models of psychotherapy to the Korean context, and they found the philosophies of Hong-Ik-In-Gan, Zen Buddhism, and Confucianism to be most well integrated into person-centered therapy. Person centered therapy emphasizes values that resonate with the Korean culture, i.e., empathy, harmony, and relationships (Joo, Lee, & Joo, 2007). Onmeum and reality dynamic counseling have emerged as popular therapeutic approaches. School counseling appears to be a widespread profession with support from the government (Lee et al., 2012).

In Summation In most Asian countries, psychotherapy has been provided by doctors in hospital and clinical settings, where the number of psychiatrists outnumbered that of psychologists. Often patients arrived at hospitals after visiting faith healers and priests and continued with alternate sources of healthcare, in conjunction with medicines and therapy. The situation is compounded by inadequate health insurance coverage especially for psychiatric medication and therapy. The stigma associated with mental illness can be seen across Asian countries, where seeking help from mental health professionals would be only after help is sought from family and friends. While the demand for therapy is on the rise, the need to culturally adapt techniques is becoming increasingly evident. That said, there is a preference for CBT with many Asian clients, which could be due to the attributes of the therapy – evidence-based, structured, problem-focused, present-focused, action-oriented, and short-term psychotherapy, which fit the requirements of clients as seen in studies from Singapore (Foo et al., 2006; Yeo, Tan, & Neihart, 2013), Japan (Iwakabe, 2008), Pakistan (Naeem, Gobbi, Ayub, & Kingdon, 2009), and India (Gupta et al., 2019; Halder & Mahato, 2019).

Therapist Characteristics and Their Influence on Therapy

The profession of psychotherapy is one where the self of the therapist plays a significant role in the effectiveness of therapy. Qualities of the therapist are one of the four factors identified as contributing to therapeutic change (Lambert, 2013; Wheeler, 2000). Therapists bring their personal experiences, attitudes, beliefs, and values into the therapy session, which implies that these will influence their interactions with the clients. This makes it imperative to understand what contributes to make a "good" or an effective therapist. Data indicates that effective therapists with greater degrees of engagement with their clients see faster recovery with fewer sessions of therapy (Lambert, 2013). The notion of the therapist as a *wounded healer* has been propounded by many researchers, starting from the work of Jung. The

postulate is that adverse childhood experiences result in a heightened awareness of their own distress and that of others, directing them towards the profession (Farber, Manevich, Metzger, & Saypol, 2005; Gilbert, Hughes, & Dryden, 2014; Lambert, 2013; Mander, 2004).

Wheeler's (2000) analysis of what makes a good therapist listed some characteristics: "generally a good person, intelligent, creative, sincere, energetic, warm towards others, responsible and of sound judgement" (p. 66). An anxious therapist did not inspire confidence in their clients. Pope and Kline (1999) created a Counselor Characteristic Inventory from 22 personality characteristics gleaned from studies related to counseling competence. Experts were asked to rank order ten characteristics that were deemed to be both the most important and the least teachable, which were then incorporated into the inventory. The ten characteristics that emerged were acceptance, emotional stability, open-mindedness, empathy, genuineness, flexibility, interest in people, confidence, sensitivity, and fairness. He concluded that these characteristics needed to be present in all counselors selected for training.

Effective counselors have some identifiable, exceptional features, referred to as common factors which cut across therapeutic orientation, and are associated with positive client outcomes. These common factors have been further subdivided into support factors, learning factors, and action factors. Support factors include being able to have a good therapeutic relationship, being supportive, genuine, warm, trusting, empathetic, respectful, and accepting. Learning factors refer to the ability to give feedback and provide insight and advice. Action factors are related with the ability to model and encourage. According to client-centered therapy, these common factors are the necessary and sufficient conditions for change in the client: empathy, warmth, unconditional positive regard, and genuineness or congruence (Rogers, 1951).

According to Norcross and Lambert (2019), the therapist effect was directly related to the severity with which the client presented; the more the disturbance, the greater the importance of which therapist the client worked with. Common factors contribute as much as 30 percent to the improvement in clients in therapy. The other factors that impact the success of therapy are 15 percent related to the techniques used by the therapist, another 15 percent are attributed to expectancy or placebo factors, and the remaining 40 percent are ascribed to the client – the extra-therapeutic factors such as motivation and the need to change, social support, all of which play a substantial role in ensuring positive outcomes in a therapeutic setting.

Effective counselors are capable of reflection, conceptualization, and critical thinking, which allows them to use theory for diagnosis and for developing effectual interventions. The capacity for critical thinking allows therapists to make changes in the intervention plan depending on the progress made by the client. According to Wampold, Baldwin, Holtforth, and Imel (2017), professional self-doubt in therapists leads to greater effectiveness of therapeutic outcomes, by increasing reflectivity and critical examination of their practice. The ability to form therapeutic alliances with a variety of clients, irrespective of age, gender, and nature and severity of diagnosis, coupled with mature, well-defined interpersonal skills contributed to effectiveness of the therapist. The ability and the willingness to take part in deliberate practice of

psychotherapy as a means to improve expertise has been mentioned as an additional weapon in the arsenal of effective therapists. Deliberate practice can take multiple forms such as participation in workshops, exercises, seeking supervision in multiple formats, and reading (Chow et al., 2015; Hill & Castonguay, 2017; Rousmaniere, 2017; Wampold et al., 2017).

The data about effective counselors indicates that identifying the right candidates for counseling and therapy training is important; not everyone can become a good counselor. The use of the self is essential for counselor development. While training can help in using the self and empathy effectively, empathy itself has to come from within.

Counselor and Therapist Competence

Before discussing counseling training, it is important to examine counselor competency, as training provides the scaffold for the development of the professional practitioner. Corey, Corey, and Callanan (2011) speak about the lifelong search for competence among mental health professionals. They assert that therapist competence is vital for the development of the profession and for safe-guarding the interests of the clients. For therapists, competence is never a single point achievement; the need for continuing professional development is a prerequisite. Competence requires levels of knowledge, skills, abilities, values, and attitudes to provide services effectively. According to Welfel (2016), professional competence is not easy to define; she includes diligence to knowledge and skill as prerequisites of competence in a therapist. Sperry (2010) talks about six basic therapist competencies: conceptual foundations, relationship, intervention planning, intervention implementation, intervention evaluation, and cultural and ethical sensitivity (p. 13).

Conceptual foundations and knowledge refer to the basic theoretical orientation and approach used by the practitioner. This orientation influences the way in which the practitioner understands normality and the deviation from it and the related frameworks for therapy and change. The conceptual foundations influence the other core competencies such as relationship building and intervention planning. Knowledge can be provided through accredited training programs which offer curated content depending on the need of the professional.

Competent counselors are skilled in knowing which interventions to use and how they need to be used. Skills of counselors include *clinical* and *technical* skills (Welfel, 2016). Clinical skills are those used in developing a therapeutic alliance, empathy, communicating effectively, and exploring client issues with sensitivity. Spruill et al. (2004) refer to *additional clinical skills*, which are foundational for competence in therapists. These include *critical thinking, awareness about legal and ethical guidelines, and cultural competence*. Technical skills refer to the ability to use specific therapeutic interventions, or use an individual assessment measure if needed. Skillfulness implies that the professional is knowledgeable enough to make a judgment about the appropriate interventions, keeping in mind the nature of the therapeutic alliance with the client, the current evidence available from literature, and the preferences and ideals of the client.

Welfel (2016) speaks of *diligence* as a vital counselor competence. Diligence consists of the need for "consistent attentiveness to the client's needs that takes priority over other concerns" (p. 89). Diligence requires attention to be paid to assessment, intervention, and follow-up. The diligent professional ensures that the best services are provided for the client and will provide referral if they feel the issue at hand is beyond their competence. They will follow-up with the client to determine outcomes, which benefits practitioners and the clients. The other aspect of diligence refers to what Pope and Vasquez (2011) refer to as *emotional competence*, which requires self-awareness and recognition as being fallible human beings. Emotional competence requires an assessment of individual abilities, rather than over-stating success. Spruill et al. (2004) and Welfel (2016) emphasize that diligent practice can only happen in consultation with other practitioners about the quality and effectiveness of their work.

While speaking of therapist competence, it is necessary to mention the ability of a professional to deal with clients in a *culturally and ethically sensitive manner*. This need has grown over the years. Therapists need to develop the competence to recognize ethical issues and dilemmas and to respond in culturally appropriate ways. Cultural sensitivity and competence are vital in the globalizing world, with migration of people and the issues arising thereof being a reality for mental health practitioners. Cultural sensitivity implies the ability to respond appropriately to attitudes, values, beliefs, and practices of people belonging to different cultural, ethnic, religious, and racial traditions. Cultural sensitivity needs to translate into cultural competence through the therapeutic alliance. Counselors are required to be aware of and to practice within the ethical code of their choosing, in the absence of uniform and culturally sanctioned code of ethics in their country.

The nature of the field of counseling and therapy complicates the issues of competence. No professional therapist can be skilled in all interventions. The diversity of populations and issues is such that therapists need to identify age groups, settings, and issues they are comfortable working with, which defines the scope of practice. While some professionals choose to develop competence, in particular, issues such as depression, or school refusal, others may specialize in working with particular groups of individuals such as couples, older adults, or adolescents. Another way of developing competence is through choice of a particular therapeutic modality; e.g., working with individuals recovering from trauma. As Welfel (2016) puts it: "Beware the professional who claims to do everything well: Either some of those skills are underdeveloped, or that person is a fraud" (p. 89).

Spruill et al. (2004) have developed a competence continuum from incompetent to exceptionally competent. They identify five levels of competence from novice to expert, comparable to Rønnestad and Skovholt (2001, 2003) stages of professional development from lay helper to the senior professional.

> A competent professional is always seeking to enhance current skills and knowledge but the aim is not perfection. Instead, competence implies, at a minimum, adequate care and is partially measured in a comparative fashion. One is competent when one's knowledge and skills are as well developed as those of other professionals previously demonstrated to be competent in the specified area. In other words, one is deemed competent if, after education

> and supervised practice, one can carry out an intervention at least as well as supervisors or colleagues. (Welfel, 2016, p. 91)

Competence assessment can be done through monitoring one's effectiveness in helping clients, in developing plans for counseling, in implementing those plans, and in evaluating the outcomes of services (Spruill et al., 2004). Competence is achieved through care that aids the client and avoids unnecessary risk. Additionally, competence can be evaluated through the guidelines and standards of practice laid down by various professional associations; e.g., the American Psychological Association has produced specialty guidelines for providing services in clinical, counseling, school, and organizational psychology (APA, 2003) that identify skills essential for competence with multicultural clients.

While discussing competence, it is important to recognize factors that could impede performance. It is not possible to be equally competent with all clients; fatigue, distraction, and stress can affect the service offered to the client. There could be unforeseen circumstances such as health conditions, a sudden illness, burnout, or extraneous events that affect the mental health of the therapist. Environmental circumstances such as bad working conditions, unsupportive colleagues, poorly defined job roles, and limited opportunity for supervision and growth are not conducive to competence. Most Asian countries have poorly remunerated counselors and therapists as compared to their compatriots in the West, which affects the entry into the profession, sustainability, and seeking continuing professional development.

Thériault and Gazzola (Thériault & Gazzola, 2005, 2008 and 2010) have researched and written extensively about feelings of incompetence among therapists at various stages of professional development. "Feelings of incompetence (FOI) are the emotions and thoughts that arise when therapists' beliefs in their abilities, judgements, and/or effectiveness in their role as therapists are reduced or challenged internally" (Thériault, Gazzola, & Richardson, 2009, p. 106). FOI can contribute to stress and burnout among therapists, along with premature exit from the field itself. While FOI may be crippling for novice therapists, it can affect experienced therapists as well. Generally, FOI has been found to decrease with experience, though it can emerge due to various factors, both external and internal to the therapist.

In the profession of psychotherapy, many therapists continue way past the official retirement age; they have a continued commitment to grow professionally, to serve as mentors for novice professionals, to develop reflective and ethical practice, and to bring about changes in policies related to the field.

Technology and Its Influence on Mental Health Services

Traditionally, counseling and psychotherapy have been delivered in the face-to-face mode. Changes in technology have resulted in variations in the ways in which mental health services are being provided to clients. While the telephone was the first means of providing telemental health, the Internet has given rise to myriad ways

of providing and accessing support through computer-mediated communication – through email, chat rooms, and other such methods (Carter, 2019; Fukkink & Hermanns, 2009; Overholser, 2019).

Telephone Services for Mental Health Provisioning mental health through telephone services arose in the middle of the twentieth century through the services provided by the Samaritans in the United Kingdom. The Samaritans helpline and other similar helplines that have opened in countries all over the world are focused on providing emotional support by trained volunteers, for those in need, more specifically to help deal with crisis situations such as suicide.

In many countries, telephone counseling helplines run by professionals have been set up to supplement the delivery of mental health services. In countries like Australia, telephone helplines offer mental health services to people located in remote parts of the country, where resources are scarce. Helpline counseling in these cases acts as an adjunct service to individual and group therapy. The popularity of helpline counseling is attributed to low cost, ease of access for remote locations, and immediacy of assistance. Telephone counseling presents itself as an ideal modality for elderly healthcare as seen in centers in Japan (Sarai, Karnasuta, & Ohara, 2019).

A review of 14 studies by Leach and Christensen (2006) indicated that telephone-administered therapy was effective in reducing symptoms of mental illness. Telephone interventions have been effective in reducing depression, anxiety, eating disorders, alcohol use, and rehospitalization for schizophrenia (King, Bambling, Reid, & Thomas, 2006; Leach & Christensen, 2006; Reese, Conoley, & Brossart, 2002). Telephone helplines have been found to be particularly efficacious in dealing with issues pertaining to children and adolescence (Christogiorgos et al., 2010; Fukkink & Hermanns, 2009). The telephone is recognized today as a medium for multiple therapeutic endeavors, from suicide to hypnosis (Henden, 2008). Data indicate that even professionals who primarily use a face-to-face mode for therapy have begun to use technology to provide services. A survey carried out in 2008 on psychology health services providers by the American Psychological Association (APA) indicated that the telephone was the technology most widely used to provide health services, with 85 percent of the respondents stating their preference for the telephone. Of the 85 percent, about 35 percent used the telephone at least once a week or more (Jacobsen & Kohout, 2010).

Telephone counseling offers valuable alternatives in countries where the delivery of mental health services is strapped by the shortage of professionals and other resources.

Computer-Assisted Therapy Computer-assisted therapies (CAT) are offered to the client through devices such as personal computers, laptops, personal digital assistants, interactive telephone messaging, and text messaging. Alternately, they can be offered directly through video interface, which increases the degree of interaction with the client. The complexity of content can vary from reading material such as a

brochure to interactive virtual reality formats, which have become more effective with high-speed Internet connections (Carroll & Rounsaville, 2010). The degree of interaction with therapists and others can vary in CAT, from no interaction with others at all to moderated chat rooms to a great deal of therapist interaction and involvement. In cases where there is substantial email correspondence between the therapist and the client, it can be referred to as e-therapy. There has been an increase in the number of practitioners using email in their clinical practice, with 45 percent of respondents reporting the use of email for health provision (Jacobsen & Kohout, 2010).

Most CAT therapies and programs are intended to be stand-alone platforms, to allow users to access them alone, without any other contact or interchange with a therapist. Often CAT are developed to deal with a particular problem such as anxiety, depression, or substance use. Most forms of psychotherapy are now offered through digital modalities including psychoanalysis with sessions offered face to face usually on a weekly basis echoing the rhythm of in-person therapies (Fairburn & Patel, 2017). Some interventions for depression have been crafted in the form of a game (Merry et al., 2012) which might especially appeal to younger users. Stand-alone diploma and certificate courses are being offered to help practitioners master the art of practicing digitally, such as at the Ofer Zur Institute. It has been found that virtual reality and artificial intelligence programs help treat mental illness without face-to-face interactions and often result in reducing inhibition, where clients may admit to symptoms which they may not admit in face-to-face interactions (Carter, 2019).

CAT can be used to broaden the access to support services and to allow clients access to quality mental healthcare in geographical regions with a paucity of professionals. Developing countries see a clustering of mental health professionals in urban areas with semi-urban and rural areas depending upon general physicians and para-professionals to meet their mental health needs (Garg, Kumar, & Chandra, 2019). A fast growing smart phone market and widespread network coverage now enable a larger than ever population access to mental health services. Tele-supervision is another developing field within mental health, and psychologists can now access quality supervision across geographical lines of city and country (Inman, Soheilian, & Luu, 2019; Martin, Kumar, & Lizarondo, 2017). This paper was written before the Covid-19 pandemic, which has resulted in CAT being used by therapists all over the world, in order to allow for the access of services by clients. This paper does not have the scope of examining CAT in detail.

Education and Training for Counseling and Therapy

Since its inception, the field of counseling and psychotherapy have seen many theories and approaches regarding the training and development of practitioners. In the 1960s, both Carkhuff and Bergin proposed models for teaching helping skills to facilitate the process of counseling. These early models focused on skills that the practitioner could utilize to facilitate insight and change in the client. Both models

were trans-theoretical in their approach and emphasized skill building as the focus of counselor training and education. Most education for counselors takes place within the university system, which provides the basic training. Advanced skill development and training in specific therapies and client populations is provided most often through independent training bodies and organizations who offer diploma and certificate programs.

Models of Therapist Training As the field developed over time, several training models and theories of therapist development emerged (Blocher, 1983; Fleming, 1953; Grater, 1985; Hess, 1987; Hogan, 1964; Littrell, Lee-Borden, & Lorenz, 1976; Loganbill, Hardy, & Delworth, 1982; Stoltenberg, 1981; Stoltenberg & Delworth, 1987). Egan (1998) and Hackney and Cormier (2001) provide models for counselor training that are grounded in client-centered practice and in cognitive behavior therapy, respectively. Rønnestad and Skovholt's (2001, 2003) model of stages of counselor development has been one of the most popular and comprehensive models along with Orlinsky's work on the Generic Model of Psychotherapy (Orlinsky & Howard, 1984). The integrated development model (Stoltenberg, McNeill, & Delworth, 1998) is an alternative supervision model that focuses primarily on the growth of graduate counseling students in training.

Entry Point for Therapist Training Most counseling courses in the world aim at perspective building with some introductory programs on theories and models of counseling, which are offered at the graduate level. Actual training for therapy and counseling begins at the tertiary education level of postgraduate education at a Master's level and can range from 1 to 3 years, depending on the population and the issues that the therapist would like to work with. Therapists working with clinical populations usually require more intensive training as compared to those working on issues such as school or career counseling (McQuaid, 2014).

The Master's level education can be followed by MPhil, PsyD, and PhD courses which require more intensive field experience accompanied by research (McQuaid, 2014). Many counselors augment the skills acquired during basic academic training by attending further skill-based programs, often offered by practicing therapists. The need to continually update oneself and one's therapeutic skills has been emphasized for developing competence. Often the basic training in therapy is theoretical and does not provide enough hands-on skills for working with clients. This increases the feeling of incompetence and inadequacy of the student; it has to be recognized that inadequate training is detrimental for novice counselors and for the field as a whole (Ridley & Mollen, 2011; Thériault et al., 2009).

Graduate programs in the developed world usually accept students with a background in psychology; however, in countries like India, student intake spans a larger educational milieu. Counselors from developing countries like India are drawn from varied backgrounds and disciplines, ranging from human resource professionals, teachers and educationists, and social workers to clinical and counseling psychologists, nurses, and psychiatrists. Each discipline emphasizes different aspects of

counseling in the training offered. While process skills are uniformly acquired in the basic academic training, the emphasis on therapeutic skills varies. Licensing exams follow basic training of therapists, depending on the requirements for license for practice, which vary across countries.

Furthermore, higher education in the field of counseling and psychotherapy has been splintered in its availability and quality. Duan et al. (2011) surveyed counseling psychologists in Australia, Canada, New Zealand, South Africa, South Korea, Taiwan, the United Kingdom (UK), and the United States (US). A clear demarcation between the developed and the developing world was witness, with respondents who held a doctorate ranging from 100 percent in the United States to 10.9 percent in South Korea. Similarly, the proportion of counseling psychologists employed as faculty members in universities or professional schools of psychology ranged from none in Taiwan to 55.7 percent in the United States. This may result in a dilution of quality education, with inadequately equipped educators, with limited knowledge and experience.

In India, a PhD in Clinical Psychology located in hospital settings such as NIMHANS (NIMHANS – The National Institute of Mental Health and Neurosciences in Bangalore, India. A premier institution that provides training in mental health and neurosciences) and offering a strongly bio-neurological focus is the highest qualification available. The penultimate qualification of an MPhil degree in Clinical Psychology from an institute certified by the Rehabilitation Council of India (RCI) makes the recipient eligible to hold a license to practice as an independent professional. Licensing has been mandated as a requirement for psychological assessment and providing treatment with a focus on continued professional development; however, there is no formal organization to monitor professional practice. Therefore, clients are left with no forum of redressal should clinical error or malpractice happen. The Mental Health Care Act (2017) in India does not provide or lay down clear frameworks for quality and ethical conduct.

Content of Therapist Education The curriculum for therapist education can be divided into a taught component, supervised clinical practice, and personal development. The taught component of counseling training programs around the world shares certain key elements, i.e., a focus on different therapeutic approaches, theories of psychopathology, ethics, psychological assessment, and training in microskills of counseling as well as elements of research and practicum and internship. Counseling is a profession wherein the self of the counselor is an important therapeutic aid in determining the process and the outcomes. This necessitates the counselor to do intense self-reflection and introspection on individual motivations, values, beliefs, assumptions, and prejudices about clients and client groups. The person of the therapist model (Aponte & Kissil, 2016) has been influential in incorporating the use of the self in the training curriculum through experiential and reflective exercises in course work, gaining practical experience, and supervision. Counselor training helps trainees acquire knowledge, along with technical and clinical skills necessary for working with clients, to develop a therapeutic relationship and plan interventions specific to the needs to the client.

Keeping the social justice perspective of psychotherapy in mind, therapy training and education has to include the rights of the client. All trainee therapists have to be informed about what information a client or patient should receive about the assessment, diagnosis, and the interventions planned and implemented. This information may be influenced by the cultural context the client comes from; e.g., older clients from rural parts of India are content to take the word of the "expert" mental health practitioner, without questioning what is being done. This may be very different from the position taken by a client from a metropolitan city who wants to be informed about every step of the process, has access to information from the Internet, and is aware about their rights. Coming to a mental health practitioners does not mean that the client will not access other informal sources, such as faith healers. Counseling training has to prepare trainees to deal with a variety of clients, with differing needs, values, beliefs, and expectations. Psycho-educating clients about mental health, therapeutic interventions, and outcomes will go a long way in remedying the lack of awareness, misinformation, and stigma associated with mental illness and its treatment.

The use of technology for counselor training is limited. In countries like India and China, most of the resources available are Western textbooks on therapy, augmented by journal articles many of which are also from Western sources. While the importance of experiential, skill-based training is considered vital for the development of effective counselors, in practice much of the training is theoretical and does not incorporate adequate supervised fieldwork. The textual material that describes contextual cultural experiences is sparse and not readily available. It is left to individual trainers to try and develop a contextual understanding which is relevant. While all trainers and counselors recognize the importance of supervision for trainee counselors, supervision is not always available or adequate and may at times be harmful. The multilingual nature of clients, trainees, and trainers in diverse cultural contexts makes the process of supervision cumbersome and not entirely effective (Grover, 2014; Hoch, 1990; Sriram, 1990).

Thorne and Dryden (1991) expressed the importance of trainers being practicing counselors,

> Core members should themselves be practicing counselors and this goes without saying for there can be few occupations where the continuing interaction between practice and theory is of such primary value in the training process. The trainer who is no longer practicing as a counselor will quickly lose the immediacy of experience which provides the major stimulus for creativity and is the principal source of his or her credibility in the eyes of trainees. (Thorne & Dryden, 1991, p. 13)

It is necessary for trainers to keep track of developments in the counseling field. The "self" of the trainer and supervisor can be bolstered through continuing professional enhancement, accompanied by accessing supervision, good quality of life, relationships, and leisure. This can help in preventing burnout and the growing counseling field will be supported.

Research has shown that most of the training available for counselors in India is carried out in English; and English language textbooks are referenced and used exclusively in education. If we consider the country's linguistic diversity, this monolingual training of counselors does not prepare them adequately to work with clients in other languages. Often the lexicon of emotional terms that counseling students and novice counselors have access to is inadequate to allow for effective counseling practice. Supervision can resolve issues emerging from working with clients from varied linguistic and cultural backgrounds; however, training material and literature in languages other than English is scarce. There has been a hegemony of English speaking counselors, without adequately recognizing the needs of populations other than urban, middle-class English speaking groups. There is a pressing need for counselors in the vernacular medium, and dearth of skilled trainers and the absence of indigenous models of psychotherapy compound the challenge.

Supervision Supervision is a crucial requirement of postgraduate counseling training programs and is a part of developing and evaluating counseling students' competency (Borders, 1992) and overall development into effective counselors (Bernard & Goodyear, 2014). The ACA Code of Ethics (2014) states that supervision involves a process of monitoring "client welfare and supervisee performance and professional development" (Standard F.1.a). Furthermore, supervision can be used as a tool to provide supervisees with necessary knowledge, skills, and ethical guidelines to provide safe and effective counseling services that benefit the trainee therapist and the clients (Bernard & Goodyear, 2014; Hill, Spiegel, Hoffman, Kivlighan, & Gelso, 2017). Guidelines for supervision have been developed by organizations such as APA (2014, 2015) and the Association of State and Professional Psychology Boards (ASPPB, 2015). Approval of the guidelines for practice (APA, 2014, 2015), and for regulatory purposes (ASPPB, 2015), is a giant step forward in the United States. American Counseling Association (ACA, 2014), the Council for Accreditation of Counseling and Related Educational Programs (CACREP, 2009), and the Association for Counselor Education and Supervision (ACES, 2011) have articulated standards for best practices in supervision. For example, ACES' (2011) Standards for Best Practices Guidelines highlight 12 categories as integral components of the supervision process. The categories include responsibilities of supervisors and suggestions for actions to be taken in order to ensure best practices in supervision.

In the United States of America, the United Kingdom, and some countries in Europe, programs have been specifically developed to train supervisors. Developing the skills and practice for supervision is integral to the development of the profession of counseling. According to Holloway and Carroll (1999), specific training for supervision has come to the forefront only since the 1980s. Prior to this, the belief was that the training to become a good counselor would suffice to develop effective supervisors. The awareness of the need for separate training for supervision has emerged from the developmental and the social role systems models of supervision (Holloway & Carroll, 1999). In India, there is no formal training available for

becoming a supervisor. While the importance of supervision has been reiterated, one of the issues besetting counselors is the lack of adequate supervision, especially in the early stage of the career. Training for supervision may better equip practitioners to provide supervision to counselors at various stages of the career.

Personal Therapy In many parts of Asia, it is not necessary for trainee counselors to go through counseling or therapy themselves, before they begin to work as counselors. This is accompanied by inadequate supervision, during training and during the early phase of career development, which can lead to intense distress, feelings of inadequacy and incompetence, and an inability to apply what is learnt in theory to practice. In the United Kingdom, mandatory personal therapy of 40 hours is a requirement for accreditation by the British Association for Counseling and Psychotherapy (BACP) (Murphy, 2005; Oteiza, 2010). While certain schools of therapy such as the psychoanalytic and psychodynamic orientations have mandated personal therapy for all potential therapists, other formats do not have such a requirement (Grimmer, 2005).

Personal therapy is a crucial factor of counseling training. It is recommended that counselors or psychotherapeutic practitioners undergo therapy to resolve personal issues and to experience being a client. Resolving one's own issues becomes important before commencing practice. There are more chances of enactment and unaddressed transference and countertransference if the practitioner's self-healing has not happened. In order to build self-confidence and the ability to think clearly, one of the aids is personal therapy.

Personal therapy has been found to profoundly impact the personal and professional development of the trainee therapist (Hill et al., 2017; Murphy, 2005; Murphy, Irfan, Barnett, Castledine, & Enescu, 2018). According to Oteiza (2010), personal therapy was "a difficult but helpful and enriching experience" (p. 225). Personal therapy helped therapists identify their personal issues and accept their humanity, to be guided and accompanied and to be challenged. Personal therapy played a role in allowing practitioners to experience the role of the client, from the view of social justice and equity. However, most studies on personal therapy during training hesitate to equivocally mandate its requirement. This has been due to the expenses of personal therapy, if they are to be borne by the trainee. Alongside the benefits of personal therapy during training, there are cautionary tales about unprofessional and unethical practice. Poor quality mandated therapy can do more harm to the trainee. Additionally, evidence-based research supporting the rationale for mandated personal therapy is not readily available. Murphy et al. (2018) state that training institutions that mandate personal therapy should provide lists of available therapists, which are updated periodically, to ensure that no harm comes to trainees.

Licensing and Regulation India and China require licensure for the practice of psychotherapy. The RCI provides a license to practice for individuals with an MPhil degree in Clinical Psychology. China has traditionally offered licenses to psychiatrists who wish to practice psychotherapy, rendering other trained professionals

without formal recognition. Recent developments allow the Chinese Ministry of Labor and Social Security Affairs (CMLSS) to license professional psychological counselors with criteria that allow for easy qualification. A more rigorous registration is offered by the Clinical and Counseling Psychology Registration System (CCPRS) with an aim at voluntary registration and quality control. However, both India and China do not have legal infrastructure to enforce the standards of practice mandated by the RCI and CMLSS, respectively. Clients do not have any legal recourse for malpractice as is available for other healthcare services.

Japan notably does not require any licensure for the practicing of counseling. A lack of professional authority and regulation further compounds the problem of fragmentation of counseling services. This makes it challenging to establish a professional identity and encourage psychologists to engage in continued professional development. A lack of agreed upon and legally enforceable ethics and standards of practice leaves individuals vulnerable to malpractice and exploitation.

Conclusion: Meeting the Challenges of Counselor Training and Education

Providing mental health services in culturally diverse countries requires culturally competent counselors, who can work with people from different caste, ethnic, sociocultural, economic, regional, and linguistic backgrounds. The counseling trainer's job is a herculean task. Trainers navigate responsibilities of teaching, along with mentoring students for the "real" practice, while offering an emotionally safe and reflective space. This can be an emotionally taxing experience. Therapy training goes beyond mere didactic teaching, in that there is the need to integrate theory with practice. The fact that many trainers are themselves practitioners increases the pressures on them. While being practitioners allows the ready integration of therapeutic narratives as illustrations, there is the responsibility of training, and translating the lessons learned through practice, thereby building theory.

We believe that access to quality mental healthcare is a growing need, and raising the quality of training and education in the developing world requires a multipronged approach. We reiterate that while training and education of counselors can help develop competence, creating comprehensive criteria and methods for identifying suitable candidates a requirement that institutions need to formalize.

The following recommendations can be instrumental in preparing competent mental health professionals to deal with the challenges of the twenty-first century:

Redesigning Curricula and Pedagogy There is considerable diversity among institutes and regions in curriculum design and pedagogy of counseling and psychotherapy courses. Countries like India, China, and Japan follow universities in Europe and the United States as models upon which to base their teaching. Faculty training and knowledge determine the theoretical course content on offer. Limited access to professionals trained in emerging approaches often leads to a fall back on

traditional and at times outdated course content such as classical behavior therapy, classical client-centered therapy, etc. It is recommended that current existing curricula be supplemented with course material that addresses local and global sociopolitical changes and diversity in a culturally sensitive manner, especially topics like LGBTQ psychology, disability, migration, terrorism, marginalization, etc. To meet the increasing needs of client diversity, counseling curricula need to be revised to include units dedicated to client advocacy and social justice and multicultural practice tailor made for local population groups. Keeping in mind the collectivistic nature of societies in Asia (Laungani, 2004), counseling curricula often do not devote sufficient time to systemic approaches, such as working with families, groups, and the community. Inclusion of community mental health practice in training would help graduates to be better equipped to address the disparate ratio between service providers and seekers and to provide resources that may prove more accessible to a majority.

Professionals in the twenty-first century have to be equipped to practice in the digital age through exposure to telemental health and computer-assisted therapy via didactic, experiential, and supervised practice. Training to develop competent supervisors is urgently needed to develop skilled professionals. Varied pedagogy and methods of evaluation with an inclusion of experiential activities and a person of the therapist approach would serve to equip professionals with the skills to reflexively cater to a clinical population, teach and supervise students, and research and publish.

Additional Skills Considering the demands of the profession beyond the therapeutic space, counselors in today's age need to be equipped with knowledge and skills that extend beyond the subject. Most counseling courses follow a biopsychosocial approach and train students in mainstream therapeutic approaches like cognitive behavior therapy, psychodynamic therapy, and client-centered therapy. These approaches often leave students to graduate suitably trained with skills required to work in a hospital setting or a psychiatric clinic. Entrepreneurship skills which may enable graduates to build an independent practice are notably missing from the curriculum. Twenty-first century skills such as social media management, marketing, administrative skills, etc. are lacking. Students should be encouraged to participate in and shape public discourse as an effort to increase awareness and to tackle the mystery and stigma that often enfolds mental illness.

Deliberate Practice Just as rehearsal helps hone perfection in the fields of sports and music, deliberate practice outside the therapy room has to be consciously inculcated by the therapist. The advantageous use of deliberate practice has to be reinforced by trainers, and space and opportunity for the same have to be encouraged. The individual methods for deliberate practice can be refined to allow for the development of competent, self-aware, reflective professionals.

Self-Care and Burnout Prevention Therapists have to acquire the self-care skills to prevent burnout and compassion fatigue. Burnout of novice counselors can be

high when there is a heavy workload coupled with inadequate supervision. Systemic factors of organizational support, even distribution of workload, and availability of supervision in a collaborative work environment can help in preventing burnout. Alongside, personal factors such as awareness about one's emotions and value congruity of the individual and the workplace can help in protecting against burnout. Encouraging personal therapy during training can be an additional protective factor.

Training Centers and Universities Skill building for existing faculty and educators can develop through international exchange programs to teach and supervise more skillfully. Each center for learning/university/institute has to take an active role in building a professional body that liaises with the government to shape mental health policies. Encouraging students working towards postgraduate and PhD degrees to examine issues that are unique to the sociocultural context will help in building locally sourced educational materials over time. Conducting research on best practices in psychotherapy pedagogy at the global and local levels will further the reach of therapy. Programs for counseling education have to be developed with an emphasis on delivering counseling in the region's vernacular, so that the benefits of therapy can accrue for all individuals.

Theorizing Practice One of the lacunae that arises in therapy and counseling is a reluctance for practitioners to theorize their practice. Opportunities for collaboration between academic institutions and practitioners can provide valuable information about the state of the field and about how practitioners are modifying techniques and practices depending on the needs of the clients. This is a possible way to develop contemporary and locally relevant psychotherapy, suitably informed by theory. Trainees can benefit from the live experiences of practitioners. Healthy debate between academia and practitioners can ensure the promotion of synergic development of the field. Facilitating research and publication by practitioners showcasing methods such as case studies, phenomenological research, ethnography, psychobiography, discourse, and narrative analysis can contribute subjective and process-oriented work.

International Dialogue Driven by the needs and challenges arising from globalization, the ambition of creating an International Counselors' Association may be realized. National bodies can work to create an international body that serves professionals across the world in a manner comparable to the functioning of the ACA, BACP, etc., with global representation. This body can help to truly internationalize the training and practice of counseling and psychotherapy, facilitating curricular development, research, and multicultural practice. Encouraging collaboration among various international training institutions can facilitate a common curriculum for counselor training and supervision across geographies.

Ethical Codes Most countries adapt ethical guidelines from either the APA or the ACA or the BACP. Leach and Harbin (1997) took on the ambitious task of analyzing the ethical codes of 24 countries in comparison to the APA code of ethics, and they

found many similarities with Canadian and European countries. However, differences were noted among countries like China that hold a relativist rather than absolutist perspective. There was a high percentage of agreement with ten standards found in 75 percent of the codes surveyed. These standards were Privacy, Confidentiality, Competence, Avoiding Harm, Exploitive Relationships, Supervision, Fees and Financial Arrangements, Avoidance of False or Deceptive Statements, Informed Consent to Therapy, and Informed Consent to Research. However, some differences were noted including emphasis on school testing, forensic and legal issues, the use of torture, respect for diversity, and sexual misconduct. We propose that national bodies adapt existing ethical codes to better reflect their current sociocultural context and, in the tradition of APA, periodically revise the codes to keep up with the changing landscape.

DiFilippo et al. (2003, p. 270), caution "Approximately half of what is learned in graduate school is outdated ten years later"; necessitating continuous examination, review and updating of course content and pedagogy. A lack of exposure and supervision during formal training renders even professionally trained counselors ill prepared to meet the challenges of a dynamic sociopolitical context. In present times, both developed and developing nations are going through flux such as economic downturn, political upheavals, changing government regimes and policies, sexual and gender diversity, migration, terrorism, increased intolerance and violence against minorities, etc. Emerging needs such as using telephonic and digital modalities of therapy, working with LGBTQ, polyamorous, BDSM and kinky clients, clients facing systemic violence and refugees, etc. are not covered in formal curricula. Graduates are left to their own devices to adapt their newly minted repertoire of skills, explore literature from other cultural contexts, and seek short-term courses or supervision to help equip them to meet the needs of these groups. More often than not, novice counselors face problems in building a professional identity and integrating into the extant mental health infrastructure; further learning and skill building is often deferred or ignored. The more nuanced the training and education, the greater the unfurling of the potential of the therapist.

Asia's connections with colonialism are so strong, that even in present times, psychotherapy remains shackled by the hegemony of Eurocentric ideas. Since counseling is a reflexive discipline, its application in multiple cultural settings requires priority be given to the local cultural heritage and the social circumstances in which interventions are developed and carried out.

References

American Counseling Association. (2014). *ACA code of ethics*. Alexandria, VA: American Counseling Association.

American Psychological Association. (2003). Guidelines for multicultural education, training, research, practice, and organizational change for psychologists. *American Psychologist, 58*, 377–402.

American Psychological Association. (2006). *APA task force on the assessment of competence in professional psychology: Final report*. Retrieved from http://www.apa.org/ed/resources/competency-revised.pdf

American Psychological Association. (2014). *Guidelines for Clinical Supervision in Health Service Psychology*. Retrieved from http://apa.org/about/policy/guidelines-supervision.pdf

American Psychological Association. 2017. *Multicultural Guidelines: An Ecological Approach to Context, Identity, and Intersectionality*. Retrieved from: http://www.apa.org/about/policy/multicultural-guidelines.pdf

American Psychological Association, Commission on Accreditation. (2015). *Standards of Accreditation for Health Service Psychology*. Retrieved from http://www.Apa.org/ed/accreditation/about/policies/standards-of-accreditation.pdf

Aponte, H., & Kissil, K. (Eds.). (2016). *Person of the therapist training model: Mastering the use of self*. New York: Routledge.

Arulmani, G. (2007). Counseling psychology in India: At the confluence of two traditions. *Applied Psychology: An International Issue, 56*(1), 69–82.

Association for Counselor Education and Supervision Taskforce on Best Practices in Clinical Supervision. (2011, April). *Best practices in clinical supervision*. Retrieved from www.acesonline.net/wp-content/uploads/2011/10/ACES-Best-Practices-in-clinicalsupervision-document-FINAL.pdf.

Association of State and Provincial Psychology Boards. (2015). *Supervision guidelines for education and training leading to licensure as a health service provider*. Retrieved from https://www.asppb.net/

Bae, S. H., Joo, E., & Orlinsky, D. E. (2003). Psychotherapists in South Korea: Professional and practice characteristics. *Psychotherapy: Theory, research, practice, training, 40*(4), 302.

Bernard, J. M., & Goodyear, R. K. (2014). *Fundamentals of clinical supervision* (5th ed.). Upper Saddle River, NJ: Pearson Education.

Bhola, P., Kumaria, S., & Orlinsky, D. E. (2012, July 5). Looking within: Self-perceived professional strengths and weaknesses among psychotherapists in India. *Asia Pacific Journal of Counseling and Psychotherapy, 1–14*.

Blocher, D. H. (1983). Toward a cognitive developmental approach to counseling supervision. *The Counseling Psychologist, 11*(1), 27–34.

Borders, L. D. (1992). Learning to think like a supervisor. *The Clinical Supervision, 10*(2), 135–148.

Brannigan, T. (2014, September 3). It's good to talk: China opens up to psychotherapy. *The Guardian*.

Carroll, K. M., & Rounsaville, B. J. (2010). Computer-assisted Therapy in psychiatry: Be brave—It's a new world. *Current Psychiatry Reports, 12*(5), 426–432. https://doi.org/10.1007/s11920-010-0146-2

Carter, K. (2019). *How computer-assisted therapy helps patients and practitioners (Pt. 1) VR and AI therapy programs offer practitioners new tools to help treat patients*. https://www.apa.org/members/content/computer-assisted-therapy

Chang, D. F., Tong, H., Shi, Q., & Zeng, Q. (2005). Letting a hundred flowers bloom: Counseling and psychotherapy in the people's Republic of China. *Journal of Mental Health Counseling, 27*(2), 104–116.

Chen, X. S. (2005). The evolution and task of mental health in China. *Journal of Chinese Mental Health, 19*, 649–650.

Chinese Psychological Society. (2004). *Psychology in China*. Beijing, China: Chinese Psychological Society.

Chinese Psychological Society. (2007). *Code of ethics for counseling and clinical practice*. Beijing, China: Chinese Psychological Society.

Chow, D. L., Miller, S. D., Seidel, J. A., Kane, R. T., Thornton, J. A., & Andrews, W. P. (2015). The role of deliberate practice in the development of highly effective psychotherapists. *Psychotherapy, 52*(3), 337–345.

Christogiorgos, S., Vassilopoulou, V., Florou, A., Xydou, V., Douvou, M., & Tsiantis, J. (2010). Telephone counseling with adolescents and counter-transference phenomena: Particularities and challenges. *British Journal of Guidance & Counseling, 38*(3), 313–325. https://doi.org/10.1080/03069885.2010.482394

Clay, R. (2019). *Psychotherapy in China*. [online] https://www.apa.org. Available at: https://www.apa.org/monitor/2019/10/psychotherapy-china (Accessed 13 Nov. 2019).

Cook, A. L., Lei, A., & Chiang, D. (2010). Counseling in China: Implications for counselor education preparation and distance learning instruction. *Journal for International Counseling Education, 2*, 60–73.

Corey, G., Corey, M. S., & Callanan, P. (2005). An approach to teaching ethics courses in human services and counseling. *Counseling and Values, 49*(3), 193–207.

Corey, G., Corey, M. S., & Callanan, P. (2007). *Issues and ethics in the helping professions* (7th ed.). Pacific Grove, CA: Brooks/Cole.

Corey, G., Corey, M. S., Callanan, P., & Learning, T. (2011). *Issues and Ethics in the helping professions*. Cengage Learning.

Council for Accreditation of Counseling and Related Educational Programs. (2009). 2009 standards. Alexandria, VACouncil for Accreditation of Counseling and Related Educational Programs.

DiFilippo, J. M., Sloan, D. M., Butler, R. W., & Stefan, E. (2003). The future of psychotherapy. *Journal of Contemporary Psychotherapy, 33*(4), 261–272.

Dryden, W., & Thorne, B. (Eds.). (1991). *Training and supervision for counseling in action* (Vol. 14). Sage.

Duan, C., Nilsson, J., Wang, C. C. D., Debernardi, N., Klevens, C., & Tallent, C. (2011). Internationalizing counseling: A Southeast Asian perspective. *Counseling Psychology Quarterly, 24*(1), 29–41.

Edwards, J. (2018). Counseling and Psychology Student Experiences of Personal Therapy: A Critical Interpretive Synthesis. *Frontiers in Psychology, 9*, 17–32.

Egan, G. (1998). *The skilled helper: A problem-management approach to helping*. Pacific Grove, Calif: Brooks/Cole.

Ellenberger, H. F. (1970). *The discovery of the unconscious: The history and evolution of dynamic psychiatry*. London: Allen Lane.

Fairburn, C. G., & Patel, V. (2017). The impact of digital technology on psychological treatments and their dissemination. *Behaviour research and therapy, 88*, 19–25.

Farber, B. A., Manevich, I., Metzger, J., & Saypol, E. (2005). Choosing psychotherapy as a career: Why did we cross that road? *Journal of Clinical Psychology, 61*(8), 1009–1031.

Fernandez, M. (2013). *A Model of Pedagogy for Beginning Counselor Educators*. [online] Counseling.org. Available at: https://www.counseling.org/knowledge-center/vistas/by-subject2/vistas-education-and-supervision/docs/default-source/vistas/a-model-of-pedagogy-for-beginning-counselor-educators (Accessed 4 Nov 2019).

Fleming, J. (1953). The role of supervision in psychiatric training. *Bulletin of the Menninger Clinic, 17*(5), 157.

Fleuridas, C., & Krafcik, D. (2019, January-March). Beyond four forces: The evolution of psychotherapy. *SAGE Open*, 1–21.

Foo, K. H., Merrick, P. L., & Kazantzis, N. (2006). Counseling/psychotherapy with Chinese Singaporean clients. *Asian Journal of Counseling, 13*(2), 271–293.

Fukkink, R., & Hermanns, J. (2009). Counseling children at a helpline: Chatting or calling. *Journal of Community Psychology, 37*(8), 939–948.

Gaiha, S. M., Sunil, G. A., Kumar, R., & Menon, S. (2014). Enhancing mental health literacy in India to reduce stigma: The fountainhead to improve health-seeking behaviour. *Journal of Public Mental Health, 13*(3), 146–158.

Gao, Y. (2001). Directive approach to telephone counseling in the People's Republic of China: Underlying cultural traditions and transitions. *The Counseling Psychologist, 29*, 435–453.

Garg, K., Kumar, C. N., & Chandra, P. S. (2019). Number of psychiatrists in India: Baby steps forward, but a long way to go. *Indian Journal of Psychiatry, 61*, 104–105.

Gilbert, P., Hughes, W., & Dryden, W. (2014). The therapist as a crucial variable in psychotherapy. In W. Dryden & L. Spurling (Eds.), Classic Edition *On becoming a psychotherapist*. New York: Routledge.

Gonsiorek, J. C., Richards, P. S., Pargament, K. I., & McMinn, M. R. (2009). Ethical challenges and opportunities at the edge: Incorporating spirituality and religion into psychotherapy. *Professional Psychology: Research and Practice, 40*(4), 385–395.

Grater, H. A. (1985). Stages in psychotherapy supervision: From therapy skills to skilled therapist. *Professional Psychology: Research and Practice, 16*(5), 605.

Grimmer, A. (2005). Mandatory personal therapy for therapists: Professional and ethical issues. In *Handbook of professional and ethical practice for psychologists, counselors and psychotherapists*, 277-289.

Grover, N. (2014). An experiential account of the journey of psychotherapy training in India. *Psychological Studies, 60*(1), 114–118.

Gupta, T. (2019). *Journal of Indian Association for Child and Adolescent Mental Health, 15*(3), 90–98.

Gupta, A. K., Sharma, E., Kar, S. K., Tripathi, A., Reeves, T., Arjundas, R., & Dalal, P. K. (2019). Training and clinical impact of cognitive behaviour therapy workshops in a teaching hospital in North India. *Indian Journal of Psychological Medicine, 41*(4), 343.

Hackney, H., & Cormier, L. S. (2001). *The professional counselor: A process guide to helping*. Boston: Allyn and Bacon.

Halder, S., & Mahato, A. K. (2019). Cognitive behavior therapy for children and adolescents: Challenges and gaps in practice. *Indian Journal of Psychological Medicine, 41*(3), 279.

Henden, J. (2008). *Preventing suicide: The solution focused approach*. Chichester, UK: Wiley.

Heppner, P. P., & Roehlke, H. J. (1984). Differences among supervisees at different levels of training: Implications for a developmental model of supervision. *Journal of Counseling Psychology, 30*, 252–262.

Hess, A. K. (1987). Advances in psychotherapy supervision: Introduction. *Professional Psychology: Research and Practice, 18*(3), 187.

Higgins, L. T., & Sun, C. H. (2002). The development of psychological testing in China. *International Journal of Psychology, 77*(4), 246–254.

Hill, C. E. & Castonguay, L. G. (2017). Therapist effects: Integration and conclusions. In *How and why are some therapists better than others? Understanding therapist effects*, L. G. Castonguay and C. E. Hill (Eds.). pg. 325-341. Washington DC: American Psychological Association.

Hill, C. E., Spiegel, S. B., Hoffman, M. A., Kivlighan, D. M., & Gelso, C. J. (2017). Therapist expertise in psychotherapy revisited. *The Counseling Psychologist*, 1–47.

Hoch, E. M. (1990). Experiences with psychotherapy training in India. *Psychotherapy Psychosomatic, 53*, 14–20.

Hogan, R. A. (1964). Issues and approaches in supervision. *Psychotherapy: Theory, Research & Practice, 1*(3), 139.

Holloway, E. L. (1987). Developmental models of supervision: Is it development? *Professional Psychology: Research and Practice, 18*, 209–216.

Holloway, E., & Carroll, M. (1999). Introduction. In E. Holloway & M. Carroll (Eds.), *Training counseling supervisors* (pp. 1–7). London: Sage Publications.

Hook, J.N., Captari, L.E., Hoyt, W., Davis, D.E., McElroy, S.E., & Worthington, E.L. (2019). Religion and spirituality. In J.C. Norcross and B.E. Wampold (eds.) *Psychotherapy relationships that work. Volume 2: Evidence-based therapist responsiveness.* (3rd Ed.) pg. 212–263. New York: Oxford University Press.

Hou, Z. J., & Zhang, N. J. (2007). Counseling psychology in China. *Applied Psychology: An International Review, 56*, 33–50.

Huang, H. Y. (2015). From psychotherapy to psycho-boom: A historical overview of psychotherapy in China. *Psychoanalysis and Psychotherapy in China, 1*(1), 1–30.

Inman, A. G., Soheilian, S. S., & Luu, L. P. (2019). Telesupervision: Building bridges in a digital era. *Journal of Clinical Psychology, 75*(2), 292–301.

Iwakabe, S. (2008). Psychotherapy integration in Japan. *Journal of Psychotherapy Integration, 18*(1), 103.

Jacobsen, T., & Kohout, J. (2010). *2008 APA survey of psychology health service providers: Telepsychology, medication and collaboration.* APA Center for Workforce Studies. Washington D.C.: American Psychological Association. Retrieved October 14, 2015, from http://www.apa.org/workforce/publications/08-hsp/telepsychology/report.pdf.

Joo, E., Lee, H., & Joo, E. (2007). An investigation of Korean Humanistic counseling model based on the self-report of experienced humanistic counselors in Korea. *Korean Journal of Counseling and Psychotherapy, 19*, 569–586.

Kapur, M., Shamasundar, C., & Bhatti, R. (1996). *Psychotherapy training in India*. Bangalore: NIMHANS.

King, R., Bambling, M., Reid, W., & Thomas, I. (2006). Telephone and online counseling for young people: A naturalistic comparison of session outcome, session impact and therapeutic alliance. *Counseling and Psychotherapy Research, 6*(3), 1405–1746.

Kumar, A. (2011). Mental health services in rural India: Challenges and prospects. *Health, 3*(12), 757–761.

Kumaraswamy, N. (2007). Psychotherapy in Brunei Darussalam. *Journal of Clinical Psychology, 63*(8), 735–744.

Lambert, M. J. (2013). The efficacy and effectiveness of psychotherapy. In M. J. Lambert (Ed.), *Bergin and Garfield's handbook of psychotherapy and behavior change* (6th ed.). Hoboken NJ: John Wiley & Sons.

Laungani, P. (2004). *Asian perspectives in counseling and psychotherapy.* London: Routledge.

Leach, L., & Christensen, H. (2006). A systematic review of telephone-based interventions for mental disorders. *Journal of Telemedicine and Telecare, 12*(3), 122–129.

Leach, M. M., & Harbin, J. J. (1997). Psychological ethics codes: A comparison of twenty-four countries. *International Journal of Psychology, 32*(3), 181–192.

Lee, S. M., Suh, S., Yang, E., & Jang, Y. J. (2012). History, current status, and future prospects of counseling in South Korea. *Journal of Counseling & Development, 90*(4), 494–499.

Li, Z., Guo, Z., Wang, N., Xu, Z., Qu, Y., Wang, X., & Kingdon, D. (2015). Cognitive–behavioural therapy for patients with schizophrenia: A multicentre randomized controlled trial in Beijing, China. *Psychological Medicine, 45*(9), 1893–1905.

Lim, S., Lim, B., Michael, R., Cai, R., & Schock, C. K. (2010). The trajectory of counseling in China: Past, present, and future trends. *Journal of Counseling & Development, 88*, 4–8.

Littrell, J. M., Lee-Borden, N., & Lorenz, J. (1976). A developmental framework for counseling supervision. *Counselor Education and Supervision, 19*(2), 129–136.

Loganbill, C., Hardy, E., & Delworth, U. (1982). Supervision: A conceptual model. *The Counseling Psychologist, 10*(1), 3–42.

Malhotra, S., Chakrabarti, S., & Shah, R. (2013). Telepsychiatry: Promise, potential, and challenges. *Indian Journal of Psychiatry, 55*(1), 3.

Mander, G. (2004). The selection of candidates for training in psychotherapy and counseling. *Psychodynamic Practice, 10*(2), 161–172.

Manickam, L. S. S. (2010). Psychotherapy in India. *Indian Journal of Psychiatry, 52*(Suppl1), S366.

Martin, P., Kumar, S., & Lizarondo, L. (2017). Effective use of technology in clinical supervision. *Internet Interventions, 8*, 35–39.

McDonald, M. (2011). Stressed and depressed, Koreans avoid therapy**.** *The New York Times*, *6*. https://www.nytimes.com/2011/07/07/world/asia/07iht-psych07.html

McQuaid, C. (2014). *What you really need to know about counseling and psychotherapy training*. Hove, UK: Routledge.

Merry, S. N., Stasiak, K., Shepherd, M., Frampton, C., Fleming, T., & Lucassen, M. F. (2012). The effectiveness of SPARX, a computerised self help intervention for adolescents seeking help for depression: Randomised controlled non-inferiority trial. *Bmj, 344*, e2598.

Miars, R. D., Tracey, T. J., Ray, P. B., Cornfeld, J. L., O'Farrell, M., & Gelso, C. J. (1983). Variation in supervision process across trainee experience levels. *Journal of Counseling Psychology, 30*, 403–412.

Murphy, D. (2005). A qualitative study into the experiences of mandatory personal therapy during training. *Counseling and Psychotherapy Research, 5*, 27–32.

Murphy, D., Irfan, N., Barnett, H., Castledine, E., & Enescu, L. (2018). A systematic review and meta-synthesis of qualitative research into mandatory personal psychotherapy during training. *Counseling and Psychotherapy Research., 18*(2), 199–214.

Naeem, F., Gobbi, M., Ayub, M., & Kingdon, D. (2009). University students' views about compatibility of cognitive behaviour therapy (CBT) with their personal, social and religious values (a study from Pakistan). *Mental Health, Religion & Culture, 12*(8), 847–855.

Norcross, J. C., & Lambert, M. J. (2019). Evidence- based psychotherapy relationships: The third task force. In J. C. Norcross & M. J. Lambert (Eds.), *Psychotherapy relationships that Work Volume 1: Evidence based therapist contributions* (3rd ed.). New York, NY: Oxford University Press.

Orlinsky, D. E., & Howard, K. I. (1984). A generic model of psychotherapy. Paper presented at the 1st annual meeting of the Society for the Exploration of Psychotherapy Integration (SEPI), Annapolis, MD.

Orlinsky, D. E., & Howard, K. I. (1986). Process and outcome in psychotherapy. In S. L. Garfield & A. E. Bergin (Eds.), *Handbook of psychotherapy and behavior change* (pp. 311–384). New York: Wiley.

Oteiza, V. (2010). Therapists' experiences of personal therapy: A descriptive phenomenological study. *Counseling and Psychotherapy Research: Linking Research with Practice, 10*(3), 222–228.

Overholser, J. C. (2019). 50 Years of psychotherapy: Erudition, evolution, and evaluation. *Journal of Contemporary Psychotherapy.*

Patel, V., & Thara, R. (Eds.). (2003). *Meeting the mental health needs of developing countries: NGO innovations in India*. Sage Publications India.

Pope, V. T., & Kline, W. B. (1999). The personal characteristics of effective counselors: What 10 experts think. *Psychological Reports, 84*(3), 1339–1334.

Pope, K. S., & Vasquez, M. J. T. (2011). *Ethics in psychotherapy and counseling* (4th ed.). San Francisco, CA: Jossey-Bass.

Post, B. C., & Wade, N. G. (2009). Religion and spirituality in psychotherapy: A practice friendly review of research. *Journal of Clinical Psychology, 65*(2), 131–146.

Qian, M. Y. (1994). Counseling and psychotherapy. Peking University Press.

Qian, M., Gao, J., Yao, P., & Rodriguez, M. A. (2009). Professional ethical issues and the development of professional ethical standards in counseling and clinical psychology in China. *Ethics & Behavior, 19*(4), 290–309.

Reese, R. J., Conoley, C. W., & Brossart, D. F. (2002). Effectiveness of telephone counseling: A Field-based investigation. *Journal of Counseling Psychology, 49*(2), 233–242.

Reising, G. N., & Daniels, M. H. (1983). A study of Hogan's model of counselor development and supervision. *Journal of Counseling Psychology, 30*, 235–244.

Ridley, C. R., & Mollen, D. (2011). Training in counseling psychology: An introduction to the major contribution. *The Counseling Psychologist, 39*(6), 793–799.

Rogers, C. R. (1951). *Client-centered therapy.* Boston: Houghton Mifflin.

Rønnestad, M. H., & Skovholt, T. M. (2001). Learning arenas for professional development: Retrospective accounts of senior psychotherapists. *Professional Psychology: Research and Practice, 32*(2), 181.

Rønnestad, M. H., & Skovholt, T. M. (2003). The journey of the counselor and therapist: Research findings and perspectives on professional development. *Journal of Career Development, 30*(1), 5–44.

Rousmaniere, T. (2017). *Deliberate practice for psychotherapists: A guide to improving clinical effectiveness*. New York: Routledge.

Russell, R. K., & Petrie, T. (1994). Issues in training effective supervisors. *Applied and Preventive Psychology, 3*, 27–42.
Sarai, K., Karnasuta, K., & Ohara, M. (2019). Long-term care (LTC) system for the elderly in Japan. *Journal of Thai Interdisciplinary Research, 14*(4), 1–8.
Schoonover, J., Lipkin, S., Javid, M., Rosen, A., Solanki, M., Shah, S., & Katz, C. L. (2014). Perceptions of traditional healing for mental illness in rural Gujarat. *Annals of Global Health, 80*, 96–102.
Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2001). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York: Guilford Press.
Sidhu, G. (2017). The Application of Western Models of Psychotherapy by Indian Psychotherapists in India: A Grounded Theory. Dissertations & Theses, 377.
Sipps, G. J., Sugden, G. J., & Favier, C. M. (1988). Counselor training level and verbal response type: Their relationship to efficacy and outcome expectations. *Journal of Counseling Psychology, 35*, 397–401.
Skovholt, T. M., & Ronnestad, M. H. (1992). *The evolving professional self*. New York: Wiley.
Sperry, L. (2010). *Highly effective therapy: Developing essential clinical competencies in counseling and psychotherapy. Routledge.*
Spruill, J., Rozensky, R. H., Stigall, T. T., Vasquez, M. J. T., Bingham, R. P., & Olvey, C. D. (2004). Becoming a competent clinician: Basic competencies in intervention. *Journal of Clinical Psychology, 60*, 741–754.
Sriram, T. G. (1990). Psychotherapy in developing countries: A public health perspective. *Indian Journal of Psychiatry, 32*(2), 138.
Sriram, S. (2016). Counseling in India: An introduction to the volume. In S. Sriram (Ed.), *Counseling in India: Reflections on the process* (pp. 1–11). Singapore: Springer.
Stoltenberg, C. (1981). Approaching supervision from a developmental perspective: The counselor complexity model. *Journal of Counseling Psychology, 28*(1), 59.
Stoltenberg, C. D., & Delworth, U. (1987). *Supervising counselors and therapists: A developmental approach*. Jossey-Bass.
Stoltenberg, C. D., & Delworth, U. (1988). Developmental models of supervision: It is development—Response to Holloway. *Professional Psychology: Research and Practice, 19*, 134–137.
Stoltenberg, C. D., McNeill, B., & Delworth, U. (1998). *IDM supervision: An integrated developmental model for supervising counselors and therapists*. San Francisco: Jossey-Bass.
Tagami, F., & Ozawa, Y. (2005). Kaunseringu towa nanika [What is counseling?]. In S. Geshi et al. (Eds.), *Kanunseringu no tenbou [Perspectives on counseling]* (pp. 3–14). Tokyo: Brain.
Thara, R., & Patel, V. (2010). Role of non-governmental organizations in mental health in India. *Indian Journal of Psychiatry, 52*(Suppl1), S389.
The Mental HealthCare Act; 2017. Available from: https://www.indiacode.nic.in/bitstream/123456789/2249/1/A2017-10.pdf. (Last accessed on 2019 Nov 19).
Thériault, A., & Gazzola, N. (2005). Feelings of inadequacy, insecurity, and incompetence among experienced therapists. *Counseling and Psychotherapy Research, 5*(1), 11–18.
Thériault, A., & Gazzola, N. (2008). Feelings of incompetence among experienced therapists: A substantive theory. *European Journal of Qualitative Research in Psychotherapy, 3*, 19–29.
Thériault, A., & Gazzola, N. (2010). Therapist feelings of incompetence and suboptimal processes in psychotherapy. *Journal of Contemporary Psychotherapy, 40*, 233–243.
Thériault, A., Gazzola, N., & Richardson, B. (2009). Feelings of incompetence in novice therapists: Consequences, coping, and correctives. *Canadian Journal of Counseling and Psychotherapy/Revue canadienne de counseling et de psychothérapie, 43*(2).
Thorne, B., & Dryden, W. (1991). Approaches to the training of counselors. In W. Dryden (Ed.), *Training and supervision for counseling in action* (pp. 15–32). London: SAGE Publications.
Tracey, T. J., Hays, K. A., Malone, J., & Herman, B. (1988). Changes in counselor response as a function of experience. *Journal of Counseling Psychology, 35*, 119–126.
Wampold, B. E., Baldwin, S. A., Holtforth, M. G., & Imel, Z. E. (2017). What characterizes effective therapists? In L. G. Castonguay & C. E. Hill (Eds.), *How and why are some therapists*

better than others? Understanding therapist effects (pp. 37–54). Washington DC: American Psychological Association.

Watanabe-Muraoka, A. M. (2007). A perspective on counseling psychology in Japan: Toward a lifespan approach. *Applied Psychology, 56*(1), 97–106.

Welfel, E. R. (2016). *Ethics in counseling and psychotherapy standards, research, and emerging issues* (6th ed.). Boston, MA: Cengage Learning.

Wheeler, S. (2000). What makes a good counselor? An analysis of ways in which counselor trainers construe good and bad counseling trainees. *Counseling Psychology Quarterly, 13*(1), 65–83.

Wiley, M., & Ray, P. B. (1986). Counseling supervision by developmental level. *Journal of Counseling Psychology, 33*, 439–445.

Worthington, E. L. (1984). An empirical investigation of supervision of counselors as they gain experience. *Journal of Counseling Psychology, 31*, 63–75.

Yagi, D. T. (2008). Current developments in school counseling in Japan. *Asian Journal of Counseling, 15*(2), 141–155.

Yeo, L. S., Tan, S. Y., & Neihart, M. (2013). Counseling in Singapore. In T. H. Hohenshil, N. E. Amundson, & S. G. Niles (Eds.), *Counseling around the world: An international handbook* (pp. 127–136). Alexandria, VA: American Counseling Association.

Zeng, Q. F., Zhao, X. D., & Zhu, Z. H. (2003). The summary of the first conference of clinical and counseling committee in the Chinese Psychological Society. *Journal of Chinese Mental Health, 17*, 795.

Zhao, X. (2014). Opportunities and challenges for promoting psychotherapy in contemporary China. *Shanghai Archives of Psychiatry, 26*(3), 157–159.

Gender Studies

27

Teaching Gender in Psychology

Tissy Mariam Thomas and U. Arathi Sarma

Contents

T. M. Thomas (✉) · U. A. Sarma
Department of Psychology, University of Kerala, Thiruvananthapuram, Kerala, India

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Abstract

Studying gender, a dynamic process embedded within the patriarchal framework, traverses academic, societal, economic, legislative, and administrative platforms. Intersectionality of gender reveals fluidity of other multiple identities wherein gender discourses undergo a revolutionary transition. The discipline of psychology, with its expertise in understanding the subtleties of human interactions, has the potential to contribute immense knowledge on the origin, maintenance, and modification of the social construction of gender. However, a review of gender discussions in the theory and practice of psychology gives tremendous insights on the depth and power of gendered representations, which have even penetrated into psychological theories, assessment, research, diagnosis, and therapy. Gender-informed approaches in psychology are now of growing priority, due to the global sensitization towards the empowerment of marginalized gender. Despite formal commitments to gender equality as a universal agenda, voices of lived realities of marginalized gender have boosted the development of broader multicultural frameworks of gender mainstreaming across various domains of health, relationships, education, media, occupation, and policy-making. Thus, it remains the skill and expertise of informed academicians and professionals to elucidate appropriate practices towards gender fluidity and pluralism. The present chapter offers a comprehensive, inquisitive space for acquainting with gender discourses in psychology, new lines of research in gender studies, systematic efforts at gender integration, and best practices that facilitate gender-informed approaches.

Keywords

Feminist movement · Gender gap · Gender-based violence · Gender-informed approaches in psychology · Gender empowerment and policy-making · Gender sensitivity in media and educational resources

Introduction

Opening up of gender discussions in a psychology classroom often ends up with animated arguments between male and female students in an urge to prove that they live up to the gender stereotypes assigned in a patriarchal society. An informed instructor, then, might need to initiate discussions from basic conceptual clarifications, patterns of gender socialization, and development of gender-based criticisms in

academic and practicing psychology. Consequences of the construction of a gendered self which results into distorted communication, power equations, and mental health guarantee psychological imbalances embedded in societal structure itself.

Recently, a pedagogical change has been observed in the teaching space while carrying out these deliberations, by placing gender concerns through the perspective of gender sensitive governance and policy-making. Rather than the promises of concluding the gender discourses focusing on the need for an inclusive approach in each class, strong forms of gender empowerment instances and events have been brought out from the social, economic, and political gender models globally. The present chapter includes a) brief analysis of the gender-sensitive approaches in academic psychology in terms of theoretical models, assessment and research methods, and mental health practice; b) implementation of various gender empowerment approaches in relationship, health, media, and educational resources in the government and nongovernment settings; and c) discussions on the empowerment of marginalized gender initiatives through the evaluation of global gender gap and human development reports.

Gender-based violence across the world has been criticized for the poor preventive mechanisms as the authorities of the world nations, tended to act after the violence had occurred, and reported by WHO in 2002. The absence of poor preventive mechanisms would have devastating effects among the youth in understanding of women rights and issues such as violence, justice, equality, etc. With a motive to understand and establish a baseline of democratic citizenship values and attitudes of youth in urban India, Children's Movement for Civic Awareness (CMCA) survey tested the awareness of young Indians on topics like democracy, rights, and responsibilities, adherence to civic rules, gender equality, social justice, and environmental conservation among 6600 school students and 4400 college students (Children's Movement for Civic Awareness, 2014). Refer to Fig. 1.

The score shows wide prevalence of gender-biased attitudes and negative stereotypes amongst the young population in urban India. Young students justify society's protectiveness in violence which tremendously alarm the nations to take necessary steps to promote prevention of violence from occurring. Having gender-based violence as still the main focus in approaching gender studies, the history of feminist movement and the changes it brought to academic psychology would worth an exercise.

The "World report on violence and health: Summary," published by WHO in 2002, analyzed the violence across the world and criticized the poor preventive mechanisms of the authorities of the world nations, who tended to act after the violence had occurred. Advocating preventive actions targeting vulnerable groups, particularly those in lower socioeconomic status, the report put forward complacency, usually reinforced by self-interests, as a barrier to tackle violence and political commitment as a resource to tackle violence. Relying on the ecological model for understanding the multiple faces of violence, the report organizes existing efforts at

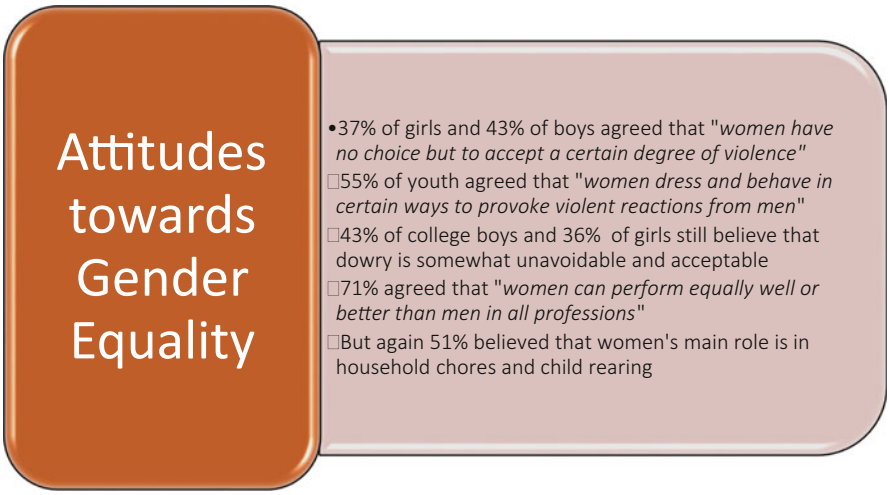

Fig. 1 Yuva Nagarik Meter Report on attitude toward gender equality. (Source: Children's Movement for Civic Awareness, 2014)

curbing violence under individual,[1] relationship,[2] community based,[3] and societal[4] approaches (WHO, 2002).

Even though these approaches are in place at different levels of execution, it's effectiveness in reaching out various communities of gender is far from implementation. One needs to go through the brief history of feminist movement in order to understand the current status of gender discourses.

Feminist Movement

Debates over the roles of women and men dated back in history. Gender differences had been subjected to theories, perspectives, research, measurement, and therapies in psychology. The *essentialist* view proposes of an underlying biological component

[1] Target the attitudes and behaviour of young adults, children, women and men as well as those who have committed violence

[2] Focus on the relationships between victims and predators of violence.

[3] Aims at creating public awareness, making debates on these issues to mobilise actions and facilitating social support for the victims

[4] Focus on the cultural, social and economic factors like legislative and judicial remedies, international treaties to prevent violence, polices that can make families free from poverty and inequality, efforts to change social and cultural norms that discriminates people on race, creed and gender etc., and implementing disarmament and demobilizations

which makes gender differences and *minimalist*[5] and *maximalist*[6] views bring out the nature of gender differences (Epstein, 1988).

When the structuralist school of psychology established analytical ways of studying the structure of "generalized adult mind" through experimentation, individual differences were assumed to be based on the data drawn from and by men (Brannon, 2017), and women were prohibited from this tradition expressly in the United States. Functionalist psychologists drew a wider variety of participants such as children, women, and animals to research and theorize. Consequently, behaviorism and psychoanalysis came into existence, both emphasizing minimal role gender in human behavior.

Eighteenth century is marked with the political, social, and intellectual developments of women's studies which have affected the way psychology understands gender differences. The first and second waves of feminism propagated changes in women's roles and legal status followed by development of women's studies. Even though many disputes the notion of third wave feminism (post feminism), it remains as a common belief that feminism is no longer necessary as women have achieved equal treatment and opportunities.

The terminology of sex which emphasizes the biological differences is replaced by an alternative term, gender, proposed by (1999) which describes the traits and behaviors that are regarded by the culture as appropriate to women and men.

Sooner, feminist orientation has influenced academic development in the field of psychology like other sciences and social sciences. National Council of Women Psychologists is formed in 1941, and only in 1973, American Psychological Association (APA) professionally accepted women's movement as a Division 35, Society for the Psychology of Women, after repeated rejections. Feminist-oriented research has increased in great volume which integrated study of women with current psychological thinking. Questioning the roles and stereotypes of women has incorporated intersections of race, caste, religion, language, and ethnicity with gender. Gendered reflections of these intersections are better explained as seen below. Social meanings attached to the perception of genderlessness are powerful in reflecting the inner selves of individuals.

Facts and beyond

Gendered Reflection of Race

"When you wake up in the morning and look in the mirror, what do you see?" a Black woman asked a White woman (Kimmel & Messner, 1992, p. 2). "I see a woman," said the White woman.

[5] Gender differences are small with few large enough to be important caused through stereotyping and differential treatment for males and females

[6] Gender differences are large and important caused through evolutionary history and sex hormones.

"That's precisely the issue," the Black woman replied. "I see a Black woman. For me, race is visible every day, because it is how I am not privileged in this culture. Race is invisible to you, which is why our alliance will always seem somewhat false to me" (p. 2).

This exchange surprised Michael Kimmel, who examined his own thoughts and realized that when he looked into the mirror, he "saw a human being: universally generalizable. The generic person" (p. 2).

Just as the White woman did not see her ethnicity, gender does not matter for men. And those who are privileged with gender, caste, religion and language do not identify themselves with these social identities. Kimmel and Messner (1992) analyzed these experiences "Certainly, we can see the biological sex of individuals, but we rarely understand the ways in which gender - that complex social meanings that is attached to biological sex – is enacted in our daily lives."

See Exercise No. 1 for reflection.

Gender studies worldwide have gone through changes in various forms in countries on every continent initiated by women's movements. Women's movements have buffered movements for peace, ecological conservation, and sustainable scientific inventions. Education free of gender bias has an influential power to change their own lives and also the social order (Howe, 1997). Despite national and regional differences, remarkable increase has been observed in the number of researches in gender studies and worldwide experiences. Gender studies in Asia, Africa, and Eastern Europe have raised gendered consciousness as a cause and consequence of activism. New trends in research methods are emerged that address the experience of women and transgender who are least privileged (participatory research) which would change public policies and education. Emergence of researches in subjective experiences (phenomenology) based on feminist paradigms marks a new era of bringing out the retrospective history of marginalized gender.

A revitalized research perspective, free of gender, unmasked the biases in psychological theories, assessment, and traditional research findings.

Section A: Analysis of Gender-Sensitive Approaches in Academic Psychology and Mental Health Practice

Gender in Psychological Theories

In the late nineteenth century, when psychology emerged as an independent systematic and scientific field, the then-commonly-held gender norms and stereotypes rooted in evolutionary theory and reinforced by social and cultural constraints made their way into psychological theorizing. Rutherford (2018), in an attempt to trace the intellectual history of gender in psychology, points out the beliefs consistent with the "doctrine of separate spheres" that differentiates men as more agentic and suitable for public worlds and women as passive and excellent for private engagements as well as the "variability hypothesis" that upheld the inferiority of female intellect. Mary Whiton Calkins (1863–1930), Helen Thompson Woolley (1874–1947), and Leta Hollingworth

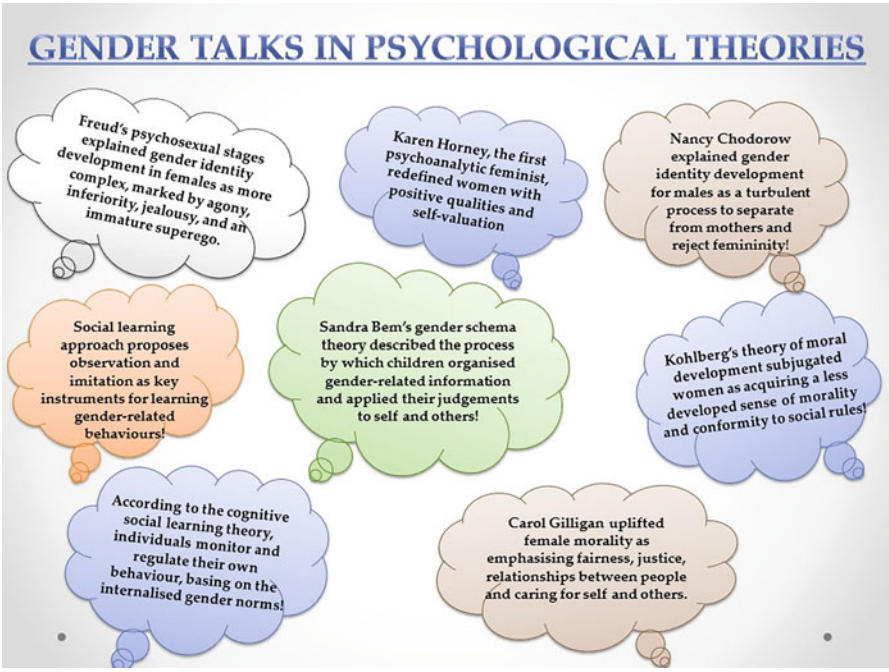

Fig. 2 Psychological theories that discuss gender and gender differences. (Source: Brannon, 2017)

(1886–1939) were the pioneers who ventured out to challenge these and many other sexist beliefs in psychology (Rutherford, 2018).

Sociobiological explanations for the differential standards and women's entitlement to child care, geared by the evolutionary theory, feature the concepts of fitness, parental investment in the offspring, and the uncertainty of paternity, despite the feminist criticisms of androcentric bias and overuse of biology in explaining behavior. Among the traditional psychological theories, psychoanalysis is often credited with explicit discourses of sexuality and gender identity development, with an inherent "phallocentric" view. Feminist psychologists who challenged mainstream psychology for incorporating the Victorian notions of patriarchal control of women converged on controversial debate on the psychoanalytic view of women. The era that followed saw several women psychoanalysts and feminists proposing modifications on the psychoanalytic theory. In addition, contemporary theories also attempt to explain gender identity development and gender differences, as seen in Fig. 2.

Gender in Psychological Measurement

With the advent of new statistical techniques and the resultant proliferation of psychological tests, gender also fell under the "psychometric scale." As one of the earliest attempts at measuring masculinity-femininity, Termanand Miles

(1936) at Stanford University postulated it as a central feature of temperament, but their conceptual frame reflected gender conservative beliefs about sex differences and nurtured the problematic and homophobic representations of gender non-conformity (Rutherford, 2018). Conventionally, the clinical usage of gender-measuring inventories purported to diagnose homosexuality as a pathological condition, which the masculinity-femininity scale of Minnesota Multiphasic Personality Inventory (MMPI-Mf) explicitly serves, but with the psychology's typical error of referring to male characteristics as the norm (Kosterina, 2009). Obviously, MMPI and similar inventories that followed its model conceive gender as a unidimensional bipolar construct, despite vagueness in the definitions of gender identity and masculinity-femininity, as reviewed by Kosterina (2009).

A feminist revamping of the construct came with Bem Sex Role Inventory (BSRI) which measured masculine and feminine traits as bidimensional. The hallmark of BSRI is androgyny, instead of masculinity, as the psychological ideal (Rutherford, 2018). Despite wide acclaims as a gender-inclusive measure that overthrew gender polarization, BSRI faced criticisms, primarily on the concept of androgyny and on the reiteration of gender stereotypes (Kosterina, 2009).

Luyt (2015) conducted a systematic review on how gender theories in psychology informed specific approaches to measuring gender, in line with the criticisms raised by several researchers like Constantinople (1973). He segregates existing measures based on whether they define gender as an innate individual trait (the "gender orientation" approach) like MMPI-Mf scale and BSRI or as socioculturally defined and individually internalized and endorsed social norms (the "gender ideology" approach), examples being the Male Role Norms Inventory and Adolescent Femininity Ideology Scale.

Further, informed by social constructionism, Luyt (2015) adds a gender (re) presentation approach to measurement, wherein gender is viewed as a situated social practice, influenced by social interactions that are mediated by language and other symbols. Assessment of gender representations requires appropriate theoretical content and research context that elicit dominant gender norms and power structures and the individual's way of "doing gender." This can be looked up through the lens of Judith Butler's notion of performativity, wherein gender is constructed through the repetition of conventional gendered acts (Butler, 2010). The gender (re)presentation approach offers a promising inclusive space for studying gender non-conformity as well, since it assesses gender as an individual's subjective position in the social realm of gender.

Outlines of Gender in Psychological Research

When gender transformed from a nonsense secondary variable to an important study variable, common-held notions about gender differences that penetrated into psychological research got replaced by empirical evidence and logical conclusions

about gender. Brannon (2017) contrasts between the quantitative research methods that study biological sex, gender, and sexual orientation, either as inherent subject variable studied by ex post facto designs or as a social variable employing experimental designs. Among qualitative research methods, though more popular in interdisciplinary studies, the interview method accounted for more than 50% of articles in leading journals on psychology and gender (Brannon, 2017).

One of the major findings of Kosterina (2009) revolved around the nature of gender-measuring inventories as regulatory mechanisms in the society, imposing stereotypical gender roles portrayed within their content on the test takers' perception of gendered self, as indicated by her analysis of the interviews with test takers. The result points towards an immediate need for making psychological research gender-neutral and devoid of gender stereotypes. Gender bias in research takes multiple forms – the inbuilt masculine bias in the very framework of science in general, overemphasis on biological sex differences to explain psychological constructs like personality; procedures involved in research formulation, planning, data analysis, and evaluation; and overreliance on statistical rather than practical significance (Brannon, 2017).

Sexism and stereotyping have long been subject to psychological research. BSRI and its successor, Personal Attributes Questionnaire, are widely employed as explicit measures of gender stereotyping, which can be contrasted with measures assessing implicit attitudes, like Gender Implicit Association Test that offers better possibilities (Brannon, 2017). A shift in methodology is also underway. In a remarkable work, Melchiori and Mallet (2018) advocate the practicability of high-impact laboratory experiments with high psychological realism in examining responses to sexism. They elaborate on the experimental techniques, needed resources, logistical challenges, and benefits associated with creating a study that mimics the pressures faced by women when responding to sexism in the real world.

Intersectionality of gender studies is an emerging area that opens up pathways of marginalization which is not limited only as "the woman problem" (Gill & Pires, 2019). This perspective has changed the direction of gender studies and is interpreted as a methodological challenge and promoting positive social change (Shields, 2008). An individual's social identity such as religion, ethnicity, class, language, etc. influences how one perceives and conducts gender. The power relations embedded in gender and other social identities are mutually constitutive which takes its meaning as a category in relation to another category. Feminist researchers after the second wave of feminism addressed the question of "Which women's experience?", thus unfolded a model of layered oppression of multiple identities. Therefore, "the whiteness of women, the maleness of people of color and the heterosexuality of everyone" (Risman, 2004 cited in Shields, 2008) has been challenged, and "woman" as a stable category is critiqued.

Gender research in psychology nurtured the naturalization of gender categories in order to identity differences, through simplistic questions as "In what way do men and women differ?" which do not explain whether gender operates as a system of oppression or as an aspect of identity (Shields, 2008). Gender as the most pervasive, visible, and codified category intersects subordinate identities and calls for a

renewed theoretical and methodological approach in psychology. Studies on intersectionality offer explanations to these differences considering the structural and political oppression of gender. Intersectionality approach demands that psychology should move out of its disciplinary boundaries in exploring individual experiences, and these experiences should be learnt through social stratification. Shields (2008) calls for "mainstreaming" psychology with intersectionality approach and focus on gender as a central issue "to see things from the worldview of other" (Walker, 2003 Shields, 2008).

Intersectionality perspective is inclusive enough to accommodate transgender identities which problematized the overemphasis of heterosexuality as the normal category. Concerns toward intersectionality also posed a challenge to "theories of feminist identity that elaborates predicates of color, sexuality, ethnicity, class and ablebodiedness" (Butler, 1990 cited in Shields, 2008). Thus, queer theories began to challenge the binary approach to oppressor/oppressed relations (masculine/feminine, white/non-white, heterosexual/homosexual). The binary lens gave way to pluralistic perspective which decentralizes and decolonizes power relations and, thus, policies. Queer theories oppose the binary approaches to gender and demand critical alternatives in mainstream psychology theories and researches.

The heterosexual identity and its issues have always been in the research focus of psychology as a discipline, but multicultural studies now point out the need to understand sexual minorities as well. Research, development of theories, community support, and alliance building are necessary to facilitate the protection of the human rights of these minorities. Looking at the transgender community as a culture that serves like the biological home for the minorities, Thomas (2014) explored the clan culture (Gharana) of transgenders/Hijras in Bangalore, India. Through in-depth interviews, observations, and focus group discussions, the study unveiled the issues faced by Hijras in search for identity (gender) within and outside the Gharana as an individual in society, as well as the structural and cultural specificities of these Gharanas. At present, their clan culture exists as a supportive mechanism that opens up a social, cultural, and political space for those struggling under shame, isolation, discrimination, and violence. The development of feminine identity of Hijras during childhood and adolescence is marked by lack of opportunities for self-expression and intolerance for their effeminate ways, but their initial encounters with other transgenders served as the catalyst for identity formation. Gharana, being a self-contained community with an organized structure, well-defined roles, and traditions, is also emerging as a socializing platform that makes political and legal negotiations with the mainstream community (Thomas, 2014).

Feminist readings on Michael Foucault's concept of "biopower" rethink binaries of animacy and inanimacy and life versus death. In the History of Sexuality: Volume I, Foucault (1990) explains the link between biological existence and political existence to be reflected in knowledge's field of control and power's sphere of intervention. McWhorter (2016) suggested to develop a theory of life and historical and cultural representations of bodies as mutually constitutive. In a

response to an ingrained "anti-biologism" existing in the late twentieth century feminists, tenth International Somatechnics Conference in 2016 stressed on "the political and conceptual status of 'real' bodies or materiality to recognize the cultural and political contexts in which they are located and to consider the way biopower, bioethics and biopolitics are currently reconfiguring the boundaries of life" (Stephen &Sellberg, 2019). Critical models of alternatives in binary approaches of life (and death) are sought by Hinton (2017) who proposes "a concept of life as a generative force that emerges within the friction between opposing concepts,. . .. . . stepping out of the shifting boundaries linking life and death." Foucault argues that "biopolitics" not only refers to the political structures but also offers the possibility of escaping and resisting these power formations. Somatechnics of life and death extends to transgender histories and future with its methodological and conceptual challenges. The meaning of being alive is reconstructed through the new boundaries, stories, and emotions of life and death.

Gender-Sensitive Trends in Diagnosis and Therapy

Psychology's trend of using male-based norms in defining healthy versus problem behavior was reflected in the early versions of international classificatory systems of mental illness, particularly DSM, which have been criticized for perpetuating stereotypical behaviors, medicalizing normal female functions, and making women more susceptible to diagnosis and the gender bias surrounding the description of personality disorders (Brannon, 2017). Enns (2000) summarizes early writings on feminist therapies as arguing that such diagnostic labels "reflect the inappropriate application of social power, minimize the impact of environmental factors on symptoms, and reduce therapists' respect for clients."

However, recent revisions in the classificatory systems create a gender inclusive platform for addressing mental health concerns. A remarkable revision brought about in DSM 5, on its release in 2013, was the change of name of Gender Identity Disorder to Gender Dysphoria and the decoupling of Gender Identity Disorder from the Sexual Dysfunctions and Paraphilias section with the intention of depathologizing gender identity and presenting "dysphoria" or distress as the clinical problem (Zucker et al., 2013). Similarly, the stigma arising from the intersection of transgender status and mental health and the resultant violations of human rights, healthcare needs, and legal security served as a strong impetus for WHO to rename gender identity disorders as gender incongruence in ICD 11, and it is no longer classified as a mental and behavioral disorder (Reed et al., 2016).

Eradicating gender biases and working towards the development of appropriate gender identities remain the central goal of gender-sensitive interventions that are widely represented in the mental health and therapeutic settings in diverse forms. Figure 3 represents the different forms of gender-sensitive therapies, therapeutic procedures, as well as those factors that impede effective therapy. It is to be noted that in the therapeutic process, though varied by the theoretical orientation,

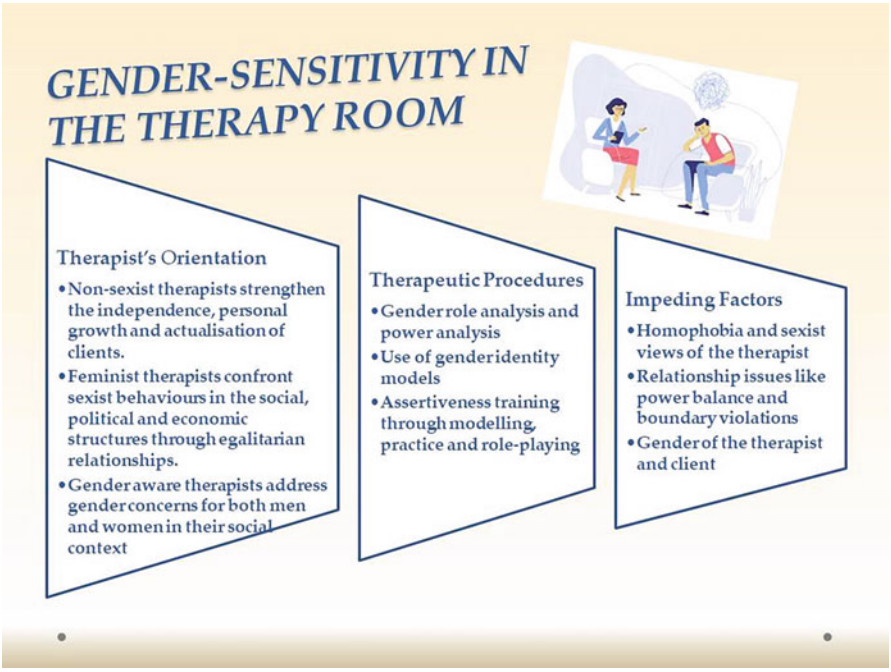

Fig. 3 Gender-sensitive trends and practices in therapy. (Source: Enns, 2000)

nuances of confirming gendered messages and reinforcing power differentials and stereotypical behaviors are widely observed. Contemporary forms of sexism, including neosexism, ambivalent sexism, and modern sexism, do not openly endorse gender discrimination, but make it unrecognized within cultural norms (Enns, 2000). The release of "APA Guidelines for Psychological Practice with Girls and Women," "Guidelines for Psychological Practice with Boys and Men," and "Guidelines for Psychological Practice with Transgender and Gender Non-conforming People" is seen as instrumental in empowering clients, systematizing therapeutic care, removing stigma, and guiding towards a future of fluidity and pluralism.

In a world constructed by heterosexuals, where lesbian, gay, or bisexual individuals are subjugated to silence, shame, prejudice, homophobia, pathology, and stigma, affirming their sexuality becomes the vital point of their existence and dignity. Ramada and Chakravarthy (2013) describe Gay Affirmative Counselling Practice (GACP) to address their unique issues and stressors difficulties with self-acceptance, coming out of the notions of compulsory heterosexuality, invisibility or hiding self, discrimination, and harassment and relationship issues. In the resource and training manual for GACP, the authors give exercises for counsellors to get nuances of the experiences of homo avoidance and methods to develop gay affirmative language and promote self-acceptance of their gay clients.

Facts and Beyond

Female Counsellors to Male Clients: Gender Matters!

In the thesis submitted to York University, Toronto, for the Graduate Program in Social Work, Robbins (1999) investigated female counsellors' experiences of working with male clients. She reported that the attitudes, assumptions, and stereotypes held about men resulted in many conflicts and dilemmas for female counsellors including guilt for their inability to empathize with men and maintain a professional stance. Even though their professional role has sanctioned their authority over the clients, the counsellors struggled to assume power due to the internalized power structures.

See Exercise No. 2 for a better understanding.

Informed by the underrepresentation of marginalized gender in the patriarchal social structure, empowerment is considered as a universal agenda in the illustration of gender equality.

Section B: Empowerment of Marginalized Gender

Evaluating four decades of the evolution of development policy for women, Moser (1993) brings out five approaches in terms of its ability to meet needs of women which must be met to change their status in the society. *Welfare approach* emphasizes on women's reproductive roles and its links to poverty. *Equity approach* focuses on gender equality which enhanced women's civil and political rights and impacted on the social legislation in many countries. *Anti-poverty approach* enhanced women's productive role through wage work and income generation. *Efficiency approach* stresses women's reaction to the debt crises through their participation in the newly restructured economies. Women in development (WID) approaches consider the fifth approach, *empowerment* has the key focus of development programs which transforms oppressive laws and structures and represents grass root organizing of women's strategic needs.

As per the Global Gender Gap Report 2018 released by the World Economic Forum, there exists a 32% of global gender gap to be closed in the 149 countries covered. Even though the progress is in a slow phase, most countries are moving towards greater gender equality, following Iceland, which has 85% of its overall gender gap closed. The sub-indexes – educational attainment and health and survival – have almost achieved global gender equivalence with gaps 5% and 4% to be filled, respectively. Gender gap remains the broadest – 23% in Political Empowerment, which is untouched since 2017. The Economic Participation and Opportunity sub-index has 58% of gap to be closed, with 19 countries showing 50% of gender gap. In workplaces, only 34% of global managers are women, and the economic power is still in the hands of men. Implicating current trends to future, 108 years are estimated as necessary to close the average global gender gap. The most challenging gaps are in the economic (202 years) and political empowerment (107 years) indexes, while

education-specific gender gap gets closed within 14 years (The Global Gender Gap Report, 2018).

The gender inequality index of the Human Development Report 2019 that measures women's empowerment in health, education, and economic status implicates that the overall progress towards gender parity is decreasing in the recent years and the gender gaps are deeper than originally thought. This trend is interpreted as a reflection of the glass ceiling effect, wherein women's progress is faster and greater when individual empowerment or social power is lower. But when it comes to enhanced capabilities that assume greater responsibilities, leaderships, and social payoffs, women fall behind. The Report also links gender inequality with the multidimensional gender social norms indices, which measure biases, prejudices, and social beliefs that impede gender equality. It is quite surprising that only 14% of women and 10% of men reported to have no gender social norm bias.

The need for proactive, strategic, and deep-rooted efforts at empowerment is strongly recommended, as changing gender roles in families, workplaces, and politics seem to have created a backlash and resistance to changing power relations. One major form of backlash and the cruellest form of women's disempowerment is violence against women, which is very well encouraged by traditional social norms. As per worldwide report, nearly a quarter of girls of age group 15–19 reported of having been victim of violence after age 15. The forms of violence vary – psychological, emotional, physical, sexual, or economic – and the digital age has opened up new space for cyber violence as well. The #MeToo and #NiUnaMenos movements are remarkable in breaking the silence and revealing the oppressive experiences of women across the globe (The Human Development Report, 2019).

Section C: Models of Empowerment

Gender equality, Goal 5 of the Sustainable Development Goals in the 2030 Agenda for Sustainable Development, has always been a global priority, and with consistent efforts of international agencies like the United Nations and other organizations for marginalized gender, extensive research, campaigning, and corrective measures are currently underway. Growing gender sensitization has initiated gender-sensitive interventions across the globe that incorporate systematic efforts at alleviating gender biases and promoting development of appropriate gender identities. Diverse areas like economics, policy-making, budgeting and resource allocation, governance, law, developmental initiatives, and healthcare have developed interventions that target gender mainstreaming through institutions or processes with heightened gender responsiveness. The upcoming discussions on prominent models of empowerment are intended to review notable initiatives in the domain of health and relationships, informed by increasing reports of gender-based and domestic violence. In addition, the emerging preventive models of empowerment in the various agents of socialization that stand critical in the social construction of gender are also compiled under various domains.

Domain A: Health and Relationships

Healthcare has witnessed an ever-growing number of grass root level gender-based interventions, and a review of 58 such interventions across the world has found out that when boys and men are actively engaged in discussion, questioning, and transformation of traditional gender scripts, changes in their attitudes and behavior related to sexual and reproductive behavior, maternal, new born and child health, fatherhood, and gender-based violence are observed, thereby reducing gender inequities (Barker et al., 2007). It is widely observed that breaking the patriarchal and stereotypical representations of gender is essential towards the promotion of mental health as well.

Successful gender-responsive interventions relevant to mental health are the Girls Circle Model practiced in the mid-1990s to build healthy relationships, skills, and resilience among girls and Stop Now and Plan (SNAP) Girls crime prevention program developed in Canada to reduce problematic behaviors. Another remarkable one is PACE's gender-responsive model for prevention and early intervention that brings gender-responsive principles into practice and targets academic progress, interpersonal skills, self-efficacy, confidence, goal-setting, and risky behaviors (Treskon & Bright, 2017). A detailed understanding of the model (see Case Study 1) renders proper insights on planning interventions with adequate attention to the multifaceted experiences of girls in their day-to-day lives.

Case Study 1

Bridging Gender-Responsive Principles and Practice: The PACE Model

PACE Center for Girls in Florida, founded in 1985, offers an important opportunity both to describe how gender-responsive principles translate to a real-world setting and to investigate whether the program accomplishes its service. The realization that girls represent about one-quarter of juvenile arrests nationwide and girls in the juvenile justice system are different from boys – in their histories, their offenses, and their experiences in the system – led PACE Center to a thorough investigation of risk factors and tailoring of intervention strategic programs. The PACE Model adopts a multiperspective approach that is trauma-based, relational, and strengths-based and imparts life skill training and health education ensuring physical and emotional safety.

PACE's gender-responsive model is specified through a set of broad principles that articulate the organization's overall mission and approach and a manual that provides particulars about how services should be provided. PACE provides its staff – managers, counselors, teachers, and support staff – with comprehensive training on its model and conducts ongoing quality assurance. PACE Center for Girls currently operates 19 nonresidential, year-round program sites across Florida for girls between the ages of 11 and

(continued)

17, who are typically struggling academically and may exhibit behavioral problems, along with other risk factors for delinquency. PACE is unusual among gender-responsive programs in that it is a prevention and early intervention model, serving those at risk as well as those already involved with the justice system. Girls live primarily at home and attend PACE daily during normal school hours and receive academic and social services. Parents and guardians participate in intake activities, including visiting the center before a girl's enrollment.

Impact studies show that girls loved the safe place as the staff treated and cared them lot and counselors were able to recognize their potentials and gain self-esteem and also the girls had a personal time with them. PACE provides one example of how gender-responsive principles can be put into action. Research found that PACE was successful in implementing its model as planned, owing to an approach that specified the intended program components and focused on training staff.

Reflective Questions:

1. Have you noticed any violations of law by girl children of your town?
2. What do you think are the unique factors that lead girl children in your town to such violations and ultimately to judicial custody?
3. What are the major obstacles that you face when attempting to intervene with such children?
4. Have you come across any activities or organizations who target the behavioral and emotional needs of such children?
5. If yes, how far they have been successful? Why or why not?

The social existence of human beings is nurtured by appropriate interpersonal exchanges in culturally driven ways, and violations of the appropriateness mark traumatic impacts on their psychological functioning. Internalized gender norms play their part in interpersonal exchanges, as established by the study of Zimmerman and West (1975) where they observed gender differences in the interruptions and turn-taking behaviors in conversations, that is, men interrupted more often than women in cross-sex conversations. With the rationale that interpersonal abuse and mental health are interrelated in a negatively correlated manner so that efforts to prevent interpersonal abuse will contribute to enhance mental health and efforts to actively promote mental health will pave way to prevent interpersonal abuse, Muktha Foundation from Bangalore, India, commits to prevent all forms of interpersonal abuse and promote mental health. Founded in 2017, the Foundation constitutes mental health professionals, social workers, lawyers, affiliates, and volunteers from diverse domains as its team members.

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The foundation developed "I-CARE" model which enables community members to identify those in distress, connect with them, and offer preliminary psychological support and guidance to survivors of abuse and trauma. I-CARE is an acronym which stands for Identify, Connect, Acknowledge, Refer, and Engage. Different therapists associated with Muktha Foundation employ the 4Cs (Calm, Contain, Care, Cope) proposed by Kimberg and Wheeler (2019) in the trauma-informed care approach and response-based therapeutic practice, alongside expressive therapy-based interventions and positive psychological interventions in their individual and group work with survivors of abuse and trauma. Read Case Study 2 for a detailed understanding on how expressive artistic therapies empower women undergoing critical life experiences.

Case Study 2

Women, Mothers, and Stories

Siewert (2019) provides an outcome of how the artistic experience can enhance the learning of self-knowledge, respect, and listening to the other through playback theater, i.e., a relational form of theater while explaining the status of violence against women in Brazil that one in three women suffered some type of violence in 2017 in Brazil (Santos, 2017 cited in Siewert, 2019). Siewert (2019) brings up the need to guide actions of institutions and research. Siewert, being an actor and a conductor in playback theater, in her 8 months pregnancy realized the power over her body through narrative about motherhood in a solo show in a Dionisos Teatro Project, a theater group. The woman as the protagonist of these processes, she met with different view of pregnancy and childbirth which resulted in the birth of DeMaes playback theater, to share stories among mothers which rely on feminine empowerment as the central concept.

DeMaes, a woman's consciousness raising group, heard the stories of child-birth, post-partum depression, somatization, sexual harassment, maternal guilt, sexuality, separation, obstetric violence and stories of solidarity among women, pride of children, and over coming. Differing from the traditional pattern of playback theater, DeMaes included and expected mother with their children in learning the short forms (fluid sculpture, transition and pairs), the improvisation of stories, and the work of music. "Later during the performances, the situation was repeated; babies on the scene, children in music, actresses having to leave the stage sometimes" . . .. the leave learned a new way of generating empathy that mothers with their children need to have their space.

It is a complex artistic practice to discuss feelings, beliefs, romantics, and judgements.

(continued)

Voices of Members

"During the months of the workshop I heard stories of abuse, violence and abandonment with truths that remain latent in my memory. Just as I also heard stories of achievement, joys and lots of love! To see the other, too hear the other, really, as equals, teaches us to be more human and to better understand and respect our feminine and maternal essence, without so many guilts and judgments. (. . .) Throughout the classes we formed a beautiful and diverse group of women and children. And yes, the fact that our children could be there, with us, being a part of it, was fundamental to finding that bond and also the balance needed to deal with such deep and complex issues".

"Being able to share the difficulties of motherhood and being a woman with other women, from different realities and contexts, brought us closer together because we had the opportunity to know ourselves better in the pains and joys of being a mother/woman. Especially, the difficulties, because positive things are easier to share with other people. In this space, it was possible to hear and be heard".

On the personal level, Siewert (2019) comments that the empowerment of women refers here to the process of achieving autonomy and self-determination, while at the political level, it concerns the development of women's political and social strength as a group or minority. But one depends on the other, both working towards the liberation of women from the bonds of patriarchal gender oppression (Sardenberg, 2018 cited in Siewert, 2019). Sardenberg (2018) stresses the fundamental role of feminine empowerment in women's consciousness-raising groups which emphasizes collective action and personal growth.

Reflective Questions:

1. What do you think are the advantages of artistic and narrative models of empowering women?
2. Does your culture offer a space for women to express themselves?
3. How can you, as a gender-informed professional, intervene in your culture to create a welcoming space for the self-expression of women?
4. Are there any consciousness-raising groups who work in your town to encourage women's voices to be heard?
5. What do you think about the practicability of applying such artistic and self-expressive models to empowering gender non-conforming people?

The therapeutic platform is always open for innovations, which are created by the empathetic therapist's concern, commitment, perseverance, and skill to tackle challenges. Getting to know about innovative practices is inspiring for budding professionals to explore their possibilities, address issues through multiple perspectives, examine available resources for their utility, and deliver effective

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mental health support. One of its kind, the Man Therapy Campaign becomes a perfect example on how the invincible problem of therapy with men was tackled through a change of perspective – manly stereotypes really help in getting men talk it out! (Read Case Study 3).

Case Study 3

The Man Therapy Campaign: Taming the "Tough Guy" Script

Therapy with men is widely acknowledged as far more challenging, primarily due to the incongruence of help-seeking behaviors with traditional masculine gender scripts. The Man Therapy Campaign (Spencer-Thomas et al., 2012) presents an innovative and humorous approach to tackle social norms surrounding men's unwillingness to access therapy and disclose themselves, even in desperation. Launched by the combined efforts of multiple agencies including Colorado Office of Suicide Prevention and Cactus, Man Therapy addresses the booming rates of suicides among working men in the USA. In its interactive web portal, men in distress meet a witty and humorous fictional therapist named Dr. Rich Mahogany, who lets men know that talking out is the initial step to solving problems, encourages them in honest talk and self-assessment, and provides "manly mental health tips" and referrals to professionals, if needed.

Systematic research behind the campaign advocates few approaches that are pivotal in getting men talk about their problems and fix themselves. Avoiding the mental health language, using role models of hope and recovery, connecting physical symptoms with emotional issues, situating communication at the point clients stand, and offering opportunities to make meaning in life through volunteering or spiritual growth are part of the wide array of actions that support men and their loved ones along the process of recovery. The campaign was widely welcomed by men for being humorous, reassuring, and manly (Spencer-Thomas et al., 2014). Following the trend, Australia and Wisconsin developed their own versions of Man Therapy.

Reflective Questions

1. What are the traditional masculine gender norms that restrict men from seeking help?
2. What are the differences in the way gender stereotyping has influenced men and other genders?
3. How do men in your culture cope with the stress related to gender stereotyping?

(continued)

4. 'Manly stereotypes really help in getting men talk it out!' - do you think that the therapist's adherence to stereotypes can build a gender-informed community of men?
5. Are the people in your culture receptive to innovative technology-driven interventions?

Recent discourses on gender inclusiveness, powered by activist movements across the world, unanimously blame the field of psychology for constructing and maintaining the oppressive structures against gender non-conforming people. However, mental health practitioners in India have now developed great interests in extending services to those non-heterosexual individuals, obviously due to the decriminalization of homosexuality declared by the revoking of Section 377 of Indian Penal Code.

In this context, the Mariwala Health Initiative (MHI), a Mumbai-based funding agency for promoting innovative mental health initiatives in the marginalized communities, questioned dominant approaches to sexuality in the mental health practice sector for their ethical work with queer clients (Chakravarty, 2018). Noticing the lack of an authentic curriculum for experiential training, MHI developed a 6-day certificate course on Queer Affirmative Counselling Practice (QACP) that provided mental health practitioners with an opportunity for perspective building – to recognize marginalization of LGBTQIA+ individuals, reorient towards anti-oppressive therapeutic practice, and reflect on the need for politicizing mental health promotions. In the first 6 months, over 50 mental health professionals were provided with the perspectives and tools to make their practice queer-affirmative. The authenticity of queer-affirmative knowledge being delivered through the course is assured by the fact that it was generated from the realities, struggles, and politics of queer people in India, as against the dominant narratives of queer and sexuality (Chakravarty, 2018). MHI's approach to training and practice serves as an educative model for pursuing authentic and valid mental health practice, in general as well as in marginalized communities.

Domain B: Agents of Socialization: Educational Resources

Interlinking the two prominent Sustainable Development Goals in the 2030 Agenda for Sustainable Development, Education Progress, and Gender Equality, the 2016 Global Education Monitoring Report published by UNESCO introduced an evidence-based monitoring framework to focus on gender parity in education participation and attainment and education system characteristics, in the broader socioeconomic context. The 2019 Gender Report summarizes the existing scenario of gender parity in education worldwide, identifies the priority areas to work

on, and provides substantial recommendations to identify aids in education that create sustainable results (UNESCO, 2019). According to the Report, despite progress, especially in Central and Southern Asia, a major proportion of countries still lack gender parity in education enrolment across primary and secondary levels, while in the education completion rates, poverty worsens the disadvantage of girls.

The Report identifies discriminatory social institutions, practices, and norms as "harmful," referring to popular beliefs like "a university education is more important for a boy." With the alarming finding that 117 countries and territories still have not abolished child marriage, the need for strong political action and policy reforms is raised as the inevitable ingredients for achieving gender parity. Lack of gender-inclusiveness in structural education system, as evident in reports on school-related gender-based violence, lack of sanitation facilities for menstrual hygiene, inadequate deployment of female teachers, and lack of gender-sensitive teaching are noted as major constraints. Further, the report advances the need for comprehensive sexuality education that expands education opportunities and questions gender norms and stereotypes in the classroom. An analysis of the donor aid to gender equality in education in 20 countries for their key priorities revealed that cash and in-kind transfers are the most popular policy, while reforms in curriculum and textbook content, girls' participation in STEM courses, and safe access to schools are the least popular priorities (UNESCO, 2019).

Facts and Beyond

Gender Bias in Fairytales, Media, and Schools: A Personal Perspective

Biwei Huang who worked at the Centre for Mental Health in Schools at the University of California, Los Angeles (UCLA), had a particular interest in gender bias and narrates her personal perspective about gender bias in traditional fairy tales, media, and also school settings. Fairytales are one of the most important parts of childhood life, especially for girls. The story will be usually of a beautiful princess portrayed as fair, young, and slim, who is trapped by a dark, ugly, fat, evil woman and is waiting for a brave handsome prince who will fight with the evil, rescue her, and finally marry her. Similarly, in popular children's movies, stereotypical portrayal of female characters underscore "*the idea that women are valued by men mainly for their bodies*" (Huang, n.d.). Such biased representations, not often glorified as in fairytales, penetrate into education as well. Pictures in textbooks portraying a female nurse and male doctor; classroom discussions that require girls to be passive, non-assertive, and quiet; and socialization activities that require gender-based grouping are examples of how gender stereotypes are perpetuated in education.

Go to Exercise No. 3 for reflection.

Emerging trends informed by social learning theory and gender schema theory and supportive research on the harm effects of gender stereotyping have created gender-inclusive practices in education across the world. The Vietnamese Education Sector as part of eliminating gender disparities has considered recommendations of the Gender Equality and Girls' Education Initiative in Viet Nam project (2015–2017) under the UNESCO Malala Fund for Girls' Right to Education to mainstream gender equity into educational planning, management, and policy-making (UNESCO, 2018), The curriculum developers trained in the project worked with the Ministry of Education and Training and revised textbooks for primary and secondary education to eliminate content that perpetuate gender discrimination and bias. Another remarkable step by the School Education Department of Tamil Nadu, India, to sensitize youth about gender non-conforming community, a chapter on the success story of the renowned transgender Bharatanatyam dancer, Ms. Narthaki Natarajhas has been included in the Tamil language textbook at the higher secondary level (Kolappan, 2018) (Fig. 4).

As stated by the definition about "gender competence" by the Gender Competence Centre Berlin (2006), the incorporation of a gender perspective in teaching and learning requires "will," "knowledge," and "ability" – the will to execute gender-fair

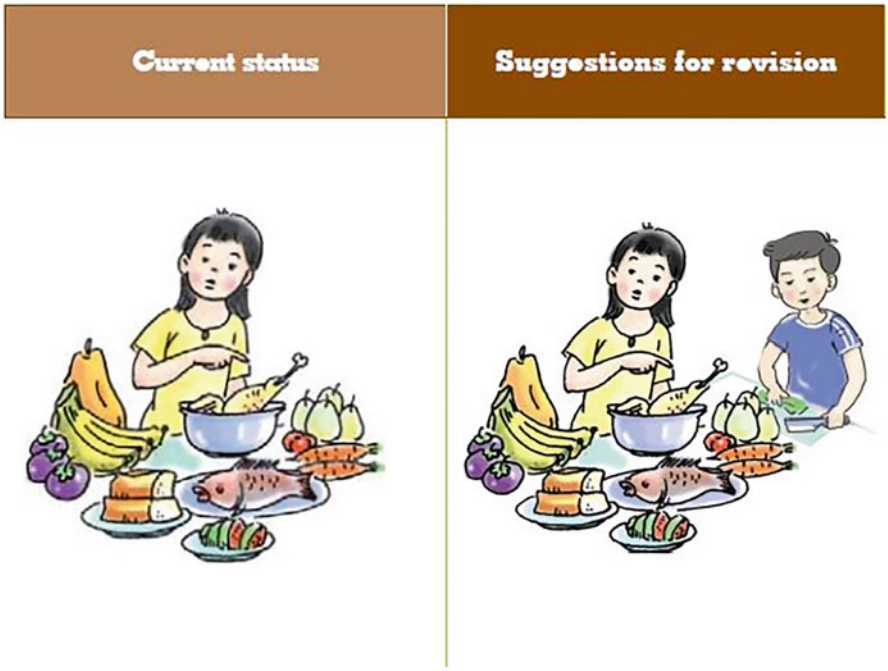

Fig. 4 Proposed suggestions for revision in the textbooks of Vietnamese Education Sector. (Source: UNESCO, 2018)

curricula, the familiarity with new gender-sensitive content, and the ability for structural change. The Bologna process model introduces concrete organizational forms of how to incorporate these subject matters into both teaching and studying (see Case Study 4).

Case Study 4

The Bologna Process: A Challenge for Gender and Academic Policy

The Bologna process model namely "Women's and Gender Studies into the Curriculum" by the Women's and Gender Research Network NRW is incorporated within the framework of the "Gender in Bachelor's and Master's programs" (Kortendiek, 2011). The model, constructed from the analysis of 54 academic curricula, singles out categories for a gender-sensitive restructuring of particular disciplines, as well as three issues of interdisciplinary scope, and describes four concrete approaches to the integration of gender studies in higher education curricula, namely (1) general course objectives related to gender issues, (2) subject-specific gender studies content, (3) concrete forms of integrating gender studies content into the curriculum, and (4) the degree stage at which the particular content should be taught.

The Bologna model highlighted the importance of reflection on the gendered learning one school delivers: legitimate, marginal, or missing, particularly in the context of convincing gender gaps in work, well-being, education, and politics. Diverse statistics, in numerous nations, discusses the pervasiveness of gender gap, which should be comprehended and examined so as to adapt better. The Bologna process establishes gender balance as a criterion for studying, teaching, and strategic concepts implemented by institutions of higher education and recommendations for facilities of higher education, politicians, the accreditation council, and accreditation agencies.

Reflective Questions

1. How do you rate the educational institutions you have attended, on the importance given to gendered learning?
2. Have you attended any course in or related to gender studies as part of your higher education curriculum? If not, do you feel it as a major drawback of your educational system?
3. How did the course in gender studies influence (or is expected to influence) your academic and professional life?
4. What do your peers in other subjects think of including gender in their studies?
5. What are the ways in which you, as a gender-informed professional, can educate your peers as well as institutional authorities on incorporating gender in the pedagogy?

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Undoubtedly, gender has become fundamental determinants of life and society. This has affected the field of research also. Research and higher education institutions reproduce social values leading to gender bias. According to the "She Figures 2012" that provides different indicators on gender equality in research and innovation at pan-European level, only 33% of European researchers were women, and the percentage of female PhD graduates was also less than 50% (European Union, 2013). The prevalent male dominance is attributed to the gender-science stereotype that associates science with masculinity and the implicit gender bias that affects the judgements during selection and recruitment process (EIGE, 2016a, b).

However, the She Figures 2018 presents a relatively higher annual growth rate of doctoral graduates among women (2.3%) than men (1.4%) even though graduate women are less likely to pursue their education to doctoral level when compared to graduate men. Segregation of subject preference is also evident in doctoral research, with women underrepresenting research in information and communication technologies (21%) and engineering, manufacturing, and construction (29%). Extending to the employment of researchers, the report adds that, over the period of 2013 to 2017, underrepresentation of women in science and technology professions and reduced pay for women employed in scientific R&D activities prevail, despite marginal increases in the number of women heading higher education institutions.

Facts and Beyond

The GEAR Tool of the European Institute of Gender Equality

In the history of European Union (EU), from the treaty of Rome in 1957 to the 2009 Lisbon treaty, equality between men and women is enforced as a fundamental principle, and gender-based violence is regarded as a threat to the integrity and dignity of women and men. The European Institute of Gender Equality (EIGE) coordinates the gender mainstreaming efforts across EU and supports institutions and government bodies to adopt gender perspective with the help of several online tools. The Gender Equality in Academia and Research (GEAR) tool, one of its kind, stands relevant in the context of Horizon 2020, which is the ever-largest Research and Innovation Program of EU that serves as the financial instrument to transform EU's global competitiveness.

According to the GEAR tool, the three major objectives of gender equality in research are stated as "*fostering equality in scientific careers, ensuring gender balance in decision making processes and bodies, integrating the gender dimension in research and innovation content*" (European Institute of Gender Equality, 2016b). For achieving these objectives, an institutional change is brought

about by the European Commission's Gender Equality Plan that consists of a set of actions through different phases. All stakeholders of a higher education institution are mobilized for implementing the Gender Equality Plan. Apart from overcoming the gender-biased and gender blind practices in the field of research, it helps to enhance women's representation and retention in scientific careers; prevent verbal, psychological, and physical gender-based offenses; ensure an unbiased, safe work environment; and retain the talented and potential ones irrespective of gender, hence ensuring the excellence and quality in research work (EIGE, 2016b).

See Exercise No. 4 for more insights.

The gender segregation in subject choice and underrepresentation of women in technical and professional fields continue to be an intriguing problem for educationalists striving to achieve gender equality in education. Wrote a pioneering work on breaking the stereotypical gender barriers associated with the professional areas of physical sciences, mathematics, and engineering. The suggestions revolve around rethinking the way science is taught – curricula, problem sets, laboratory exercises, and teaching techniques – to make it more appealing to women. In an Egyptian School for Girls, Mahdi and Roehrig (2019) found that support from teachers, challenging STEM curriculum, formative assessment, student-centered pedagogies, female friendly teaching, and a positive school environment were critical in enriching the potential of Egyptian female students to pursue STEM fields in higher education.

One of the preliminary initiatives, UNICEF, in partnership with the Uweso Trust and the Government of South Africa has set up the TechnoGirl mentorship program in 2005, which is an innovative job shadowing program that identified academically well-performing high school girls from disadvantaged communities. With the objective of encouraging girls' entry and learning in Science, Technology, Engineering, and Mathematics (STEM) – the technical fields critical for the economy. The program helps girls to link their academic learning with professional skills through corporate mentorship and skill development programs and make informed career choices through life skills programs that target prevention of HIV, teenage pregnancies, and gender-based violence. Currently, with its public-private partnership, TechnoGirl offers first-hand training for girls in more than 200 companies in STEM fields where women are underrepresented, along with academic scholarships (UNICEF, 2017).

Domain C: Agents of Socialization: Media

Gender and media have always caught research attention acknowledging the tremendous contribution of media towards the creation, maintenance, and eradication of gender stereotypes. Informed by developmental theories and large-scale comparative studies, media are now emerging as watchdogs of gender equality and diversity in the social, political, and economic realms. The pioneering yet long-running efforts

at underscoring the representation of women in media were taken up by the Global Media Monitoring Project (GMMP) in 1995 conducted by the World Association for Christian Communication. Being the largest and longest research and advocacy initiative of gender mainstreaming in news media, the latest GMMC Report in 2015 highlights unchanging percentages of women stories in news content though marginal increases in reporting of gender inequality issues, gender-based violence, and gender stereotyping are observed. Even in digital newsrooms, women's invisibility is prominent, though stark differences in selecting news sources of same gender are seen between male and female reporters (WACC, 2015).

The 6th GMMP is currently underway and is expected to release in 2020 with promising insights on the advocacy of gender equality, particularly in the context of changing scenarios geared by massive campaigns like the #MeToo movement. The "Global Report on the Status of Women in the News Media" by the International Women's Media Foundation (2011) and the study on decision-making in media organizations by the European Institute for Gender Equality (2013) are some other prominent publications that portrayed the status of women in news media and presented important statistics as well as recommendations for advancing gender equality in the media profession.

The #MeToo movement, possibly the largest of its kind, serves as the best example of how media energized survivors of sexual harassment to open up their silenced voices against oppression and violence. This innovative and creative movement in social media traversed beyond cultural and political boundaries and questioned the patriarchal and misogynistic notions upheld by cultures. The waves touched academic discourses too, with inquiries into the factors that silenced women (Bhattacharya, 2018) and framing of the movement as a global learning moment (Regulska, 2018).

Distinctly, a deliberate attempt at mass mobilization on gender-based violence through social media was made by United Nations Development Programme (UNDP) in Costa Rica. Surrounding the 2018 presidential elections that generated heated discussions on the patriarchal norms, gender stereotyping, gender gaps in economic participation and opportunities, and gender-based violence, UNDP initiated an online social media campaign to combat discrimination against women and gender non-conforming people and promote gender equality. With the help of simple, constructive, and high-impact messaging in a series of digital video clips and an online banner campaign, the advocacy for human rights and the issues of gender-based violence reached out to more than 30,000 people in the social media under the hashtag "#NoDejarNadieAtras." Alliances with NGOs, digital news outlets, LGBTI and feminist organizations, faith-based organizations, and traditional media platforms heightened the impact of the campaign and augmented the continuing efforts of UNDP in the country to prevent gender-based discrimination and violence and promote gender equity (UNDP, 2019).

UNESCO in 2012 has released "Framework of Indicators to Gauge Gender Sensitivity in Media Operations and Content" which underlined the best practices for incorporating gender perspective in the operations of media of all forms and the

media content. These non-prescriptive indicators serve as general guidelines for all media institutions to make necessary adaptations so that gender equality becomes more transparent and comprehensible to the public as well as to reflect and enhance gender-sensitive responsiveness in their internal policies and practices. The publication describes the indicators and the means of verification under several strategic objectives that include gender balance among decision makers of media managements, gender equality in work conditions, equal pay, safe environments, gender equality in the unions, clubs and associations of media personnel and other media self-regulatory bodies, editorial policies or initiatives for promoting gender-conscious journalists, and gender equality awareness training for teachers/trainers and students pursuing studies in communication and media.

Pertaining to the content of media, specifically news and advertising, fair, representative, balanced, and non-stereotypical portrayal of gender and coverage of gender equity issues and gender-based violence with accurate and holistic understanding are also addressed. Case studies about the gender mainstreaming efforts of media organizations from across the world, including Asia-Pacific region, the Caribbean region, Europe, Arab states, and Latin America, have also been included (UNESCO, 2012).

Facts and Beyond

The Super Prepared Asian Mother

The theme of gender neutrality strikes cultures worldwide where parenting itself marks a transition with non-traditional family models on the rise. Mothering Excellence (Roy & Sharma, 2019) is a two-part research study (in 2015 and 2018) across eleven markets in Asia to identify key trends and changes in manifestations of mothers' brand preferences and thereby delve deeper into the core motivations of Asian mothers. In 2018, the study was updated with key emerging trends in mothering behavior, the new tensions, and unique coping strategies. The "super prepared Asian mother" is depicted as the one who "*f*inds her inner child," "*e*xpresses her identity," and "*i*s paddling furiously." Her independent and experimental mothering strategies are parting with traditions, as she chases fun and interests of her own. She wisely manages her mothering duties by delegating tasks to the father, grandparents, babysitters, and helpers. For marketers, the shift holds plenty of possibilities, including legitimizing the fun aspect of traditionally hectic family moments such as the morning breakfast and acting as enablers of experiences that showcase her self-expression. The study directs marketers to take heed to emphasize boldness and spontaneity in their communications – and do away with the mum shaming rhetoric and guilt tonality. It counts on the four ways to win over Asian mothers – "Be her inspiration, be her voice for change, be her anchor, be her productivity ally."

Go to Exercise No. 5 for a critical review.

Domain D: Agents of Socialization: Occupation

The gendered nature of segregations and discriminations at work has its roots in the stereotypes about masculine and feminine emotions, those that attribute men with agentic traits and women with communal traits. The differential emotional competencies in turn lead to distinct resources and mechanisms for dealing with psychosocial risks and workplace stressors. Consistent with this idea, Gartzia et al. (2019) critically examine literature on psychosocial risks at work from a gender perspective to find that emotional competencies are critical in dealing with such risks and propose emotional androgyny as a potential resource for dealing with the dynamics and complexities of work environments.

There is yet another way of relating gender to work. A person's subjective sense of well-being is largely a matter of gendered socialization, and work-life balance is a consistent contributor that sustains and distorts one's well-being. Bernard (2019) looked up at subjective well-being, though a popular research variable with numerous quantitative assessment measures, from a gender perspective and conducted a socio-analytic inquiry into work-life experiences of women in their midlife. From the data gathered through social dream drawings and interpreted through phenomenological hermeneutic analysis, the author developed metaphors that reflect women's subjective well-being, which is continually being challenged by their projective identifications with internalized gender role norms on work-life balance. Proposing well-being as a dynamic phenomenon, the author concludes with a note to organizations about the significance of creating self-reflective spaces within them to enhance women's well-being.

The International Trade Union Confederation (ITUC) World Congress in Copenhagen has propounded an ambitious mandate based on four pillars of action, "equality" being the fourth, to frame strategic plans for 2022. The fourth pillar stood for bringing up a feminist agenda to facilitate economic integration of women through equal economic participation in the labor market, women's leadership, organizing against discrimination and exclusion, and eradication of violence and harassment in the world of work. One of its three frontline campaigns is a New Social Contract between governments, workers, and business to ensure protection from harassment, equal pay, and economic participation of women, in the light of diminishing trust on the global economic model (ITUC, 2019).

The Violence and Harassment Convention 2019 of the International Labor Organization (ILO) was the product of massive campaigning by ITUC. It adopts an "inclusive, integrated and gender-responsive approach" and calls for all ILO member states to "address violence and harrassment in the world of work in labor and employment, occupational safety and health, equality and non-discrimination law, and in criminal law, where appropriate" (ILO, 2019). ITUC plans for 2020 are ratification and implementation of the 2019 Convention and inclusion of its contents in collective bargaining, social dialogue, and policy, primarily through regional campaigns for social protection and minimum wages, leadership training for women, and exposing the injustices in working women's lives (ITUC, 2019). Johnson and Otto's Integrative model serves a good example of locating, analyzing, and alleviating gender-based discrimination and harassment at workplace (see Case Study 5).

Instances of exclusion, discrimination, and harassment against LGBTI+ individuals are widely prevalent throughout the stages of the employment cycle – education, access to work, work environments, and job security. However, the last 20 years have witnessed many countries bringing up policies for protecting them for non-discrimination, thanks to the rigorous efforts of several NGOs and LGBTI+ groups and the recognition of such discrimination as a violation of human rights by the international human rights law framework and UN Conventions. The "Information Paper on Protection against Sexual Orientation, Gender Identity and Expression and Sexual Characteristics (SOGIESC) Discrimination" (Thomas & Weber, 2019) reports that 18 countries in North America, Latin America, and the Caribbean; 17 countries in Asia, Pacific, and Arab States; 7 countries in Africa; and 42 countries in Europe are waiving off discriminatory laws and practices against LGBTI+ persons prevalent in the employment sector. The paper extensively analyzes the policies and practices of the member states of ILO based on SOGIESC dimensions, with prime focus on discrimination in employment and occupation, with key remarks on issues like law enforcement and access to justice.

Case Study 5

An Integrative Model for Gender Equality in the Workplace

The term gender-based discrimination and harassment (GBDH) represents multiple manifestations of sexism and heterosexism and takes up different forms in the workplace from sexual harassment to gender microaggressions and other disguised forms. Johnson and Otto (2019) venture out to analyze the antecedents and consequences of GBDH towards women and LGBTQ community in the workplace and developed an integrative model (Fig. 5).

With this model, Johnson and Otto (2019) have thrown some important insights on employing organizational resources to neutralize existing mechanisms that perpetuate gender oppression and framing gender and sexuality in inclusive ways. Further, an integration of queer and feministic perspectives with the intersectional approach will help individuals with multiple marginalized identities to have inclusive and respectful working environments. Johnson and Otto (2019) comment on the synergy of the intersectional, queer, and feminist approaches as follows:

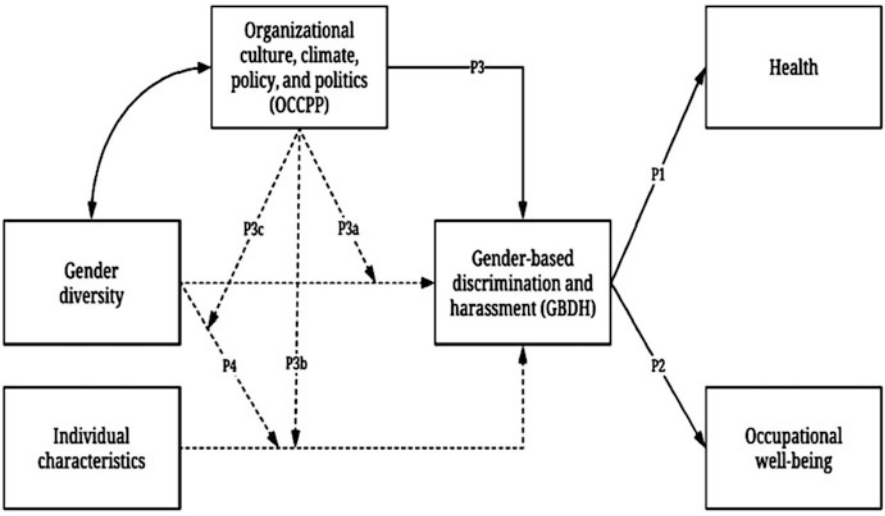
*Applying these complementary approaches helps to analyse how women and people from the LGBTQ community are defined (*e.g.*, deconstructivist approach), essentialized (*e.g.*, deconstructivist and intracategorical approaches), and oppressed by social actors (*e.g.*, intercategorical approach) and institutionalized sexism. It also allows the analysis of the oppression reinforced by members of the dominant group (intercategorical approach), as well as by minority members that enjoy other forms of privilege (*e.g.*, white privilege), and endorse hegemonic values (deconstructivist and intracategorical approaches). In addition, the analyses within the inter- and intra-categorical framework allow approaching the problems faced by*

(continued)

*individuals in the intersections between sexism, heterosexism, cissexism, and monosexism (*e.g.*, transgender women, lesbians, bisexuals), as well as considering the way classism, racism, ableism, and ethnocentrism shape their experiences (*e.g.*, disabled women, transgender men of color).*

Imagine yourself as a psychology professional, sent for an assignment of supporting HR managers to combat GBDH in a corporate company.

1. What are the specific elements that you will look up in the databases of the employees to plan your assignment?
2. What are the ways in which you can sensitize employees and company heads about GBDH in its micro and disguised forms?
3. How will you convince the company heads to change the organizational climate and policies so as to create an inclusive space?
4. Prepare a flowchart that shows the action plan of your assignment.
5. How will you evaluate the effectiveness of your intervention, with respect to the outcomes of health and occupational well-being?



An integrated model of GBDH in the workplace. Continuous paths represent direct relationships. Dashed paths represent fully moderated relationships. The double-ended arrow signals the relationship between gender diversity and OCCPP, which follows a circular causation logic.

Fig. 5 An integrative model of gender equality in the workplace for HRM academics and practitioners

Domain E: Agents of Socialization: Government/Policy-Making Models

The latest ever report that analyses the laws and regulations in 190 economies that influence the economic opportunities of women is the "Women, Business and the Law 2020." The pace of policy reforms along the eight indicators that align with the economic decisions of women throughout their lives – mobility, workplace, pay, marriage, parenthood, entrepreneurship, assets and pension – is traced over the last 50 years. The trend is definitely progressive, and women now hold around three quarter of the rights of men in the measured indicators. Parenthood and Pay are the indicators in which economies have reformed the most; still they have the largest gaps to be closed. The report thus provides the benchmark of the regulatory environments that restrict women from work and business and projects on to the changes that can potentially enact smart economic policies that equally achieve gender equity and economic development.

In many international conferences such as Beijing Platform for Action, the Beijing +5 Declaration and Resolution, the Cairo Program of Action, the Millennium Declaration, and the Convention on the Elimination of All Forms of Discrimination against Women have made policy statements on the international development agenda (Warsi & Chaudhury, 2014). Warsi and Chaudhury (2014) support democratic decentralization as good governance to increase participation of women in political decision-making structures from the grass root levels of governance. They bring up the challenge of involving women in politics especially when the provision of co-option of two women in Panchayati Raj Institution System (PRI) is existing in India since October 2, 1959. It has been observed that women are bound to confirm in their patriarchal male-dominated family with the primary identities of wife and/or mother. This has been projected as their lack of knowledge or interest to participate in the political scenario. Therefore, political decisions taken by the male representatives in India have overlooked and underestimated the oppression-related issues faced by women in general. Rudimentary attitudinal change in family system, the smallest unit in society, and other structural socializing agencies could be brought through imparting psychosocial education in local governance itself.

Participation of people irrespective of gender in the process of development of a country and to improve per capita income has led to the "empowerment approach" of women to narrow the gender gaps in social achievement. The process of Participatory Planning, which began in Kerala about two decades ago, opened up the opportunity to the people in designing the destiny of the state, in terms of local level plan. While discussing the policy approach to women in planning in Kerala, argue that with the Ninth Plan formulation and the introduction of Women's Component Plan (WCP) of Government of Kerala named People's Planning Campaign, Kerala makes a decisive break in the history of Indian planning in the approach to women in development. However, decentralization need not necessarily lead to greater gender injustice, according to the study by, but it does open up new

opportunities for intervention, particularly, given the one-third reservation for women in LSGIs (Local Self Governments) (cited from Deepthi, 2014).

Gender socialization in Indian families has multiple levels of consequences which even lead to reproductive role of women and unequal sharing of household responsibilities between men and women and the impact of decision-making and control over resources which continue to perpetuate women's social and economic vulnerability (Eapen, 2004). As a response to the gender gap obvious in social development areas in Kerala. She points out that due to the rising visibility of gender-based violence, in particular, domestic violence, Kerala's uneven social development is very often linked to dowry demands, mental ill-health manifested increasingly as suicide, downtrends in women's property rights, and rapid growth and spread of dowry, even as levels of education could not break down patriarchal structures which needs to move beyond gender parity in literacy rates to the gender differentiated patterns of education and skill acquisition and its impact on employment and earnings.

There are instances existing in a patriarchal family context wherein the state mechanisms need to intervene the family issues to sort them out. Two such mechanisms (see Case Study 6) are brought here to explain its effectiveness.

Case Study 6

The Kudumbashree Model of Gender and Social Change

The State Poverty Eradication Mission of the Government of Kerala, India, implemented a poverty eradication and women empowerment program in 1997 named Kudumbashree, with an extensive women community network. With the integration of gender analysis in its approach, Kudumbashree initiated several interventions to promote gender equality, centering on the three interlocking dimensions – prevention of gender-based violence and discriminations, support for reclaiming rights, and transformation of mind-sets towards gender equality. The Kudumbashree model of gender and social change evolved to be a cyclical and dynamic process along the stages of analysis and planning, community initiatives like gender self-learning program and vulnerability mapping, demand for legislations and institutions, and enabling community-based responses.

Kudumbashree' s foundational work, the Gender Self Learning Program (GSLP), sensitizes lakhs of women in local groups about their rights and supports them to reconstruct their own worlds in terms of employment, health, mobility, and gender qquity. Gender resource centers are established at Panchayat/village level to integrate gender problems into governance. Another initiative is the Snehitha Gender Help Desk, a 24x7 service that offers temporary shelter, counselling services, and legal support for women experiencing violence. Moreover, the Rangashree Community Theater, a network of

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women's theatre groups, provides liberating opportunities to render performances on social issues.

With its 70,000+ vigilant group members, 2200 gender resource persons, and 350 community counsellors, Kudumbashree has been successful in Kerala to reduce violence against women and increase women's income, their access and control over income, and their participation in non-traditional jobs/roles. Another major accomplishment is an increase in the number of men who are sensitive to women's needs.

Jaagratha Samithi: Vigilance Against Violence.

Case 1: A woman who belong to a lower caste got married to a man in the upper caste, at both of their consent but without the consent of their parents. Later, her husband and mother-in-law tortured her at home, but she was tolerating the torments silently. Jaagratha Samithi took suo moto cognizance of the issues. The Samithi called all the parties for hearing, and separate counselling sessions were given to them. The husband and the mother-in-law finally accepted their mistake and promoted not to harass her again. Several follow-ups were conducted so as to make sure that the family conducted so as to make sure that the family has sorted out the issues and us lining happily.

Jaagratha Samithi means vigilance committee constituted by Kerala State Women's Commission (KWC) to address to the atrocities against girls and women. As per the State Crime Record Bureau, crime against women has increased from a total no. of 9381 in 2007 to 13,002 in2012. Studies done by INCLEN and ICRW domestic violence in Kerala found that as high as 62.3% and 61.61% of the women in Kerala are subjected to physical torture and mental harassment to as compared to 37% and 35.5% at the national level. Jaagratha Samithis are headed by the District Collectors and have representatives from police department, social welfare, and other judicial aids. Built on the principles of gender equity and justice, the Samithi lifts up the local support by strengthening the networks available at the local level and coordinates the different networking systems to arrive at a proper solution (Anon, 2007). Jaagratha Samithi has marked their effectiveness in settling civil, criminal, and family issues through confidentiality, accessibility, immediacy, and integrity and encourages no political interference.

Reflective Questions

1. What are the methods adopted by local bodies and community workers in your country in addressing gender-based and domestic violence?
2. How far community level gender sensitive interventions are initiated and coordinated successfully in your country?
3. Are such mechanisms vigilant and capable enough to identify those silenced voices of domestic violence and bring them to the Judiciary?

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4. What do you think is the role of men in combating gender discrimination and gender-based violence at the grass root level?
5. Can you critically examine the possibility of applying similar mechanisms to address the discrimination and violence faced by gender non-conforming people?

International Lesbian, Gay, Bisexual, Trans, and Intersex Association (ILGA World) publishes annually an update of the Global Legislation Overview of the State-Sponsored Homophobia report, which tracks the laws surrounding sexual orientation across the world. Its 2019 update covers provisions and laws categorized into criminalization (of consensual same-sex sexual acts), restriction (to freedom of expression on SOGIESC issues and formation of association like sexual orientation related civil society organizations), protection (from discrimination at different levels), and recognition (of same-sex marriages, joint adoptions, and second parent adoptions). Extensive accounts of global legislations are listed with summarized findings that project a progressive trend towards gender equality. However, the report communicates an uncanny feeling, of a new wave of resistance by conspiring conservative actors, as observed in certain countries, particularly those with a declining trend (ILGA World, 2019). The edited monograph "Anti-Gender Campaigns in Europe: Mobilizing against Equality" adopts a "transnational and comparative approach" to understanding gender mobilizations, set along the lines of religious politics, in contemporary Europe (Kuhar & Paternotte, 2017).

Facts and Beyond

Gender Impact Assessment: A Reflective Practice

Gender impact assessment (GIA) is another EIGE tool, which serves as a timely function for all institutional structures to enable reflection on their own practices through the lens of gender mainstreaming – their current gender-related position (EIGE, 2016a). With an ex ante evaluation, in a preventive way, of the likelihood of a given decision having negative consequences for the state of equality between women and men, GIA stands relevant in the early stages of policy-making to support policy design as well as its planning. There are different ways to carry out a GIA, depending on the institutional settings and different people involved. Irrespective of the approach, GIA proceeds through five main steps – definition of the policy in connection with gender equality, checking gender relevance, gender-sensitive analysis of the potential impact, weighing the gender impact, and findings and proposals for improvement.

Undoubtedly, GIA serves as the explicit model for policy-makers and public servants to analyze and improve their gender capacity and make gender-informed decisions especially during budget allocation and policy implementations. When gender equality has emerged as a universal agenda and gender mainstreaming occupies a prominent space in institutional declarations worldwide, evaluative mechanisms like GIA stand highly relevant, lighting up the way towards practical action, rather than formal commitment and structures. Such mechanisms are so insightful, though not always preferred, as they unravel the invisible effects of long-held gender stereotypes and discriminatory practices embedded within the tradition of any institution or culture.

See Exercise No. 6 for a critical analysis.

Conclusion

Psychology as a discipline can contribute towards the subtleties of gender construction of self and can provide better insights and directions to gender studies by reworking on the existing gender biases in the discipline. Gender discourses in multidisciplinary arena promise new avenues to the intersectional approaches of gender studies in psychology.

Despite the diversity in the range of actions, the WHO underlines the major shortcomings of lack of evaluative measures that study the effectiveness of diverse programs; lack of attempts at primary prevention, when compared to secondary and tertiary prevention, under emphasis of community and societal programs; and the need for developing or adapting programs for developing countries. Scientific and comprehensive violence prevention is proposed as the single solution for violence (WHO, 2002). Best practices for professionals helping with gender-based violence are suggested including personal therapy and extensive self-work as a strong tool for enhanced awareness of one's own sexist attitudes and beliefs as well as to deal with emotional exhaustion, fatigue, and other psychological issues. It is worth commenting that mindfulness enables counsellors to become aware of self, meet the diverse demands of counselling, and reduce burnout. Friedman (2017) reports that practicing mindfulness techniques has supported counsellors to improve their self-awareness, cognitive empathy and flexibility, resilience, self-efficacy, tolerance for difficult emotions, resistance to burnout, and overall well-being. Professionals should also get equipped with the necessary experience, awareness, and accessibility to resources that aid transformations of gendered attitudes and behaviors. Especially when working with gender non-conforming clients, the APA guidelines guide psychologists to acquaint themselves with different mental health, educational, and community resources and to pursue education course work for increased awareness of their unique needs and extending training, supervision, consultation, and guidance (American Psychological Association, 2015).

Exercises

1. Reflect upon the multiple social identities you carry and how they intersect with your gender in shaping the specific experiences of daily living.
2. Imagine yourself as a trained counsellor capable of handling complex issues in families and marriages. As the first case on a fine morning, you met a client of your same gender, and later, you saw a client of different gender from you. Compare and contrast the distinct attitudes, expectations, judgements, and behaviors you held and performed for clients of the same and different gender.
3. List down the favorite stories you read and cartoons and movies watched in your childhood days. Recollect how they portrayed characters of different gender – their physique, social status, attitudes and values, responsibilities, privileges, and the like. Reflect upon how dominant representations have influenced your attitudes and behaviors towards people of different gender.
4. Think about the gender-biased and gender-blind practices you have carried out during the course of your undergraduate research work – right from the formulation of problem to data interpretation and thesis writing. Write down the possible alternatives you could have tried to make your research gender-neutral and gender-informed.
5. Identify those advertisements that portray modern mothers as independent, self-expressed, and inspiring and those that picturize traditional mothers. Form pairs with your classmates, and find out the differences in the presentations of the advertisements of the two types.
6. With the help of your teachers, conduct a group discussion to critically review the current gender-related position of your educational institution. The institution's declarations, governing bodies, decision-making process, traditions followed, educational resources, facilities offered, developmental activities, and redressal mechanisms can be subjected to scrutiny following the model of gender impact assessment.

References

Achieve gender equality and empower all women and girls. (2019) *Sustainable development goals*. Retrieved from https://sustainabledevelopment.un.org/sdg5

American Psychological Association. (2015). Guidelines for psychological practice with transgender and gender nonconforming people. *American Psychologist, 70*(9). https://doi.org/10.1037/a0039906

Anon. (2007). *Jaagratha Samithi: The panchayat vigilance committee for women's rights*. Thiruvananthapuram: SDC Cap-Deck.

Barker, G., Ricardo, C. &Nascimento, M. (2007). *Engaging men and boys in changing gender-based inequity in health: Evidence from programme interventions*. World Health Organization. Retrieved from https://www.who.int/gender/documents/Engaging_men_boys.pdf

Barnard, A. (2019). Well-being, more than a dream: Women constructing metaphors of strength. In E. Cifre & M. Vera (Eds.), *Psychosocial risks and health at work from a gender perspective: A current overview*. Lausanne: Frontiers Media. https://doi.org/10.3389/978-2-88963-014-1

Bhattacharyya, R. (2018). # metoo movement: An awareness campaign. *International Journal of Innovation, Creativity and Change, 3*(4).
Boring, A. (2015). *Gender biases in student evaluations of teachers*. France: Pfce-Presage-Science po.
Brannon, L. (2017). *Gender: Psychological perspectives* (7th ed.). New York: Routledge.
Butler, J. (2010). Performative agency. *Journal of Cultural Economy, 3*(2), 147–161. https://doi.org/10.1080/17530350.2010.494117
Byerly, C. M. (2011). *Global Report on the status of women in the news media*. Washington, USA: International Women's Media Foundation.
Centra, J. A & Gaubatz N. B (2007) *Is there gender bias in student evaluation of teaching*. Educational Testing services.
Chakravarthy, S. (2018). *Queering mental health practice*. Mariwala health initiative: Investing in collective mental health. Retrieved from https://mhi.org.in/voice/details/queering-mental-health-practice/ on 15 December 2019.
Children's Movement for Civic Awareness (2014). *Yuva Nagarik Meter Report.* Retrieved from https://issuu.com/cmcaindia/docs/yuva_nagarik_meter_report
Conel, W. (1996). *Teaching the boys, new research on masculinity and gender strategy for schools*. Teachers college record: APA.
Constantinople, A. (1973). Masculinity-femininity: An exception to a famous dictum? *Psychological Bulletin, 80*(5), 389–407. https://doi.org/10.1037/h0035334
Deepthi, M. U. (2014). Redressal mechanisms for women: The case of Jaagratha Samithi on Kerala. In P. P. Balan, S. George, & T. P. Kunhikannan (Eds.), *Deeping democracy: Issues on gender and basic needs*. Thrissur: Kerala Institute of Local Administration (KILA).
Eapen, M. (2004). *Report on gender analysis of select gram (village) panchayat plan-budgets in Thiruvananthapuram District*. New Delhi: Human Development Resource Centre.
Enns, C. Z. (2000). Gender issues in counselling. In S. D. Brown & R. W. Lent (Eds.), *Handbook of counseling psychology* (3rd ed., pp. 601–638). New York: Wiley.
Epstein, C. F. (1988). *Deceptive distinction: Sex, gender and the social order*. New Haven: Yale University Press.
European Institute for Gender Equality (2013). *Review of the implementation of the Beijing platform for action in the EU member states: Women and the media —Advancing gender equality in decision-making in media organisations*. Vilnius, Lithuania
European Institute for Gender Equality. (2016a). *Gender impact assessment: Gender mainstreaming toolkit*. Luxembourg: European Institute for Gender Equality.
European Institute for Gender Equality. (2016b). *Gender equality in academia and research: GEAR tool*. Luxembourg: European Institute for Gender Equality.
European Union. (2013). *She figures 2012 gender in research and innovation: Statistics and indicators*. Luxembourg: European Union.
European Union. (2019). *She figures 2018*. Luxembourg: European Union.
Formations of Gender and Higher Education Pedagogies. (2013). *The higher education academy*. London: University of Roehampton.
Foucault, M. ([1976] 1990). *The history of sexuality: Volume 1*. London: Penguin.
Four ways to teach gender equity in your class room. (2018). Retrieved from https://www.participatelearning.com/blog/4-ways-to-teach-about-gender-equity-in-your-classroom/
Friedman, K. (2017). Counselor self-care and mindfulness. *Contemporary Buddhism, 18*(2), 321–330. https://doi.org/10.1080/14639947.2017.1373437
Gartzia, L., Pizarro, J., & Baniandres, J. (2019). Emotional androgyny: A preventive factor of psychosocial risks at work? In E. Cifre & M. Vera (Eds.), *Psychosocial risks and health at work from a gender perspective: A current overview*. Lausanne: Frontiers Media. https://doi.org/10.3389/978-2-88963-014-1
Gender Competence Centre Berlin (2006). *Gender competence.* Retrieved from http://www.genderkompetenz.info/eng/gender-competence-2003-2010/Gender%20Competence.html
Gender Sensitive Indications for Media (2012). *United Nations educational, scientific and cultural organisation, France*.

Gill, A., & Pires, T. (2019). From binary to intersectional to imbricated approaches: Gender in a decolonial and diasporic perspective. *Contexto Internacional, 41*(2). https://doi.org/10.1590/s0102-8529.2019410200003

Gordon, L. (2016). 'Intersectionality', socialist feminism and contemporary activism: Musings by a second-wave socialist feminist. *Gender & History, 28*(2).

Hill, A. S. (2002). Teaching and doing gender in African families. *Sex Roles, 47*(11), 12.

Hinton, P. (2017). A sociality of death: Towards a new materialist politics and ethics of life itself. In K. Vicki (Ed.), *What if culture was nature all along?* (pp. 223–247). Edinburgh: University of Edinburgh Press.

Howe, E. (1997). "Promises to keep": Trends in women's studies worldwide. *Women's studies quarterly*. 25, (1/2). Looking back, moving forward: 25 years of women's studies history (Spring- Summer, 1997) (pp. 404–421).

Huang, B. (n.d.). *Gender bias faced by girls and what we can do: One Student's perspective and appended information from the center*. UCLA Center. Retrieved from http://smhp.psych.ucla.edu/pdfdocs/genderbias.pdf

Human Development Report. (2019). *United Nations Development Programme*, New York

Hyde, J. S., & Else-Quest, N. (2013). *Half the human experience: The psychology of women* (8th ed.). Belmont: Wadsworth.

ILGA World. (2019). *State-sponsored homophobia 2019: Global legislation overview update* Geneva

International Labor Organisation. (2019). Eliminating violence and harassment in the world of work: Convention No. *190, Recommendation No. 206, and the accompanying resolution*. Geneva, Switzerland.

International Trade Union Confederation. (2019). *ITUC frontline campaigns and four pillars for action 2020*. Retrieved from https://www.ituc-csi.org/ituc-frontline-campaigns-and-pillars

Johnson, C. P. G., & Otto, K. (2019). Better together: A model for women and LGBTQ equality in the workplace. In E. Cifre & M. Vera (Eds.), *Psychosocial risks and health at work from a gender perspective: A current overview*. Lausanne: Frontiers Media. https://doi.org/10.3389/978-2-88963-014-1

Kimberg, L. S., & Wheeler, M. (2019). Trauma and trauma-informed care. *Trauma-Informed Healthcare Approaches*, 25–56. https://doi.org/10.1007/978-3-030-04342-1_2

Kimmel, M. S., & Messner, M. A. (1992). *Men's lives* (2nd ed., pp. 1–11). New York: Macmillan.

Kolappan, B. (2018) *The lesson on Bharathanatyam dancer Narthaki Nataraj highlights her success story*. Retrieved from https://www.thehindu.com/news/national/tamil-nadu/transgenders-find-a-place-in-tamil-textbook-for-plus-one/article24125352.ece/amp/

Kortendiek, B. (2011). Supporting the Bologna process by gender mainstreaming: A model for the integration of gender studies in higher education curricula. In L. Grunberg (Ed.), *From gender studies to gender IN studies: Case studies on gender- inclusive curriculum in higher education*. UNESCO-CEPES: Bucharest.

Kosternia, E. (2009). Psychological gender inventories: Constructing the concept of gender through measuring. In *Thesis submitted to the degree of master of arts in gender studies*. Budapest: Central European University.

Kuhar, R., & Paternotte, D. (Eds.). (2017). *Anti-gender campaigns in Europe: Mobilizing against equality*. Lanham: Rowman and Littlefield International.

Kumar, A. Gender gap in as in commercial (2019). Retrieved from https://youtu.be/lcy3owbTqp8

Luyt, R. (2015). Beyond traditional understanding of gender measurement: The gender (re)presentation approach. *Journal of Gender Studies, 24*(2). https://doi.org/10.1080/09589236.2013.824378

McWhorter, L. (2016). Foreword. In H. Sharp & C. Taylor (Eds.), *Feminist philosophies of life* (pp. xi–xxiii). Kingston: Magill-Queens University Press.

Melchiori, K. J., & Mallett, R. K. (2018). Examining responses to sexism using a high-impact, high-psychological realism lab study. *SAGE Research Methods Cases in Psychology*. https://doi.org/10.4135/9781526439031

Moser, C. O. N. (1993). *Gender planning and development: Theory, practice and training*. London: Routledge.
Nabbuye, H. (2018). *Gender sensitive pedagogy.* Brookings: Centre for universal education.
Nelson- Jones, R. (2015). *Nelson-Jones' theory and practice of counselling and psychotherapy* (6th ed.). Sage Publications.
Nicols, E., et al. (1995). Gender inclusive science teaching: A feministic constructivist approach. *Journal of Research in Science Teaching., 32*(9), 897–924.
Ranade, K., & Chakravarty, S. (2013). *Gay-affirmative counselling practice: Resource and training manual*. Mumbai: Saksham.
Reddy, G., & Nanda, S. (2016). Hijras: An 'alternative' sex/gender in India. In C. B. Brettell & C. F. Sargent (Eds.), *Gender in cross-cultural perspective*. London: Routledge.
Reed, G. M., et al. (2016). Disorders related to sexuality and gender identity in the ICD-11: Revising the ICD-10 classification based on current scientific evidence, best clinical practices, and human rights considerations. *World Psychiatry, 15*(3), 205–221. https://doi.org/10.1002/wps.20354
Regulska, J. (2018). The #MeToo movement as a global learning moment. *International Higher Education, 94*, 5–6. https://doi.org/10.6017/ihe.2018.94.10514
Robbins, M. (1999). *Gender matters: Women counsellors' experience of working with male clients.* Thesis submitted to the Graduate Program of Social Work, York University, Toronto, Ontario.
Rosher, V. (1995). *Teaching the majority: Breaking the gender barrier in science, math and engineering*. New York: Teachers College Press. Columbia University.
Roy, R. & Sharma, A. (2019). How the Asian mother is changing: Human insights for marketers. IPSOS Views
Rutherford, A. (2018). Psychological perspectives on gender: An intellectual history [under review]. In R. Sternberg & W. E. Pickren (Eds.), *Handbook of the intellectual history of psychology: How psychological ideas have evolved from past to present*. Cambridge University Press.
Shields, S. A. (2008). Gender: An intersectionality perspective. *Sex Roles, 59*, 301–311. https://doi.org/10.1007/s11199-008-9501-8
Siewert, C. S. (2019). Women, mothers and their stories: Empowerment through playback theatre. In B. Tasker & B. Gopal (Eds.), *Playback theatre around the world: Diversity of application*. Bangalore: CHRIST (Deemed to be University).
Spencer-Thomas, S., Hindman, J. & Conrad, J. (2012).*Man therapy: An innovative approach to suicide prevention for working aged men.* Retrieved from www.ManTherapy.org
Spencer-Thomas, S., Hindman, J. & Conrad, J. (2014). *Man therapy: Outreach and impact on Men's mental health program 18 months after launch.* Retrieved from www.ManTherapy.org
Sreekumar, S. S. (2014). *Educate decentralization and empowerment of women: A study on Andaman & Nicobar Islands*. Thrissur: Kerala Institute of Local Administration (KILA).
Stephens, E., & Sellberg, K. (2019). The somatechnics of life and death: Recent trends in gender studies. *Australian Feminist Studies, 34*(99).
Stress and Gender (2019). APA retrieved from https://www.apa.org/news/press/releases/stress/2011/gender
Studies on Higher Education (2011). UNESCO, Bucharest
Tech Mahindra Introduced same sex adoption leave, other measurers to create a more inclusive work place. (2019) D Q India Retrieved from https://mhi.org.in/voice/details/need-rights-based-lens-educatio/
Terman, L. W., & Miles, C. C. (1936). *Sex and personality.* London: McGraw-Hill.
The Global Gender Gap Report (2018). *World Economic Forum*. Retrieved from http://www3.weforum.org/docs/WEF_GGGR_2018.pdf
Thomas, T. M. (2014). *Gender identity and status among hijras: Clan culture of gharanas inBangalore*. Bangalore: Christ University Publications.
Thomas, C., & Weber, C. (2019). *Information paper on protection against sexual orientation, gender identity and expression and sexual characteristics (SOGIESC) discrimination*. Geneva: International Labor Organisation.

Treskon, L., & Bright, C. L. (2017). *Bringing gender-responsive principles into practice: Evidence from the evaluation of the PACE Center for Girls*. New York: MDRC. Retrieved from https://www.mdrc.org/publication/bringing-gender-responsive-principles-practice/file-full

UNDP. (2019). *UNDP's engagement with the Media for Governance*. Oslo: Sustainable Development and Peace.

UNESCO. (2012). *Gender-sensitive indicators for media: Framework of indicators to gauge gender sensitivity in media operations and content*. Paris: France.

UNESCO. (2018). *Gender equality and girls' education initiative in Viet Nam: Empowering girls and women for a more equal society; final evaluation Report*. Hanoi: UNESCO Office.

UNESCO. (2019). *Global education monitoring Report – Gender Report: Building bridges for gender equality*. Paris: UNESCO.

UNICEF (2017).*Techno Girl: Empowering girls to be next generation leaders.* Retrieved from https://www.unicef.org/southafrica/SAF_brief_technogirl.pdf

Warsi, S., & Chaudhary, E. (2014). *Women empowerment through democratic decentralization*. Thrissur: Kerala Institute of Local Administration (KILA).

World Association for Christian Communication. (2015). *Global media monitoring project 2015*. London, UK.

World Bank. (2020). *Women, business and the law 2020*. Washington, DC: World Bank. https://doi.org/10.1596/978-1-4648-1532-4

World Health Organisation. (2002). *World report on violence and health: Summary*. Geneva: World Health Organisation.

Zeisler, A. (2017). *Media's gender gap*. Media Impact Project, The Norman Lear Centre.

Zimmerman, D., & West, C. (1975). Sex roles, interruptions and sciences in conversations. In B. Thomas & N. Henly (Eds.), *Language and sex*. Newbury House: Rowley, Mass.

Zucker, K. J., Cohen-Kettenis, P. T., Drescher, J., Meyer-Bahlburg, H. F., Pfäfflin, F., & Womack, W. M. (2013). Memo outlining evidence for change for gender identity disorder in the DSM-5. *Archives of Sexual Behaviour, 42*(5), 901–914. https://doi.org/10.1007/s10508-013-0139-4

Teaching School Psychology to Psychologists

28

M. Beatrice Ligorio, Stefano Cacciamani, and Emanuela Confalonieri

Contents

Abstract

In this chapter, we offer some insights for teaching psychology and training school psychologists. Five points are made. The first one is about the historical perspective that will help to understand the current development in school psychology. The second point deals with the professional profile of school psychologists, and it indicates the different domains of their interventions. The third point explores the knowledge and competencies school psychologists should master to effectively carry out their work. The fourth point addresses the question of how to train professional school psychologists.

M. B. Ligorio (✉)
University of Bari, Bari, Italy
e-mail: mariabeatrice.ligorio@uniba.it

S. Cacciamani
University of Valle D'Aosta, Aosta, Italy
e-mail: s.cacciamani@univda.it

E. Confalonieri
Catholic University of the Sacred Heart of Milan, Milan, Italy
e-mail: emanuela.confalonier@unicatt.it

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The fifth and final point shows how strongly school psychology is rooted into the social and cultural context schools are part of. To this aim, we propose Active Theory as a theoretical framework able to describe and interconnect all the different levels and actors involved when looking at school as a system.

Keywords

History of school psychology · School psychologist profile · School psychologist training · Activity Theory

Introduction

Teaching means making concepts clear, coherent, understandable, and useful to students. The aim is for students to understand the knowledge presented in class and to use it to build their professional future.

The aim of the present chapter is to offer some insights to those who are teaching psychology and training school psychologists. To achieve this, we appreciate that both the content conveyed when teaching school psychology and the method used to teach and to organize the content should be clear. Therefore, the present chapter attempts to articulate both content and method as clearly as possible. The chapter comprises five main points, each discussed in a dedicated paragraph. Considered together, such five points cover what school psychology is in terms of content and teaching method. While illustrating these points, we will also refer and briefly review contents and frameworks developed by the main international associations that have addressed this topic.

The first point we make is that understanding school psychology from an historical perspective is crucial. Therefore, we dedicate a paragraph to an historical overview of school psychology and psychologists working in schools. The said paragraph outlines the main steps that led to the current definition of school psychology and its disciplinary field.

In the second point, we emphasize the contribution of some important associations that deals with the professional profile of school psychologists, and it indicates the different domains of their interventions.

The third point explores the knowledge and competencies school psychologists should master to effectively carry out their work. In other words, it illustrates the ideal knowledge this practitioner is expected to acquire to carry out school-based activities. To achieve this, we discuss the content of the teaching programs that should be proposed at a university level, to psychologists intending to focus on schools.

The fourth point addresses the question of how to train professional school psychologists. We aim at providing guidelines on teaching methods and strategies to effectively teach school psychology, focusing on the necessary theoretical framework as well as on operational and practical implications. Relatedly to this, we take into consideration the level of specialization and the importance of using case studies and technologies to enrich teaching.

The fifth and final point addresses how strongly school psychology is rooted into the social and cultural context schools are part of. Based on this assumption, school ought to be considered as a complex system with its own characteristics. Therefore, an adequate theoretical perspective is needed to avoid simplification and to encompass the complexity of school psychology. We propose Active Theory as a theoretical framework to describe and interconnect all the different levels and actors involved when looking at school as a system.

Historical Notes on School Psychology

On an international level, the specialization of the school psychologist was introduced more than a century ago and has since become increasingly established. Nevertheless, depending on the period and the country in which it was implemented, this specific professional profile has undergone contrasting developments. The present paragraph sketches the history of school psychology, recalling its most relevant steps.

According to Tharinger, Pryzwansky, and Miller (2008), school psychology emerged first in the United States in 1892, with the founding of American Psychological Association (APA). A few years later, in 1896, school psychology recorded a major step forward: The University of Pennsylvania opened the first school-based psychological clinic to assess children's learning and behavioral differences. This important event reflects the recognition that pupils in schools need purposely trained specialists to understand their needs and potentialities. Three years later, in 1899, the city of Chicago established for the first time such a clinic inside public schools (Fagan & Wise, 2007). The relevance of this achievement is amplified by the contemporary advent of compulsory schooling, but, for decades, the focus remains on students' special needs. Children's mental health issues are still now recognized as a public health crisis, since about 10% of the students experiences serious problems and another 10% moderately serious problems (U.S. Department of Health and Human Services, 1999; New Freedom Commission on Mental Health, 2003). Drawing on this acknowledgment, it may be said that the origins of school psychology are closely related with the clinical-functionalistic field of psychology (Fagan, 1992). Unlike clinical psychology, however, school psychology was not interested in assessing the mental state of individual children in general but solely in relation to specific behaviors and learning tasks (Phillips, 1990).

In 1945, APA's internal organization founded the School Psychology Division 16, marking an especially relevant achievement for the field (D'Amato, Zafiris, McConnell, & Dean, 2011). Nowadays, this Division is still a landmark for anyone who wishes to work in this field or is interested in understanding what school psychology is. The website of Division 16 reads: "School Psychology is composed of scientific-practitioner psychologists whose major professional interests lie with children, families and the schooling process. The division represents the interests of psychologists engaged in the delivery of comprehensive psychological services to children, adolescents and families in schools and other applied settings. The division

is dedicated to facilitating the professional practice of school psychology and actively advocates in domains, such as education and health care reform, which have significant implications for the practice of psychology with children" (https://www.apa.org/about/division/div16).

Another crucial step for the development of school psychology is the so-called Thayer Conference, organized by APA in August 1954 in the State of New York, more precisely in the Thayer Hotel, after which it is conventionally named. This summit was organized to shed light on the role of the school psychologist, not yet sufficiently appreciated at the time. A pilot survey reported that in the 1950s, there was a school psychologist for every 1000–3000 students, covering just a few basic functions (Ysseldyke & Schakel, 1983).

The Thayer Conference sets the goal of individuating the skills school psychologists should have and how they should be trained (Cutts, 1955). The main goal of the 48 participants was to provide a definition of school psychologist as the psychologist specializing in education who uses specific knowledge of assessment, learning, and interpersonal relationships to help enrich the experience and growth of children, including cases such as deficits or surplus endowments (Ysseldyke & Schakel, 1983). The standard functions attributed to the school psychologist were also identified. Among the latter, the most relevant were the evaluation of the individuals, planning interventions, outline research, and offered coaching to teaching staff to obtain the best for as many pupils as possible (Cutts, 1955).

The Thayer Conference is still regarded as one of the most significant events in the history of school psychology. One reason is that at the time of the conference, psychologists who worked in the school field had different professional labels – estimates suggest there were at least 75 (Fagan, 2005a). By establishing standard requirements, the Thayer Conference ensured that school psychologists were nationally recognized as such, with adequate training common to all (Shick Tryon, 1986).

The historical evolution of American school psychology following the Thayer Conference merged into the experience of the Spring Hill symposium in 1980 (Ysseldyke, 1982). The 69 attendees were selected among the leading experts of school psychology from different countries and among the trainers of the field (Bray & Kehle, 2011). They examined the practical experiences of the last 30 years and tried to update the profile of school psychologist considering the cultural and economic events that affected the American society at that time (Shick Tryon, 1986). At the end of the symposium, the reflections that emerged were reorganized to form proposals and operational guidelines for future professionals (Ysseldyke & Schakel, 1983).

Europe contributed enormously to the dissemination and consolidation of school psychology. To begin with, the expression "school psychology" was first coined by German colleague Hugo Münsterberg, who introduced this label as early as 1898 and defined this professional profile at the intersection between a developmental psychologist and a teacher (Fagan, 2005b). German psychologist William Stern is credited with plundering the expression "school psychologist" by strictly associating it to specific needs of individual students, especially those who experience hardships related to school (Fagan & Delugach, 1984). Starting from this, school psychology

in Europe has developed according to national policies, with each country regulating and recognizing the profile of the school psychologist through different paths. Despite this, many organizations strived to overcome the national specificities and to ultimately develop a common perspective. To this aim, numerous meetings were hosted. The first one was organized by UNESCO, and it was held in 1948 with representatives from 43 countries, with the aim of comparing their respective governments' indications and promoting common guidelines for services of school psychology. A second meeting, held in 1956, focused on an even more thorough effort to identify which services could be improved. Both written by William Douglas Wall (1956), the final reports of these conferences stressed the need to increase the number of professionals specialized in school psychology. The most active nations in putting into practice this recommendation were the United Kingdom, Denmark, Sweden, and France, which were the first European countries to regulate the professional activity of school psychologists.

The objectives of these two UNESCO conferences were further pursued with the foundation of the International School Psychology Association (ISPA). In synergy with the psychological associations of 20 European countries, this association offers advice to those wishing to inquire about the practice of school psychology (Lee, 2005).

In this very short description of the evolution of school psychology, it is possible to recognize a trajectory that started with considering school psychology as a discipline focused on students' special needs and soon shifted focus towards the complex relationships that children have with parents, family, and peers (D'Amato et al., 2011). This has generated what may be perceived as somewhat of a paradox for school psychology: to facilitate change in a child, it is necessary to work with adults (Reynolds & Gutkin, 1999).

In the next paragraph, we detail the professional profile of school psychologists.

School Psychologists' Professional Profile

This paragraph presents the perspectives of two important international associations and one Italian association of psychologists to better define areas and competencies of the school psychologist. Putting their perspectives together will help sketching a possible professional profile.

The first association under consideration is the National Association of School Psychologists (NASP), which suggests a specific working model (NASP Practice Model). This model supports the development and implementation of effective practices at the individual level as well as at the systemic level. To achieve this, the model outlines the skills and possible activities that school psychologists can carry out in 10 domains of intervention. It describes the general framework and the organizational principles within which the services should be provided. The model also clarifies the connection between school psychologists' training, the professional standards, and the activities implemented. It also emphasizes the importance of a comprehensive approach that includes all the school components and the contextual

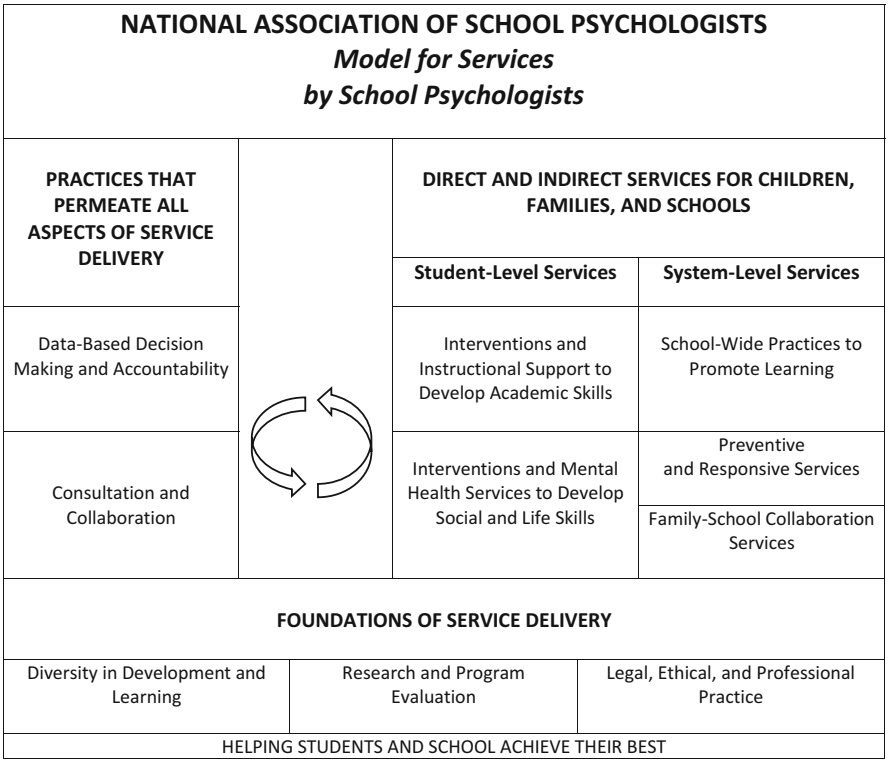

Fig. 1 The 10 domains of school psychology according to NASP. (Source, Skalski et al., 2015)

elements, to encourage interventions aimed at promoting wellbeing and treating discomfort in the educational setting. The need to create collaboration between all the actors inside and outside the school is also strongly emphasized, supporting the general functioning of the school and the ability of all to improve students' performance and wellbeing.

This model underlines how professional approaches vary depending on the context and on the school features, such as the school local traditions, the characteristics of the territory (e.g., rural, urban, suburban), the expectations of the school towards the school psychologist, the relationships between students and teachers, the quality of students' needs, and, finally, the available funding.

Overall, the 10 domains identified by this model describe the practice of school psychology (Fig. 1).

The competencies of these 10 domains describe the knowledge and skills that school psychologists should have. They are collapsed into three large domains.

Firstly, the model identifies "practices that permeate all aspects of service delivery" and that are articulated into two domains:

- Domain 1: Data-Based Decision-Making and Accountability, articulated into knowledge of assessment methods and data collection; confidently developing effective services and programs; deploying assessment tools to measure progress and results.
- Domain 2: Consultation and Collaboration, referring to knowledge of consultation models and strategies, collaboration, and communication useful for individuals, groups, and families.

Subsequently, the model identifies another possible articulation related to "direct and indirect services for children, families, and schools," articulated into two domains concerning students' services and three domains about systems-level services.

The two domains about students' services are as follows:

- Domain 3: Interventions and Instructional Support to Develop Academic Skills including knowledge of cultural and social influences on academic skills, of cognitive and development processes, and of teaching strategies.
- Domain 4: Interventions and Mental Health Services to Develop Social and Life Skills. This domain includes knowledge of cultural, developmental, and social influences on mental health and of behavioral and emotional influences on learning, promoting psychological wellbeing.

The three domains about systems-level services are as follows:

- Domain 5: School-Wide Practices to Promote Learning which focuses on the organization of the school as a system, education for young people with additional support needs, technology resources, and promoting learning.
- Domain 6: Preventive and Responsive Services that include the knowledge of protective and risk factors in learning and mental health, in implementing and supporting multi-level prevention and evidence-based strategies in emergency and critical situation.
- Domain 7: Family–School Collaboration Services that refer to knowledge of family as a system and of its characteristics, supporting families in children's relationship with school and promoting collaboration between families and schools.

Lastly, the model addresses the "Foundations of School Psychological Service Delivery" articulated in the following three domains:

- Domain 8: Diversity in Development and Learning which includes knowledge of individual differences, abilities, disabilities and of diversity factors related to culture, context, role differences referred to children, families, and schools, improving services related to diversity and inclusive process.

- Domain 9: Research and Program Evaluation based on knowledge of research design, statistics, and program analysis to collect and understand data in applied settings.
- Domain 10: Legal, Ethical, and Professional Practice that considers knowledge of the history of school psychology, of principle models and methods of service; knowledge of ethical, legal, and professional standards; and of all factors linked to professional identity and work practice as school psychologists.

As mentioned, a further international association, the European Federation of Psychologists' Associations (EFPA), has been promoting the profile of the school psychologist at the European level for years, emphasizing characteristics and skills. According to EFPA, school psychology is one of the most important branches of applied psychology since it includes in-depth and wide, complex knowledge on human development, psychopathology, organizational psychology, neuroscience, learning theory, and parental and family functioning. School psychologists are required to put in practice into schools such complex knowledge by following a holistic approach and a broad and all-encompassing perspective. Furthermore, EFPA underlines how the professional activities of school psychologists vary over time, circumstances, and contexts, with interventions that differ in terms of objectives and are aimed at both individual and group users. This recommendation is outlined through a matrix (Table 1), built starting from three functions (prevention, evaluation, and intervention) which are divided into four possible levels (individual, group, system, and social). Such a matrix highlights the wide range of professional activities falling into the school psychologists' competencies.

According to EFPA, psychologists working within the education system play a crucial role in many ways: (i) by contributing and implementing lifelong learning policies; (ii) by providing counselling and forming positive attitudes towards learning by working with children and adolescents with learning difficulties; (iii) by promoting programs to train skills needed to cope with societies that undergo increasingly rapid technological, social, and economic changes; (iv) by helping students that require specific learning activities and programs to sustain those that have dropped out; (v) by offering advice on pedagogical issues; and (vi) by providing teacher training and systemic school counselling.

Recently, an Italian association, the Italian Association of Psychology (AIP), has also proposed a possible profile for school psychologists in continuity with what is proposed by the two associations mentioned above. This profile is articulated according to the role and possible objects of intervention of school psychologists, always considering school complexity, that includes individuals (students, teachers, operators) and groups (classes, families, teaching, and non-teaching staff), operating in a wider territorial context. The figure of school psychologists emerges as a professional committed to promote health and wellbeing, to counteract risk phenomena, and to spread good psychological practices by using different tools, such as interviews, standardized instruments, role-playing, and observations. Furthermore, the capability to understand and manage the relationships between the different social actors involved is a transversal skill school psychologist should have.

Table 1 Synopsis of EFPA recommendations about school psychologist competencies. (Source: EFPA Police Paper, 2010)

Function/ level	Society	System	Group	Individual
Prevention	Provide information on living conditions, psychological development, risk/protective factors; initiate research programs in relevant areas; influence necessary reforms and legal regulations in all areas concerning optimal learning environments	Provide counselling for administrators, school leaders, teachers, parents, students, and their representatives; initiate and coordinate projects in relevant areas; encourage useful structural changes; promote changes in pedagogical thinking and tradition when needed; initiate formulation of action plans and evaluate their implementation	Provide counselling; offer supervision; stimulate teamwork; observe group behavior and interaction; provide information/ knowledge. Support the implementation and evaluation of relevant projects (e.g., learning, bullying, drugs prevention, mental health, crisis management)	Offer consultation, guidance, and supervision; observe and evaluate individual symptoms and interaction skills
Evaluation	Analyze data samples for documentation on a group, local, regional, or national level. Define the necessary psychological knowledge, skills, and methods in the evaluation	Follow up on projects and methods used; monitor action plans; apply new knowledge into practice	Interviews, questionnaires, videotaping, etc. all of which can be used to identify and examine groups to distinguish cultural aspects, social norms and interaction, intellectual levels and needs, motivation for change, etc.	Evaluate by interviews, questionnaires, or tests to distinguish: intellectual functioning; learning capacities; behavioral, emotional, or personality, social, or family problems; need for further examination (e.g., referral to neurology, psychiatry). Evaluation should be oriented towards treatment and inclusion

(continued)

Table 1 (continued)

Function/ level	Society	System	Group	Individual
Intervention	Influence necessary reforms and legal regulations concerning optimal learning environments; facilitate access to psychological services and school support structures; outline qualifications, competencies needed for psychological practice; improve quality of SP at all levels (school, local, communal, regional)	Promote co-coordinated routines, provide methods for teamwork (also cross-professional teams); execute relevant parts of action plans. Provide training and information as part of special programs for school heads/ teachers/ parents/ students	Initiate projects for groups of school heads/ teachers/ students/parents; guide or supervise training groups; guide or supervise therapeutic groups, e.g., family therapy; develop new methods and materials for psychological-pedagogical use	Offer or provide: special education; specific training; therapy; change of school, change of class, develop new materials (tests and training), coordinate relevant external assistance to examination; seek and participate in relevant supplementary (post-graduate) training

Therefore, school psychologists' areas of intervention can be classified as follows: (i) teacher training; (ii) support for educational evaluation and experimentation; (iii) management of professional and organizational problems; (iv) support for school-family relationship; (v) help in intervening in cases of learning difficulties; (vi) promote health and wellbeing; (vii) direct help to children, teenagers, and families, through psychological counselling; and viii) direct help to teachers, for classroom management and group dynamics.

Even if the professional profiles emerging from these three associations lead to different matrices, it is possible to identify some common elements. Firstly, they all suggest that school psychologists should address all stakeholders within the school as well as the school's immediate surroundings. Secondly, their interventions can target individuals, groups, or the wider social context. Furthermore, through their interventions, school psychologists promote collaboration among professionals from fields other than their own, with whom they share an educational mission. Finally, school psychologists' activities should be aimed both at promoting psychological wellbeing in all the participants to the school world and at intervening on possible difficulties that may arise at school and in the immediate contexts surrounding school.

Training Programs for School Psychologists

After examining some proposals outlined by some professional associations about the profile of the school psychologist, we now report the elements relevant to

training the skills of this professional figure. As Farrell (2010) points out, again professional associations play an important role defining criteria for the accreditation of the professional training and for monitoring whether the training courses comply with these criteria.

For instance, NASP requires a school psychology training program at a specialist or doctoral level to ensure that all candidates demonstrate basic professional skills, including knowledge and skills in the 10 domains identified in the NASP Practice Model (2015).

The American Psychological Association (APA) accredits only doctoral training programs and stresses that basic knowledge of the school psychologist should be rooted in psychology and education and includes, as necessary components of training, an area relating to modalities of intervention and another that could be described as concerning the object of the intervention. The first area refers to knowledge on psychoeducational assessment and diagnosis, intervention, prevention, and health promotion and recommends programs focused on the development of children and young people in the context of schools, families, and other educational systems. The second area concerns the knowledge of theories relating to cultural contexts, to address culturally or linguistically different individuals and to enrich learning and teaching, also addressing family and parenting educational processes.

The International School Psychology Association (ISPA) carries out a more articulated analysis, based on several internationally surveys related to school psychology conducted in more than 40 countries (Jimerson et al., 2004; Jimerson, Oakland, & Farrell, P. T. (Eds.)., 2007) from which they drew the elements to define the guidelines for the accreditation of professional training in School Psychology (ISPA, 2020). In these guidelines, ISPA identifies six main objectives for training in school psychology, each of which is linked to certain standards and articulated into indicators of knowledge and professional performance (Table 2).

Below we examine in detail the six goals proposed by ISPA (ISPA, 2020), also considering some of the implications.

Goal 1 – Core Knowledge in Psychology and Education

ISPA recommends that school psychology programs should focus on the core knowledge about developmental psychology, learning and cognition, personality, social psychology, experimental psychology, and neuropsychology. Programs should also promote the understanding of the educational curriculum and the related educational contexts. Psychologists should demonstrate the acquisition of this fundamental knowledge with its applications.

This goal is based on three standards, related to cognition and learning (Standard 1.1), social and emotional development (Standard 1.2), and individual differences (Standard 1.3). The first standard focuses on issues related to cognitive development and learning (also with reference to motivational aspects). It is worth noting the reference to the theories of education and to theories on the use of technological tools as mediators of teaching and learning. The second standard focuses on issues related

Table 2 Goal and standard provided by ISPA

Goals	Standards
1 – Core Knowledge in Psychology and Education	1.1 – Cognition and Learning 1.2 – Social and Emotional Development 1.3 – Individual Differences
2 – Professional Knowledge and Skills in Assessment and Intervention	2.1 – Evidence-Based Decision Making and Accountability 2.2 – Prevention, Mental Health Promotion and Crisis Intervention 2.3 – School and Systems Organization, Policy Development, and Implementation 2.4 – Home-School-Community Collaboration
3 – Transnational/Multicultural School Psychology	3.1 Role and functions of school psychologists nationally and internationally 3.2 Working with children and families from culturally diverse communities
4 – Professional Practice of School Psychologists	4.1 – Legislation that impacts on education policy and practice 4.2 – Ethical issues in professional practice 4.3 – Report writing
5 – Interpersonal Skills	5.1 Self-awareness and reflexivity 5.2 Interviewing 5.3 Consultation
6 – Research Methods	6.1 Research design and implementation 6.2 Analysis and interpretation of research findings

to social and emotional development, with a strong focus on promoting personal wellbeing and adapting the school context to students' needs. The third standard concerns the knowledge of theories on individual characteristics, assessment, and intervention strategies for students with special educational needs, including those who are intellectually gifted, to promote their inclusion in school contexts. The first two standards focus on the conditions of development and learning that can be defined as typical, while the third draws attention to the management of atypical conditions, from an inclusive perspective. The performance indicators of this objective describe the characterization of the intervention of the school psychologist as aimed at a plurality of recipients, as already highlighted in the professional profiles: students, teachers, and families.

Goal 2 – Professional Knowledge and Skills in Assessment and Intervention

ISPA highlights the need for school psychology programs to promote the development of diagnostic and decision-making skills related to the accurate description of the behavior and personal characteristics of the subjects who are being taken cared of. This includes fostering skills in the use of assessment techniques and analytical and problem-solving skills. School psychology programs should also promote the development of skills associated with the implementation of interventions at an

individual, group, and system level. This goal includes four standards, concerning Evidence-Based Decision-Making and Accountability (Standard 2.1); Prevention, Mental Health Promotion, and Crisis Intervention (Standard 2.2); School and Systems Organization, Policy Development, and Implementation (Standard 2.3); and Home-School-Community Collaboration (Standard 2.4). The first standard focuses on evaluation theories, methods, and techniques for data collection that can then lead to evidence-based intervention decisions. The second standard concerns knowledge and skills related to interventions aimed at preventing and helping to overcome situations of child and adolescent psychopathology, or crises at school level and to promote students' wellbeing. The third standard emphases knowledge about the school context from an organizational point of view and on the promotion of skills while working with individuals and groups. The fourth standard promotes knowledge and skills necessary to work effectively with families, educators of other services, and promoting collaboration across schools.

Among the performance indicators, it is interesting to note the systemic reference to interventions on school organization and the construction of collaborative networks between subjects from different contexts.

Goal 3 – Transnational/Multicultural School Psychology

According to ISPA, school psychologists should be familiar with the state of the art and the development of the profession in school psychology at national and international level and be aware of the existence of different working models adopted in different countries. They are also expected to know theory and research on the potential influences of racial and/or ethnic, cultural, sociopolitical, religious, socioeconomic, gender, and linguistic factors on the development of individuals. School psychologists are, therefore, called upon to develop multicultural skills to be used in their work on assessment, intervention, and prevention, including the ability to work effectively with people of different backgrounds and to engage in successful cross-professional collaboration. This goal comprises two standards: knowing national and international roles and functions of school psychologists (Standard 3.1) and working with children and families from culturally diverse communities (Standard 3.2). The first standard emphasizes elements concerning the knowledge about the role of school psychologist and its professional growth, based on the plurality of work models to which they contribute. The focus of the second standard is twofold. On the one hand, it focuses on the attention that school psychologists should pay to the influence of the differences mentioned above on development and education. On the other hand, it focuses on the influence that such differences can have on their work. As an upshot of this, school psychologists should adopt an explicitly anti-discriminatory stance.

The attention to raising awareness about the professional role and on the need for professional updating is certainly relevant since preservice training. To this aim, it could be suggested to put this theme more in the foreground by creating a specific goal, distinct from the one related to the influence of cultural diversity, central in the second standard which, instead, concerns the object of the interventions.

Goal 4 – Professional Practice of School Psychologists

ISPA argues that school psychology programs should prepare students to work in schools and in community settings by acquiring different methods of assessment and intervention. The effectiveness of their work partly depends also on their knowledge of the legislative framework in education, their understanding and implementation of the fundamental ethical principles underlying their professional practice, and their written communication skills about their business. This goal comprises three standards: legislation that impacts education policy and practice (Standard 4.1), ethical issues in professional practice (Standard 4.2), and report writing (Standard 4.3). The first standard emphasizes that school psychologists should be familiar with key regulatory aspects at the local, regional, and national levels that directly impact the education of all children, especially those who may have learning and/or behavior issues. The second standard concerns the need to promote knowledge about the national and international ethical standards that regulate the profession, as well as attitudes and behaviors that comply with them. The third standard argues that educational programs should prepare future school psychologists to be able to formulate accurate written reports for stakeholders, including parents, teachers, and other professionals.

This goal acts on those founding elements of the profession represented by ethical and regulatory aspects and places emphasis on accountability related to professional activities of which the construction of reports constitutes a relevant formal element.

Goal 5. Interpersonal Skills

School psychology programs promote the interpersonal skills needed to work effectively at school with families and in other educational settings. There are three standards envisaged in this objective, respectively, addressing self-awareness and reflexivity (Standard 5.1) and interviewing (Standard 5.2) and consultation (Standard 5.3). The first standard emphasizes the promotion of school psychologists' awareness of the limits of their professional competence and the impact of their professional style on others, as well as a reflective approach to learning from experience. The second standard promotes competence in conducting interviews with different recipients. The third standard highlights the need to master different consulting models and to know how to use them to flexibly adapt to various situations.

Controlling the area of interpersonal skills at a training level is a significant strategic junction considering the plurality of recipients the school psychologist's activity is addressed to and the complexity of the school context.

Goal 6 – Research Methods

School psychology programs promote the understanding and use of quantitative and qualitative research and assessment methods by future school psychologists. This should enable attendees to engage in research and evaluation studies that

address issues relevant to school psychology and education. This goal comprises two standards: research design and implementation (Standard 6.1) and analysis and interpretation of research findings (Standard 6.2). While the former provides training on research paradigms and their influence on research methodology in school psychology and related areas, to promote research design skills, the latter aims to enable school psychologists to conduct appropriate analyses and interpretations of qualitative and quantitative data and to disseminate the results both orally and in a written format.

The skills provided in this area strengthen the concept of school psychologists as professionals who, in addition to mastering research data, are also uniquely positioned to conduct research in their own professional context.

Guidelines for Teaching

Defining guidelines concerning "how to teach" psychological disciplines means to identify relevant criteria to design a learning environment to promote effective students' learning in this area. Upton and Taylor (2010) highlighted those guidelines to create such conditions need to be grounded in psychological concepts. The authors identify the following key principles for an effective teaching of psychology in higher education:

- *Encourage student-staff contact:* This kind of contact is useful for establishing and maintaining students' motivation and involvement in learning activities.
- *Encourage cooperation among students:* As suggested by the socio-constructivist perspective and research on collaborative learning, when students may collaborate, at least for part of the time, instead of working alone, their learning is more effective.
- *Encourage active learning:* Course material is better understood and retained when the students are actively engaged by talking, writing, questioning, debating, applying, and relating to what they already know, rather than passively receive information from lectures, videos, or other prepackaged formats.
- *Give prompt feedback:* When students receive feedback about what they know and what they do not know, they can profit from mistakes and draw satisfaction from progress, being able to focus their efforts to learn.
- *Emphasize "time on task":* Paying attention and dedicating time to the task of learning is an important condition for an effective learning to be highlighted to the students.
- *Communicate high expectations***:** Teachers' high expectations, when communicated to the students, can maximize the performance of all students. Students will better learn and perform if teachers communicate them their high expectations.
- *Be organized and prepared:* The organization and planning of curriculum clarify what students will learn and how easily they will learn it.
- *Communicate enthusiasm:* Effective teachers tend to communicate to the students their enthusiasm for psychology and for teaching.

– *Be fair and ethical:* Teachers should be fair and ethical in presenting material, dealing with students, and evaluating to propose an effective, high-quality teaching.

In addition, guidelines to teach psychological disciplines in school psychology programs should consider the specific training needs. In this way, a strong focus is on the applicative dimension within the school context, as highlighted by many professional associations. For instance, NASP (2021) highlights that to become a school psychologist a specialization program that awards a degree (specialist level and/or doctorate) specifically in school psychology should be completed. Most of the school psychology degrees already include academic courses, supervised fieldwork, and an internship to gain the necessary professional knowledge and skills. NASP recommends a minimum of three years of postgraduate studies, including one-year internship consisting of at least 1.200 hours of supervised practice, of which 600 to be spent at school. Furthermore, ISPA (2020) emphasizes how school psychologists training needs to account for an organized sequence of the courses, emphasizing psychology applied to educational contexts. AIP (2019) argues that postgraduate university education (Laurea Magistrale), followed by a year of professional training, may meet the demands for training required to work as a psychologist in school and educational contexts. Additionally, AIP emphasizes that such training courses necessitate specific training goals, envisaging school and educational contexts as primary employment opportunities.

Considering all this, now we deal with the question of how to design a program training really situated into school contexts. To develop guidelines for this purpose, we elaborate upon the distinction proposed by Paavola and Hakkarainen (2005), based on a previous work by Sfard (1998), between three different metaphors that express three main visions of learning, found in several theories and theoretical models. According to the first metaphor, learning is a process aimed at acquiring knowledge, and it is a property of the mind. This metaphor reflects the emphasis placed by the cognitivist approach on the role of mental models or schemes in the learning process, which, however, are liable to the risk of strengthening a narrow notion of the mind as a container of knowledge. Learning is a process of storing knowledge within that container. Furthermore, the authors consider this vision as emphasizing the role of cognitive structures built by the subject, at an individual level. The focus of individual cognitive activity leads the authors to define this metaphor as "monological." The second metaphor is that of participation, which views learning as a process aimed at acquiring the skills to become a competent member of a community, to communicate and act according to that community's social norms. Through participation in various cultural practices and in shared activities, cognition is shaped, and it develops according to sociocultural dimensions. The centrality of interaction with others and with culture warrants that the authors define this second metaphor as "dialogic." The third metaphor is that of "knowledge creation," which defines learning as a process aimed at creating new conceptual and material artefacts. Within this metaphor can be included theoretical models that underline the central role of communities that create knowledge, such as

the Knowledge Building model (Scardamalia & Bereiter, 2010), the Expansive Learning model (Engeström, 1987), and the model of Knowledge Creating Companies (Nonaka & Takeuchi, 1995). Lately, it has been proposed to rename this metaphor as "trialogic," because it emphasizes how people collaboratively develop objects that support cross-boundary trajectories (Paavola, Lakkala, Muukkonen, Kosonen, & Karlgren, 2011). These are objects able to accompany learners from one context (the educational one they are embedded into) to other contexts (workplaces, other educational agencies, etc.) (Sansone, Cesareni, & Ligorio, 2016).

School psychologists training can be operationalized and situated by referring to theoretical models that can be placed within the metaphor of the creation of "trialogical" knowledge. Therefore, it is necessary to create a collaborative community that operates starting from authentic problems related to the school context, linked to the educational objectives of the school psychology training program. Theoretical knowledge, methods, and techniques of investigation and evaluation become conceptual and procedural "tools" through which to carry out progressive problem-solving activities about the content to be learnt. To this aim, methods focused on case studies and project-based learning should be included into the training courses.

As indicated by Sudzina (1997), a case study is the description of a realistic dilemma that can be examined from a plurality of perspectives; it is a situation that poses a problem to be addressed in a "situated" way (Merseth, 1991). A good case study refers to big ideas that are meaningful for a particular subject area (Wassermann, 1993). Sudzina (1997) also stresses the need to oversee three main aspects to integrate the case study approach into a teaching program, which will be synthesised here from the perspective of knowledge creating communities:

(a) Course organization and content. Teachers must consider the time necessary to identify appropriate cases for the educational objectives of their course, plan an appropriate time within the course to examine the proposed cases, announce the case in advance to give students the opportunity to adequately examine the case, and, finally, structure the moments of discussion during the lessons.
(b) Case selection and implementation. Case selection and its implementation are strongly interconnected. Selection implies deciding which sources to use, the content of the cases, the context into which place them, as well as how many are appropriate and what assignment to give to students. It also requires defining the structure of the activity related to case study. For instance, a case could be assigned to a certain group to be analyzed and discussed; later another group of students could hypothesize solutions and present them to the rest of the class, triggering in this way further discussion.
(c) Case analysis and evaluation. Case analysis can be conducted by the students based on guidelines provided by the teacher or based on case analysis models (e.g., identify the problem, identify the point of view of the actors involved in the case, etc.). The evaluation can take various forms: for instance, by proposing a case at the outset of course to activate students' prior knowledge and by re-proposing the same case at the end of the course to detect the course impact.

It is also possible to introduce cases halfway through the course to monitor the progress. Regardless of when the cases are proposed, peer feedback can be used as evaluation.

Case analysis is conceived as a versatile training method, capable of assigning to students an active role in the process of building the professional competence of a school psychologist. The project-based learning (PBL) approach aims at creating a meaningful learning experience by presenting a contextual situation requiring the development of a project, whether individually or in working groups (Ching & Hsu, 2013). In developing projects, students take responsibility, and they engage in a wide variety of tasks, including processing information, collaborative interactions and, when possible, peer feedback. They also deliver outputs by applying what they had previously learned or by using the information they had sought and acquired. The artefacts created represent external representations of the solutions adopted that can be shared and critically evaluated by both the teacher and the peers, fostering a collective progressive improvement. Koh, Herring, and Hew (2010) proposed four guidelines for online PBL implementation: (i) assigning a design problem to students, (ii) structuring the stages of the project to facilitate the construction of knowledge, (iii) asking students to finalize their learning activity to the development of the output, and (iv) facilitating learning using several tools and formats. In this scenario, digital technologies can greatly help users in gathering information in different formats (e.g., written texts, charts and images, audio, and videos). This is a positive opportunity for both case study and project development because it improves the possibility for the trainees to receive multiple-source information and, therefore, to know the contexts to which this information belongs from different angles. In addition, technology can support synchronous collaborative activity (e.g., through group videoconferencing) as well as asynchronous (e.g., through web-forum discussion). Lastly, digital technologies can play a relevant role for students to prepare, present, share, and discuss their outcomes.

The perspective here reported allows students' agency to play a central role (Jones & Healing, 2010). In other words, students can assume collective responsibility within their community by dealing with significant problems for school psychologists'. Furthermore, they can engage in processes of knowledge creation, crucial to be the best school psychologist possible.

A Proposal

The present section summarizes some of the most compelling points mentioned in the chapter, and it proposes a more comprehensive framework to include the multiple aspects examined above.

The American Psychological Association (APA) defines school psychology as "a field of psychology concerned with the psychoeducational problems and other issues arising in primary and secondary schools. We learnt that the responsibilities of the school psychologist include involvement in overall curriculum planning,

individualized curriculum assessment and planning, administration of psychoeducational tests, interviews with parents concerning their child's progress and problems, pupils' behavioural problems, counselling of teachers and students, and research on systematic educational questions and issues." (https://dictionary.apa.org/school-psychology)

In other words, school is clearly the specific focus of school psychologists. Although the previous statement may seem trivial at a first glance, it soon becomes clear that school encompasses many different items, dimensions, and actors. To begin with, it is possible to look at schools from four different perspectives:

i) With a focus on a single person, whether a student, a teacher, or anyone involved in the institution
ii) With a focus on the classroom
iii) With a focus on the internal functioning of the institution, considering teaching staff, administrative department, the principal, and any other professional entering the school organization
iv) With a larger focus, including all the interconnections schools may have with other agencies

This means that school psychologists should support students' ability to learn and teachers' ability to teach. They should know learning and teaching dynamics, and they should understand cognitive and social processes and emotional and cultural dimensions at work within educational contexts. Furthermore, school psychologists should know how to promote and value students' and teachers' mental health and how to help children and youth succeed academically, socially, behaviorally, and emotionally. Furthermore, the competencies of school psychologists should include issues connected to social inclusion, special needs, and cultural diversity.

School psychologists should also tend to support internal relationships between all the professionals involved: teachers, administrative staff, school collaborators, and principals. Supporting a healthy community is one of the tasks school psychologists should take up. This means monitoring any possible internal conflicts, preventing or eventually solving burnout or disengagement, and offering good solutions to organizational crises that may concern the school as institutions.

Within a broader scope, school psychologists should help maintain positive and fruitful relationships with any agency that interfaces with school, first families, but also nearby schools, workplaces, and local organizations offering service to students and families such as sport, clubs and recreation clubs, social services, and parishes. Such broader perspective is paramount in preventing schools from becoming self-referential bubbles and to ensure the best environment possible, considering the various contexts students engage with, whether presently or in the future. Schools should understand what is happening outside their walls and build solid bridges to contribute to students' development in their entirety and prepare them to contribute to society. Therefore, concepts such as lifelong learning, innovation, sustainability, and active citizenship should be included within school psychologists' competencies.

The result is a depiction of an expert with cross-borders competencies, both among different specializations of psychology – cognitive, educational and developmental, social and dynamic, general and organizational, health, and sport – and as well between psychology and contiguous sciences, such as sociology, pedagogy, pediatrics, medicine, and computer sciences, and any other discipline may be instrumental to the proper functioning of schools.

A theory that encompasses such a far-reaching vision is necessary for a good overview of school psychologists' profile. Our proposal is to refer to the Activity Theory (hereafter, AT) (Engeström, 1999), which is a theoretical framework that represents the most important legacy of Soviet philosophy and psychology. Strongly connected to Vygotsky's vision (Vygotsky, 1978), AT is increasingly viewed as a potentially fertile paradigm in understanding human behavior. Although we acknowledge that this theoretical choice may present some challenges – for instance, there are still debates surrounding what an activity *is* and whether all human activities are worthy of attention (Bakhurst, 2009) – we see this approach as able to include the many levels through which school psychologists can perform their activity.

AT has a historical-cultural perspective, as it studies the cultural "residues" that can be traced in the various transformation processes of which humans are at the same time the product and the producer. Based on this assumption, some authors (Chaiklin, 2001; Cole & Engeström, 1993) prefer to use the label of Cultural Historical Activity Theory (CHAT). In any case, the assumption is that humans are unable to have a direct relationship with nature as such relationship is always mediated by material and symbolic tools. AT assigns a crucial role to mediation objects, referred to as artefacts. Humans have always been able to use, create, and improve tools capable of enhancing their action in the world, and they pass them on to next generations. In its original elaboration, AT aims to develop a meta-theory capable of providing interpretative frameworks for human action (Kaptelinin & Nardi, 1997). Its overall goal is not only to understand human action but also to offer indications on how to improve the human condition by understanding those complex actions of which only humans are capable of. In this sense, we consider AT as appropriate to outline the school psychologist's profile.

In its latest evolution, AT looks at individuals within groups or communities made up of people who share objectives and rules, functional to the implementation of common actions, performed by using artefacts, finalized to the creation of objects. This ensemble – individuals, groups, communities, roles, artefacts, and shared objects – makes clear that no action can be performed individually but always within an activity system composed of the six elements just mentioned. For instance, an activity system could include a psychologist working with a computer science expert to introduce digital educational tools at school, involving teachers, students, and their parents. This activity system, nevertheless, does not exist in a vacuum. On the contrary, it is strictly interconnected to the culture students are embedded into, including all the every-day contexts lived by the students that contribute to making sense of using digital tools. Therefore, also other activity systems may play a role in implementing the innovation, for instance, after-school communities where students

may already use videogames or other digital resources. This highlights how an activity system is never isolated, but it is always in connection with other systems, feeding them and fed by them. The latest generation of AT focuses exactly on understanding the multiplicity of perspectives that take place within and between systems, as well as the nature and dynamics of the networks that are created between the various systems of activities that interact with each other (Engeström & Glăveanu, 2012).

AT allows to holistically analyze the dimensions and the fundamental contextual areas that characterize the role of the school psychologists in its complexity, thus producing a "matrix" through which to orient the intervention. To build this matrix, we need first to distinguish between two different ways of conceiving school psychologists' intervention: (i) as intervention when critical situations occur and (ii) as promotion of wellbeing, conceived not only as prevention but also as care and attention. On the side of problem-solving, there are many topics of intervention, including some that recently gained attention such as specific learning disorders, dropping out of or missing compulsory schooling, anxiety and depression, bullying and cyberbullying, and difficulties of inclusion of disabled pupils or problems in carrying out an educational action that allows academic success also to foreign students, just to mention only the most frequent. However, there is also a side of commitment that concerns the promotion of wellbeing in school, for instance, improving teacher training, attention to the socio-affective aspects of learning, sexual and emotional education, introducing innovations, and promoting classroom management techniques.

"Complexity" is, therefore, the keyword guiding school psychologists who must know how to intervene on problems and how to prevent discomfort, avoiding improper simplifications. Hence, school should be considered as a set of contextual areas marked by tasks that different actors are committed to tackle through some specific procedures. For this reason, we propose to distinguish two dimensions: (a) school as a professional organization and (b) school as an educational community.

Therefore, we already have two different types of intervention – problem-solving and wellbeing promotion – and both can be applied by considering school as a professional organization or as an educational community.

AT proposes to consider, for each activity, the following six elements: (i) the objects of the activity, the end results of the task; (ii) mediating tools – including the practices – used to achieve the objects; (iii) the individuals involved; (iv) the professional and social community involved; (v) the rules functional to the achievement of the activity; and (vi) the division of labor according to consolidated practices or to new orientations. Once these elements are identified, school psychologists can co-construct a working model able to give feedback not only about the current situation but also to indicate possible solutions. At this point, action can take place and school psychologists are also required to reflect on the change they induced, to evaluate the results, and finally consolidate the new practices introduced. In other words, school psychologists can work on three types of activities: consultancy, training, and research, and for each of them, it is required to plan the

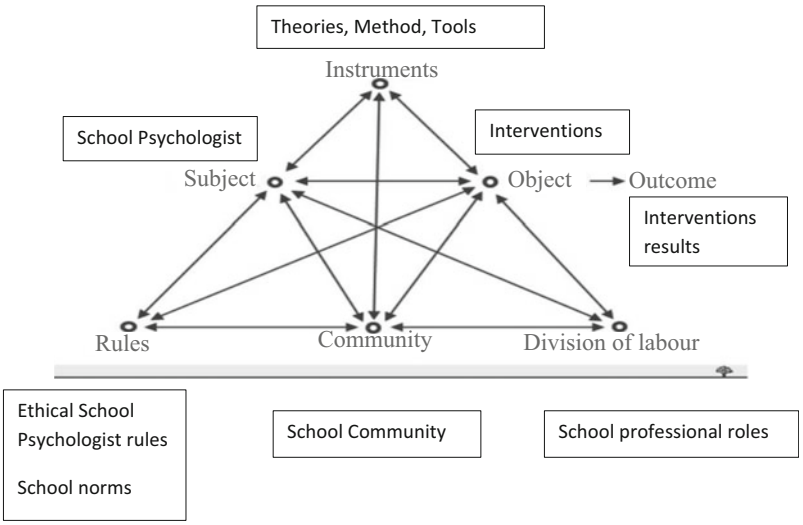

Fig. 2 The AT triangle instantiated with the school psychology elements

interventions or the activities, to manage the activities proposed, and, finally, to assess and consolidate the intervention.

To visually present our proposal, we borrow the famous triangle used to represent the AT with the instantiation of the elements defining school psychology (Fig. 2).

This figure synthesizes the types of intervention a school psychologist can propose, together with the perspectives from which school can be considered and the elements highlighted by AT. As anticipated, the AT elements would acquire a specific instantiation according to the specific type of activity – consultancy, training, and research. For example, when offering consultancy concerning school as a professional organization, the object could be the development of a new organization chart, created by using the documents already available (mediating tool), involving the whole school community, attending the roles set by the government on this matter, clarifying that the principal is the one that has to implement the proposal and that the final assessment should be in charge of the school psychologist (division of labor).

Our proposal is not intended as an addition to the existing conceptualizations. Rather, it should be considered as an attempt to systematize the various ideas already circulating about school psychology. As evidence, we can show how AT can help in organizing the components of the training program defined by ISPA. To this purpose, we display in Fig. 3 again the AT triangle this time to illustrate the activity system, and the training goals outlined by ISPA.

A first set of goals focuses on the provision of tools, understood as theories, methods, and techniques relating to the object as well as to the methods of interventions. Among such tools, we can consider Goal 1, explicitly devoted to core knowledge and skills about the content (can it be – for instance – cognition and learning, social and emotional development, individual differences) to which it can

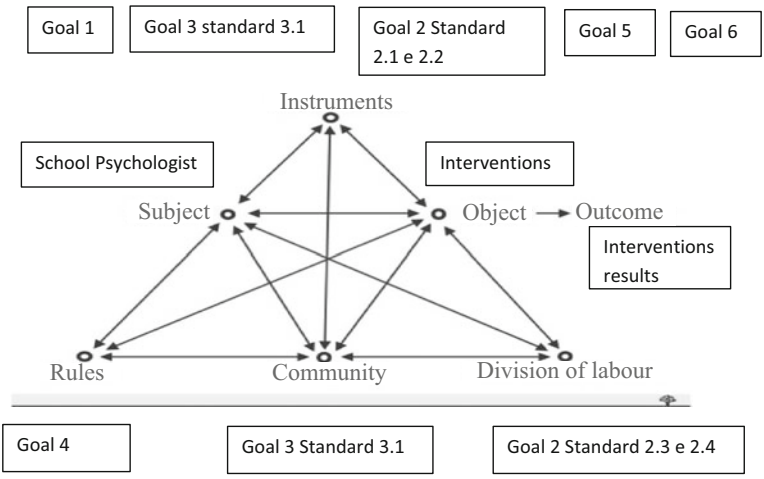

Fig. 3 The activity system in the training programs

be added the standard 3.1 of Goal 3 dedicated to working with children and families from culturally diverse communities. Subsequently, there is a set of goals focusing on the methods of intervention, such as the first two standards relating to Goal 2: Evidence-Based Decision-Making and Accountability (Standard 2.1) and Prevention, Mental Health Promotion, and Crisis Intervention (Standard 2.2). Goal 5, related to interpersonal skills, and Goal 6, related to knowledge and use of research methods, can be further added. Goal 4, instead, focused on the mediating rules of interventions and deals with ethical issues and with the skills for a formal written restitution of the interventions. As far as the community is concerned, Goal 3 (Standard 3.1) underlines the importance of membership in the community of psychologists at a national and international level. Finally, regarding the division of labor, Goal 2 with the 2.3 and 2.4 standards enables training aimed at understanding the organizational functioning of the school context, the roles envisaged therein, and the possibilities for internal and external collaboration.

Therefore, the re-reading of the ISPA guidelines in the framework of the AT outlines the vision of a proposal articulated in all the fundamental aspects of the professional activity of school psychology. Indeed, it is necessary to situate this proposal within the sociocultural context, and it needs to be constantly updated to reflect changes in social and specific cultural conditions (e.g., themes for intervention arising from the emergency created by the Covid-19 pandemic and in the aftermath of the emergency).

Conclusions

In conclusion, we hope to have given a good overview of how school psychology developed and its potentialities in supporting the educational mission of school and

the wellbeing of all the actors involved. School psychologists can help schools promote positive educational practices and teach everyone in an inclusive and effective way. As we already stated, a large variety of knowledge and skills are necessary to work at school and to propose interventions for different actors (students, teachers, families, school staff) and with multiple objectives, by using different approaches and tools. The challenge is to continue to promote this figure and its services in schools to support the educational institution, both in terms of health promotion and intervention on critical events.

International associations and universities provide theoretical and professionalizing coordinates. Although today it seems possible to have clear ideas on what knowledge, what skills school psychologists should have and through what training methods they should be prepared, we should keep in mind that school psychologists should remain strictly connected to the territory and sensitive to cultural changes. Therefore, school psychology should be flexible and able to take in consideration new and unexpected instances and demands. School psychologists are called to implement interventions aimed at supporting learning, solving behavioral problems, dealing with mental health, and improving school organization. They should be equipped to prevent critical situations and to intervene when needed. Their mission is to facilitate school paths of students, training teachers, and collaboration between schools and between school, family, and other extra-school agencies and to improve the organizational climate in school.

The more universities and associations work together to train and promote school psychology and psychologists specialized in it, the more school will benefit from the interventions that will be proposed and implemented. The benefits generated by school psychologists will impact the present *and* the future and will reverberate on the whole society.

References

AIP. (2019). *Istituzione della figura professionale dello psicologo scolastico*. Approfondimenti. Last retrieved on June 15th, 2021 from: https://aipass.org/sites/default/files/documento%20finale_Psicologo%20Scolastico.pdf

APA. (2020). *School Psychology*. Last retrieved on June 15th, 2021 from: https://www.apa.org/ed/graduate/specialize/school

Bakhurst, D. (2009). Reflections on activity theory. *Educational Review, 61*(2), 197–210.

Bray, M. A., & Kehle, T. J. (2011). *The Oxford handbook of school psychology*. Oxford: Oxford University Press.

Chaiklin, S. (2001). *The theory and practice of cultural-historical psychology*. Aarhus: Aarhus University Press.

Ching, Y. H., & Hsu, Y. C. (2013). Peer feedback to facilitate project-based learning in an online environment. *International Review of Research in Open and Distributed Learning, 14*(5), 258–276.

Cole, M., & Engeström, Y. (1993). A cultural-historical approach to distributed cognition. In G. Salomon (Ed.), *Distributed cognitions: Psychological and educational considerations* (pp. 1–46). Cambridge University Press: New York.

Cutts, N. E. (1955). *School psychologists at midcentury: A report of the Thayer conference on the function, qualifications, and training of school psychologists*. Washington D.C.: American Psychological Association.

D'Amato, R. C., Zafiris, C., McConnell, E., & Dean, R. S. (2011). *The history of school psychology: Understanding the past to not repeat it*. In M. Bray & T. Kehle (Eds.), *Oxford handbook of school psychology* (pp. 9–60). New York, NY: Oxford.

Engeström, Y. (1987). *Learning by expanding*. Helsinki: Orienta-Konsultit Oy.

Engeström, Y. (1999). Activity theory and individual and social transformation. *Perspectives on Activity Theory, 19*(38), 19–30.

Engeström, Y. (2000). Activity theory as a framework for analyzing and redesigning work. *Ergonomics, 43*(7), 960–974.

Engeström, Y., & Glăveanu, V. (2012). On third generation activity theory: Interview with Yrjö Engeström. *Europe's Journal of Psychology, 8*(4), 515–518

Fagan, T. K. (1992). Compulsory schooling, child study, clinical psychology, and special education: Origins of school psychology. *American Psychologist, 47*(2), 236–243.

Fagan, T. K. (2005a). The 50th anniversary of the Thayer conference: Historical perspectives and accomplishments. *School Psychology Quarterly, 20*(3), 225.

Fagan, T. K. (2005b). Literary origins of the term "school psychologist" revisited. *School Psychology Review, 34*(3), 432–434.

Fagan, T. K., & Delugach, F. J. (1984). Literary origins of the term "school psychologist". *School Psychology Review, 13*(2), 216–220.

Fagan, T. K., & Wise, P. S. (2007). *School psychology: Past, present, and future* (3rd ed.). Bethesda, MD: National Association of School Psychologists.

Farrell, P. (2010). School psychology: Learning lessons from history and moving forward. *School Psychology International, 31*(6), 581–598.

ISPA. (2020). The Accreditation of Professional Training Programs in School Psychology. Last retrieve on June 15th, 2021 from: https://www.ispaweb.org/wp-content/uploads/2020/05/Microsoft-Word-STANDARDS-January-2020-cx.-1.pdf

Jimerson, S. R., Graydon, K., Farrell, P., Kikas, E., Hatzichristou, C., Boce, E., . . . ISPA Research Committee. (2004). The international school psychology survey: Development and data from Albania, Cyprus, Estonia, Greece and Northern England. *School Psychology International, 25*(3), 259–286.

Jimerson, S. R., Oakland, T. D., & Farrell, P. T. (Eds.). (2007). *The handbook of international school psychology.* Thousand Oaks: Sage.

Jones, C., & Healing, G. (2010). Net generation students: Agency and choice and the new technologies. *Journal of Computer Assisted Learning, 26*(5), 344–356.

Koh, J. H. L., Herring, S. C., & Hew, K. F. (2010). Project-based learning and student knowledge construction during asynchronous online discussion. *Internet and Higher Education, 13*, 284–291.

Kaptelinin, V., & Nardi, B. A. (1997). Activity Theory: Basic Concepts and Applications. CHI 97 Tutorial.

Lee, S. W. (2005). International school psychology association. In S. W. Lee (Ed.), *Encyclopedia of school psychology* (pp. 272–273). London: Sage.

Merseth, K. (1991). *The Case for Cases in Teacher Education*. Washington, D.C.: American Association for Higher Education and the American Association of Colleges for Teacher Education.

NASP. (2021). *Selecting a graduate program.* Last retrieved June 15th, 2021 from:https://www.nasponline.org/about-school-psychology/selecting-a-graduate-program

New Freedom Commission on Mental Health. (2003). *Achieving the promise: Transforming mental health care in America, Final Report* (DHHS Publication No. SMA-03–3832). Rockville, MD: Substance Abuse and Mental Health Services Administration, Center for Mental Health Service

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York: Oxford University Press.

Paavola, S., & Hakkarainen, K. (2005). The knowledge creation metaphor–An emergent epistemological approach to learning. *Science & Education, 14*(6), 535–557.

Paavola, S., Lakkala, M., Muukkonen, H., Kosonen, K., & Karlgren, K. (2011). The roles and uses of design principles in a project on trialogical learning. *Research in Learning Technology, 19*(3), 233–246.

Phillips, B. N. (1990). *School psychology at a turning point: Ensuring a bright future for the profession*. San Francisco: Jossey-Bass.

Reynolds, C. R., & Gutkin, T. B. (Eds.). (1999). *The handbook of school psychology* (3rd ed.). New York: Wiley.

Sansone, N., Cesareni, D., & Ligorio, M. (2016). The trialogical learning approach to innovate teaching. *Italian Journal of Educational Technology, 24*(2), 82–82.

Scardamalia, M., & Bereiter, C. (2010). A brief history of knowledge building. *Canadian Journal of Learning and Technology/La revue canadienne de l'apprentissage et de la technologie, 36*(1).

Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational researcher, 27*(2), 4–13.

Shick Tryon, G. (1986). *The professional practice of psychology*. Westport, CT: Greenwood.

Skalski, A. K., Minke, K., Rossen, E., Cowan, K. C., Kelly, J., Armistead, R., & Smith, A. (2015). *NASP practice model implementation guide*. Bethesda, MD: National Association of School Psychologists.

Sudzina, M. R. (1997). Case study as a constructivist pedagogy for teaching educational psychology. *Educational Psychology Review, 9*(2), 199–260.

Tharinger, D. J., Pryzwansky, W. B., & Miller, J. A. (2008). School psychology: A specialty of professional psychology with distinct competencies and complexities. *Professional Psychology: Research and Practice, 39*(5), 529.

U.S. Department of Health and Human Services. (1999). *Mental health: A report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration.

Upton, D., & Taylor, C. (2010). *Teaching psychology in higher education*. John Wiley & Sons.

Vygotsky, L. S. (1978). *Mind in society. The development of the higher psychological processes*. In M. Cole, V. John-Steiner, S. Scribner, & E. Souberman (Eds.). Cambridge, MA: Harvard University Press.

Wall, W. D. (1956). *Psychological services for schools*. New York: New York University Press.

Wassermann, S. (1993). *Getting down to cases: Learning to teach with case studies*. New York: Teachers College Press.

Ysseldyke, J. E. (1982). The spring hill symposium on the future of psychology in the schools. *American Psychologist, 37*(5), 547–552.

Ysseldyke, J. E., & Schakel, J. A. (1983). The school psychologist: An introduction. In G. W. Hynd (Ed.), *Directions in school psychology* (pp. 3–26). Syracuse N.Y.: Syracuse University Press.

Community Psychology and Psychological Distress

29

Principles, Practices and Pedagogy

Paul Rhodes

Contents

Abstract

Dominant approaches to support people in psychological distress are individualistic, emphasizing intervention conducted in the privacy of the therapy room, focused on exploring and resolving intrapsychic problems. This approach, originating with Freud, now has a wide variety of permutations, including self-psychology, cognitive models, and those inspired by Buddhism, dialectics, somatics, and more. This personal approach to mental distress, however, is limited, given that it fails to recognize the wider social, political, and cultural determinants of such distress and cuts the person off from their community, where solidarity, solace, and healing might also take place. The aim of this chapter is to introduce the reader to community psychology, as employed for the amelioration of psychological concerns. In particular, it serves as a primer for the content that might be included in teaching this subject to future activist-practitioners, with particular attention to the

P. Rhodes (✉)
Clinical Psychology Unit, University of Sydney, Sydney, Australia
e-mail: p.rhodes@sydney.edu.au

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critical pedagogy involved. A case study will also be provided, outlining how a clinical psychology program was modified to include a community psychology curriculum. The development of activist-scholars focused on community psychology will also be discussed, with reference to a series of studies currently in progress.

Keywords

Community · Mental health · Pedagogy · Lived experience

The Dominance of Individualism

In 1907, Witmer, follower of Wundt, defined clinical psychology as "the study of individuals, by observation or experimentation, with the intention of promoting change" (Compas & Gotlib, 2002, p42). Since then, the most dominant models of practice centered on psychological distress have focused on the sole agent and the workings of the mind. This emphasis has meant that fields which conceptualize distress beyond this narrow focus have been marginalized. The field of family therapy places the etiology of distress interpersonally rather than intrapsychically (Rhodes & Wallis, 2011), with origins on cybernetics, anthropology, and sociology (Hoffman, 2002). This field has been applied to a wide variety of psychic problems, including eating disorders (Rhodes, 2003), mood disturbance (Diamond, Siqueland, and Diamond (2003), drug use (Slesnick, Gizem, & Brigham, 2013), and child abuse (MacKinnon, 1999). Family therapists look beyond the individual to the structures, patterns, strengths, and stories of families, deviating from a paradigm that would pathologize and diagnose children caught in forces beyond their control (Carr, 2000). Community psychology, however, extends this process beyond the family, taking the systemic lens to consider wider social, political, and cultural contexts for the psyche (Bronfenbrenner, 1979). Mental pathology can be reconfigured, beyond both the phenomenological and familial, and reconstructed, as a symptom of wider marginalization, or poverty, racism, collective trauma, and the like (Prilleltensky, 1997).

Introducing Community Psychology

Any curriculum in community psychology must include the basic components of history, principles, and practice. I include these here, with specific examples of practice from my own setting in Australia. Clearly, this must be adapted for local conditions and needs.

Origins

Community psychology is seen as having started in the 1960s in the USA, as part of the social movements of civil rights and feminism (Swift, Bond, & Serrano-Garcia, 2000). Psychologists aimed to create a form of practice that was informed by social

justice and emphasize the empowerment of local communities to respond to their own needs (Levine & Perkins, 1997; Nelson & Prilleltensky, 2005). The recognized birthplace of the field is the Swampscott conference held in 1965, where community psychologists developed the key principles including an ecological orientation, social justice, and a focus on the participation and empowerment of communities (Orford, 1992). Rappaport's (1977) Community Psychology: Values, Research, and Action became the seminal text, establishing him as one of the key figures in the field.

Despite these claims, the origins of community psychology can be actually found in Austria in the 1930s (Fryer, 2008). The Marienthal project is conducted by left-wing social scientists who were concerned to ease the distress of unemployed communities. They described how their "psychic life has contracted; a narrowing of the sphere of wants occurred. . .we defined this psychic attitude as resignation" (Lazarsfeld, 1932, p. 154). These symptoms would be seen by psychotherapists as a depressive disorder; "a diminution of expectation and activity, a disrupted sense of time, and a steady decline into apathy through a variety of stages and attitudes" (Jahoda-Lazarsfeld & Zeisel, 1933, p. 128.). These early community psychologists, however, conducted qualitative and quantitative research to demonstrate the direct relationship between these intrapsychic phenomenon and the loss of employment.

South America also looms large when considering the history of community psychology. While the field formally began in the 1960s and early 1970s, its principles can be seen in the grassroots liberation theology of the Catholic Church which tied spiritual matters to sociopolitical oppression (Reich et al., 2017). In practice, therapeutic communities and other social psychiatry projects were happening during the 1960s in Chile, Argentina, and Brazil, with the movement propelled by the transformative philosophies of Paulo Friere. The first formal degree program was developed in 1975 in Puerto Rico, with others soon following in Mexico and the Dominican Republic (Reich et al., 2017).

In my own country of Australia, community psychology followed their US counterparts, given similar sociopolitical conditions in the 1960s and 1970s under the government of Whitlam. Psychologists focused especially on issues such as the needs of migrants, the problem of domestic violence, and the needs of indigenous Australians (Gridley, Fisher, Thomas, & Bishop, 2007). In 1974, the Australian Psychological Society started a Committee on Social Issues that would later become the College of Community Psychology. The first university courses emerged in Queensland and Western Australia in the mid-1970s.

Key Principles

Clinical psychology and traditional approaches to psychotherapy focus on intrapsychic processes, failing to situate distress in a wider context. Community psychology follows an ecological model which resists reductionism in favor of recognizing the interdependence of contextual factors. Psychological intervention need not simply focus on first-order change within one person or one family, but instead look to second-order change, within local communities, institutions, structures, and cultures

(Watzlawick, 1977). Second-order change is arguably more challenging than the first, involving changes to the relationships and rules that govern a system, but in turn has wider impacts concerning the number of those that can benefit and the enhanced sustainability of that change.

Bronfenbrenner's (1979) ecological model is the most influential in the field, differentiating between the microsystem, mesosystem, exosystem, and macrosystem. The first consists of the relationships between the individual and their personal network of interactions across the domains of home, local community, and employment. The second consists of the relations between major settings in a person's life, such as between the household and school environments, or between one's place of employment and home. The exosystem looks to wider socio-structural issues, such as the role of the media, the culture of work, and problems in public institutions, serving to have an indirect impact on the person. The macrosystem relates to both formal and unwritten laws, and values contextualize all the other systems. Analyzing the composition of these systems as well as interactions between them is seen as crucial in community psychology assessment.

For the community psychologist, however, direct intervention is primarily focused on the micro and meso-systems, while being cognizant of an analysis of how wider discourses and structures impinge on these settings. Of course a psychologist can serve as a social activist, speaking out about social justice issues and advocating for changes in public policy. More local practice, however, focusses on the development of communities that can prevent psychological distress from occurring, or ameliorate distress when it does. Key to this practice, of course, is a requirement for any involvement in communities to be both participatory and empowering. While traditional psychology can be expert-driven, relying on the therapist to provide answers, community psychology relies on the democratic involvement of community members, who might position themselves as instigators, leaders, and organizers in community psychology initiatives. Empowerment is actually the primary focus of community psychology (Rappaport, 1977), with the psychologists supporting the consciousness-raising, solidarity, and efficacy of communities.

Given the local focus of community psychology initiatives will differ widely between communities, nations, and cultures. While clinical psychology bases its therapeutic models on claims of generalizability, community psychology initiatives, as participatory, emerge from the ground up and as such are each a unique co-construction. For the purpose of this paper, I will describe three specific initiatives that are relevant to my own country of Australia. These examples have been chosen to demonstrate the potential for community psychology to address critical national problems, albeit at local grass roots levels.

Practice Exemplars

1. Aboriginal Social and Emotional Well-Being

Over 2000 Australians commit suicide annually in Australia, but the rate of Aboriginal suicide is twice that of non-Aboriginal, particularly among the adolescent

population (Ridani, Shand, & Christiansen, 2014). Our leading psychologist, Pat Dudgeon (2017), argues for local, participatory responses, whereby Aboriginal Indigenous are supported to find their own solutions. Her approach differs widely from that of mainstream clinical psychology, which if applied to these communities would serve as a form of cognitive-behavioral colonialism. She argues for a practice that is both community lead and radically decolonized, based on Aboriginal constructs rather than Western views of pathology. The construct of "mental health" itself is rejected in favor of Social and Emotional Well-Being (Dudgeon & Calma, 2013), one which mirrors the ecological model of community psychology. Here distress experienced by the self, and well-being, is understood as a function of multiple interrelated connections, to kinship, community, country, and culture, all understood in the context of wider social and historical determinants.

Ridani et al. (2014) demonstrate the potential for Aboriginal-led initiatives directed at youth suicide, reviewing nearly 70 community-based programs. Many focused on the development of community connectedness, cultural practices, and identities, held on country, in workshops and camps, not within the four walls of the solitary therapy room.

Any collaboration between Aboriginal communities and non-Aboriginal psychological services must emphasize local empowerment, rather than expert-driven intervention. The Australian Psychological Society (2010) has recognized that this type of collaboration might best be done between Aboriginal healing practices and the school of narrative therapy that was originated by white mental health practitioners (Ralph & Ryan, 2017). Narrative therapy focusses on social justice and empowerment through story which as cultural relevance for Aboriginal communities (Wingard & Lester, 2001). Community-based narrative practices, such as the definitional ceremony (White, 1995), have been modified in consultation with Aboriginal leaders, (Denborough et al., 2006), to focus on the task of preventing and responding to suicide. These practices support communities to remember those who has been lost and via story cycles. Stories are recorded and re-told between communities to build solidarity and resilience.

The approaches of Social and Emotional Well-Being and narrative community practice demonstrate the potential for community psychology to respond to one of our nation's most critical problems. An ecological approach, community-led and focused on empowerment, provides a culturally valid alternative to mainstream psychological methods.

2. **Refugees**

The plight of refugees is a particularly National concern in Australia, particularly due to our Government's policy of turning back asylum seekers boats and imprisoning those who arrive as a deterrent. Those who do receive visas enter a country that would be seen as hostile or at least ambivalent towards refugees, one which has perpetrated further traumas despite our reputation as free and fair. Psychological work with recent migrants is conducive to community psychology, given many form of local communities in this country. Our own research in Western Sydney with Relationships Australia (Karageorge, Rhodes, Gray, & Papadopoulos,

2018) describes a community-based approach to relational repair with families from a variety of countries, including South Sudan, Iran, and Syria. Partnerships were established between local bicultural health workers who were members of these communities and professional family therapists trained in post-Milan systemic family therapy. Deep cultural expertise combined with family therapy skills allowed for innovative culturally valid approaches to the improvement of fractured family relationships. The bicultural workers were supervised by the family therapists in responding to family dynamics, while the family therapy teams were advised on cultural responsiveness and adaptation of methods. Local community-based cultural events and multi-family meetings were held in order to engage and then work with families. Groups included culturally relevant activities, including sports and arts, providing a soft engagement prior to facilitated conversations about more challenging family issues.

This project demonstrates how innovative community-based approaches to psychological issues can be and the means by which mainstream therapeutic practices can be transformed to meet the participatory local needs of communities.

3. **Psychosis**

Community-based approaches, though, not only are relevant to work conducted with specified culture groups but can be applied, in communities, to a wide range of clinical problems experienced by members of all cultures. Open dialogue is a method, developed in Finland two decades ago, which provides a community-based approach to early psychosis that is a radical alternative to the dominant medical model (Seikkula et al., 2003). This approach aims to lessen a reliance on hospital admission, fostering the establishment of personalized networks, democratic decision-making communities consisting of the person hearing voices, friends, family members, and mental health professionals. This approach has suited young people experiencing their first crisis due to psychosis. Family therapists meet in the persons' own residence, returning daily with the network until things stabilize. Medications are not the first decision to be made, but instead emphasis is placed on developing a safe space with a dialogue, where all voices can be heard equally, including the voices heard by the young person due to psychosis. The general atmosphere is one of slow respectful listening, including across the professional and non-professional divides, tolerating uncertainty so that impulsive decisions are avoided. Traditionally, a crisis leads to quick decisions to medicate and hospitalize which can set the course of a young person's mental health career (Seikkula et al., 2003). Buus et al. (2017) reviewed 33 studies of Open Dialogue, showing promise for this emergent approach. This method provides an example of how community work is an activist practice, directly challenging the hierarchical and pathologizing culture of the medical system.

These practice exemplars of community work, with Indigenous peoples, refugee populations and those who hear voices, demonstrate the key principles of community psychology. All three involve an ecological model, which utilizes the strengths of local resources for the amelioration of psychological distress. Practices involve

the participation and empowerment of family, cultural, and social network groups and the enhancement of democratic rather than hierarchical relations between these subsystems and these within therapeutic and mental health services.

A Pedagogy for Community Psychology

Traditional teaching in clinical psychology follows a competence model, emphasizing technical skills and positioning practice as the development of proficiency in specific models of intervention, including cognitive-behavior therapy, schema-therapy, integrative psychotherapy, and others. Given the dominance of the scientist-practitioner model in this field, the person of the therapist receives little attention, in the form of psychotherapy or self-development (Salter & Rhodes, 2018; Turnbull & Rhodes, 2019) and nothing regarding the politics of mental health. Community psychology curricula also involve a variety of competencies including ecological assessment, cybernetics and systems, group processes, empowerment practices, mental health prevention and promotion, crisis management, program evaluation methods, and participatory action research. Unique to community psychology education, however, is the need to also prepare students personally and politically for their future roles, developing activists capable of performing as agents of change in settings where marginalization and oppression is likely. Educating students for this kind of role is a unique and challenging task that requires different forms of pedagogy to competence-based learning. Pedagogy must be critical and include a variety of specific components, a liberatory classroom (hooks, 1994) where a personal reckoning with privilege is possible, where cultural humility can be developed, where students have direct access to the lived experience and insider knowledge of communities, and where dialogue and witnessing are learned.

These components will be explored here, with vignette examples from my own classroom at The University of Sydney. This class is a community psychology component of a Masters of Clinical Psychology Degree, where three half-day immersive workshops are held with a variety of educative, creative, and dialogical exercises and experiences. The workshops follow the three areas discussed earlier in this paper: Aboriginal social and emotional well-being, refugee community work, and Open Dialogue for severe mental health problems in young people.

A Critical Pedagogy

The starting point for any community psychology student must be to turn the lens inward towards the field of mainstream psychology, rather than out into community practice. A large majority of community psychology programs will be post-graduate, with students having been trained in mainstream settings in post-positivist psychology. Psychology, as a discipline, insists on individualism as a form of "habitus" (Bourdieu, 1977) and has become our collective identity. As a field we have neglected, however, to implicate neo-liberalism in the development of psychological

distress (Sugarman, 2015) and instead have colluded in the development of an industry that pathologizes the sole agent (client). This implies that psychologists can perpetuate the isolation of this person, rather than focusing on issues related to attachment, belonging, and community (Verhaeghe, 2014). The confidentiality of the consultation room may support personal responsibility, but also promotes blame in the face of marginalization, oppression, or and socioeconomic disadvantage. Moreira (2015) requires a critical psychopathology, following Merleau-Ponty's (1960) argument that clients embody historico-cultural traumas. Beyond the walls of the therapy room, community work is a moral as well as a clinical imperative (Prilleltensky, 1997).

The education of psychologists who can question the practices of mainstream psychology and the development of morality in the classroom centered around social justice requires a critical pedagogy, one founded by Paulo Freire (1970) and developed by bell hooks (1994) and others. Freire criticized what he labeled the banking model of education.

> *Instead of communicating, the teacher issues communiqués and makes deposits which the students patiently receive, memorize, and repeat. This is the 'banking' concept of education, in which the scope of action allowed to students extends only as far as receiving, filing, and storing the deposits*. [3]:58 Freire, Paulo (Freire, 1970).

Instead, he embraces a model of education where knowledge is both unlearned and then co-created between educator and student, an active process based on dialogue. The first step is an authentic liberation or humanizing of the student, which can only be done through unlearning and consciousness raising.

A Pedagogy of the Privileged

Freire originally wrote Pedagogy of the Oppressed (1970) in relation to the empowerment of oppressed Latin American students, but as Allen and Rossatto (2008) point out, the majority of students taking psychology classes are likely to instead be benefactors of social privilege. The aim of critical pedagogy in this respect is not to empower the oppressed student but rather to challenge the oppressor student to come to terms with their place on the hegemony and how they have benefited from structural inequality. Allen and Rossatto (2008) rightly point out that critical pedagogy for privileged students is undertheorized, but follow bell's (1992) admission that, despite the significant challenges, it must be attempted. Cresswell, Karimova, and Brock (2013) correctly name this Pedagogy of the Privileged. In order for students to come to terms with their own privilege, it must be a significant emotional experience, rather than just an intellectual one. Mezirow's (2000) transformational learning theory speaks to this experience, highlighting the disorientation of learning about injustice, the shame and guilt, and eventually critical reflection on personal assumptions and moral complicity. Typical confessional dialogues and exercises about "the knapsack of privilege" are likely to be ineffectual in promoting this kind

of change (Margolin & Martiniello, 2015). Classes need to be designed as immersive encounters (Addleman, Brazo, and Cevallos (2011) with the paid participation of community leaders alongside academics, with creative or narrative material presented alongside intellectual, and with direct encounters with communities. Barnum and Illari (2016) call this bringing "the town to the gown." Further are some of the components used for this purpose at The University of Sydney, presented as part of three half-day immersive workshops.

1. **Community Educators in the Classroom**

Academics are often unlikely to be members of the communities in which many of their students will conduct their future work in or at least will be privileged members of those communities due to education and employment. It is critical that the academic serves not as an ally, given this term implies an identity, open to false performativity, but rather as an accomplice which implies pedagogy as collective action to challenge injustice. These terms also imply that risks are being taken in the classroom, rather than more tokenistic involvement of marginalized groups (Clemens, 2017). Critical too is that all members of communities are paid for their work in the classroom.

In our own workshops, we have enabled direct education from community members in a variety of ways. In the case of the workshop on Aboriginal Social and Emotional Well-Being, the entire process was run by two aboriginal academics from other Universities. Our workshop on Refugee Mental Health was conducted in a highly innovative manner, with Syrian psychologists working in refugee services teaching students directly through zoom from their home country. In addition, asylum seekers working as mental health scholars at another University where employed to visit and tell their story, both their personal narrative of fleeing their home country, incarceration in Australian detention, and their roles as researchers. Our workshop on Open Dialogue and youth mental health employed a large team of educators, including professional Peer Workers, parents of young people who have attempted suicide, a Peer Academic, a Peer Poet and Educator, and others.

2. **Open Dialogue**

While a small component of each workshop involves formal didactic lectures, the majority of time is dedicated to the practice of Open Dialogue. The classroom is organized in a circle of chairs, rather than the traditional arrangement with educators up front and students behind desks. This practice allows for the democratization of learning, a polyphonic space, where no one voice is privileged (Olson, Seikkula, & Ziedonis, 2014). The process typically involves a dialogue between the teaching team, where the topics and issues are discussed in a conversational exchange, tentative, embodied, and informal. This is then followed by an opportunity for the student group to reflect on that conversation, while the teaching group turn their chairs slightly away from the student group, serving as witnesses to the conversation. The teaching group in turn then reflects back and so on. This process, common to

dialogical inquiry (Wells et al., 2020), is conducted as a form of slow scholarship (Harland, 2016), promoting an encounter rather than just knowledge translation.

Below is a short excerpt of recollections by a student and another of a young person who has experienced suicidality. They both look back on a particular emotional experience in the Open Dialogue circle.

Student: *Looking around me I saw my peers – friends – sitting in a larger circle, eagerly anticipating what might happen. Six of us sat in the smaller inner circle. To my left was a woman I'd never met before, who had selflessly offered to share her story with us about her child's struggle with mental illness. The outer circle slowly faded out of my awareness. It is hard to recall exactly what was said. I remember feeling somewhat anxious, humbled, out of my comfort zone, curious, I listened closely.*

Mother: *I spoke about one particular experience as the mother of my then 17-year-old daughter, Anna. At the time of the episode that I described, Anna had been managed under several psychiatrists, for about 3 years, and had been under her current team for about 18 months.*

Student: *The story felt delicate.*

Mother: *Her diagnosis was still emerging, however, medication was part of her management. I began describing the telephone call from Anna's school counsellor, telling me that Anna was not doing well. I then went on to talk about my panicked exit from home, and my thoughts as I raced to her school. I had then began to verbalise the dialogue in my head, reciting what might be Anna's eulogy,*

Student*: The words felt so precious.*

Mother: *whilst simultaneously telephoning the mental health team to tell them we were coming and needed urgent help, and then telephoning the social worker on the team to ask if she could find a bed in the youth psychiatric ward, and then calling my husband. I remember becoming quite emotional as I described this episode.*

Student: *She spoke of a certainty that her child would not live to be 21 years old, fearing that they'd have taken their own life or died in a horrific accident before this time. I saw the joy on her face when she told us her family had in fact recently celebrated this milestone birthday. They spoke of the pain that is navigating the public and private health systems, and that people rarely took the time to truly listen to them.*

Student: *The utter sadness and fear that she had carried for so many years.*

Mother*: It was the first time I have never told anyone what it feels like for me.*

Mother: *It was at this time that I noticed one of the students in the session had tears running down her face. She kept apologising and insisted that I continue, however she also continued to silently cry.*

Student: *To articulate my thoughts was difficult. What I can say is that this experience was a privilege, an overwhelming privilege to listen with all parts of myself.*

Mother: *At first, I thought she may have been through something similar. The student later explained that she had never really understood what happened during a psychiatric crisis and had never considered what a carer/parent experienced. I think the realisation that she and the others in the room were able to comprehend what it feels like to experience this, made me feel 'heard.'*

Student: *I thought about how different this setting felt to the clinical therapy room.*

Mother: *My hope is that all of the students will 'hear,' when they are seeing clients and include the clients' carer/parent/significant person."*

Student*: I thought about why I cared so much about mental health in the first place, what mattered to me, and the people that matter most. How that related to each person's story. When it was my turn to speak, I started crying, overwhelmed by the kindness, sacrifice, and genuine humanity in the room.*

Here one can read reflections on a democratic pedagogical encounter, deeply moving, and offering the possibility for the student to learn through emotional rather than simply intellectual means. This is what Michael Oakeshott (1991) calls a "dramatic friendship"; in the context of education, an "affective pedagogy" (Patience, 2008) is a field defined by technique.

3. **Creative Arts**

The creative arts also offer an important vehicle through which this kind of learning might take place, serving as a natural fit for social justice learning and allowing for an appreciation and even confrontation of alterity that might not be possible through text (Kraehe & Brown, 2011). In our case, we have used a variety of modalities, including holding an exhibition of Syrian civil war photography in the classroom and employing a Peer Educator in the consumer/ex-patient/survivor movement to perform her award-winning poetry in class. The poem is presented below and provides a visceral acknowledgement of empowerment and survivorship in the mental health system.

Grief for Hire by Alise Blayney

I AM grief for hire, a Poetess — not PTSDs marauded Duchess, nor the Black Dog's mistress. I used to be the clinical Countess of Distress!

I HAVE a broken aorta, when under hypnosis ticks with postmodern tacky-cardia.

I HEAR absinthe's green fairy whirlpool crash like car smash glass into community houso's observation hole.

I SEE invisible cloaked entities dressed as spiritual emergencies, infecting those whose senses are not anaesthetised. They incubi and succubi my white hospital gown like a djinn and tonic lullaby.

I WOULD drop vowels for Rhett Butler, do post traumatic time behind the fishbowl for Scarlett O'Hara.

I WANT soft asylum, 33 inch vinyl and spinning Roy Orbison.

I AM Rimbaud's THIEF of FIRE, a Poetess. Not PTSDs marauded Duchess, nor the Black

Dog's mistress. I used to be the clinical Countess of Distress.

I PRETEND that 9 years ago, I wasn't a sensory deprived TANKED mess.

I FEEL ambidextrous with the crookedness, and RAGE over the cuckoo clock's rooftops.

I TELL Blake his RINTRAH has gone too far — knockout pills and acute amnesia wrack with wrath, a reprobate wrecking ball.

I TOUCH marriage of perception through chemical incarceration and sink into delirium — the quack tells me I look like the spokesperson for vandalism!

I WORRY that the rough of the dialogue does your head in and that the curse of the coarse is coercion of sin.

I CRY because Mr Disney never told me the looking glass felt so like sheer fucking fear.

I SMILE when you spit delirious 'the road of HER excess leads you to the palace of resilience.'

I AM the serrated jaw of Dante's grand larceny circle. I lurk between the 5th of anger, the 7th of murder.

I UNDERSTAND when God gives you a gift, the angel of shibboleth gives you a whip.

I SAY drink the sweet elixir and watch your syntax sizzle off my rapid cycling tongue, to a beat that just belts on and on and on.

I DREAM of astral travel and meeting you in the ether, lucid and tender, where

I TRY to exalt this zyprexa stupor into the stars / release my pressure points into the ooh la la stars.

I HOPE to enter your white wonderland chamber, but your syntactical activist tongue

SHIPWRECKS my lips, until I'm trembling and sick.

I LOVE that you said poetry is both confession and exorcism — so we should Houdini out of the syntax straight jacket by sticking it to big pharma!

I am GRIEF FOR HIRE. Tell seclusion and restraint I want ceasefire.

Permission granted for reproduction from poet.

4. **Grassroots Publications**

Teaching in community psychology is also augmented by alternative forms of knowledge, generated in community, rather than simply academic peer review. Funding was granted by our National Center for Cultural Competence to allow us to produce a quarterly magazine The Activist Practitioner, with issues published on the topics presented in lecturers. Pieces were written by people with lived experience, community leaders, and local practitioners, to allow students further access to diverse voices and knowledge systems. This magazine, available for free online, also serves as a community resource. One novel aspect of the magazine is the process of cultural review, whereby each piece submitted must be approved by local aboriginal community representatives. Art works related directly to the topic of each issue were also commissioned from a local aboriginal community. Honoring first nations peoples in this way provides an important source of modeling for future community psychologists.

Developing Activist Scholars

Part of the education of community psychologists will also involve supporting them as higher degree research scholars, not simply teaching them in the classroom. Quantitative methods may be appropriate at times, but may not always align with the discipline's epistemological stance, given that research must be valid and participatory culture (Lyons et al., 2013). Participatory action research is a likely method of choice, seeking local solutions for locally identified issues (Barnes, 2003),

rather than guided by academic careers and concerns. This form of "sovereignty on the ground" (Kral & Idlout, 2009) requires collaboration over a significant amount of time, preferably from students who already have links to community. Here lies, of course, one of the significant problems, especially for elite Universities that do not assertively seek out students from marginalized communities. The solution here lies with assertive equity-based admission processes and research scholarships which are the topic for another paper.

As a supervisor of Masters of Philosophy and Ph.D. Students at the University of Sydney, my students have a wide variety of projects underway in relation to community psychology. Three examples are provided as follows:

a. Decolonizing Attachment and Developing Guidelines for the Children's Court to Prevent Child Removals (Wright, Dudegon, & Rhodes)

This series of studies involves the development of a participatory indigenous methodology to decolonize the idea of maternal attachment as being primary when considering aboriginal ways of being. In particular, immersive yarning circles are being held with aboriginal elders and children, allowing for an arts-augmented exploration of the community-based nature of aboriginal attachment. Findings from this study will be used to develop specific guidelines for clinicians assessing child protection cases in the Children's Court.

b. Lived Experience and Alcoholics Anonymous (Glassman, Buus, & Rhodes)

This series of studies explored the lived experience of members of alcoholics anonymous, including those who leave the organization and those who commit for multiple decades. Our aim is to explore the ways in which this iconic community organization mediates meaning-making and belonging and how this might facilitate long-term membership beyond sobriety and why some leave disillusioned.

c. Decolonizing Clinical Psychology

Two studies are underway in this area, one which looks at international perspectives, based on in-depth interviews with leading academics who have engaged in a substantial process of decolonizing clinical psychology programs, in the USA, South Africa, Italy, and Australia, including the incorporation of community psychology ideals and practice (Cullen, Brockmann, & Rhodes). Another study explores the personal narratives of psychologists who have developed careers and lives based on the principles of cultural humility, community activist, and decolonization (Bogle, Hunt, & Rhodes).

Supporting student studying in these areas can be a challenging endeavor, especially if this work is occurring in a wider faculty setting unaccustomed to knowledge systems, research methods, and critical perspectives at odds with mainstream scientist practice. There are many lessons being learned about how best to provide this support, including the development of auxiliary supervision teams from

non-dominant cultures, the recruitment of safe allies within the University to advocate for and support students through formal processes, and the development of solidarity and support among students with critical perspectives.

Conclusion

Community psychology is a field which focusses on the sociopolitical nature of human distress as differentiated from the intrapsychic pathologization common to clinical approaches. This field has a long history, dating back to the 1930s, and provides a framework for a social justice practice built for the participatory empowerment of local communities from diverse cultures. Preparing students for this type of practice has many specific challenges, least of which is developing activist-practitioners who have developed an acute awareness of their own privilege, are culturally humble, and confident to represent non-mainstream forms of knowledge and practice in the academy. Teaching must not simply be technical in nature, but also incorporate aspects of critical and affective pedagogy, inclusive of lived experience and creative content.

References

Addleman, R., Brazo, C., & Cevallos, T. (2011). Transformative learning through cultural immersion. *Northwest Passage: Journal of Educational Practices., 9*, 55–67.

Allen, R. L., & Rossatto, C. A. (2008). Does critical pedagogy work with privileged students? *Teacher Education Quarterly, 36*, 163–180.

Australian Psychological Society (2010). Evidence-based psychological interventions in the treatment of mental disorders: A literature review (3rd ed.). Retrieved from https://www.health.gov.au/internet/main/publishing.nsf/content/2A8C027E06EBA6DACA257BF0001FA175/$File/review.pdf

Barnes, C. (2003). What a difference a decade makes: Reflections on doing 'emancipatory' disability research. *Disability & Society, 18*(*1*), 3–17.

Barnum, A., & Illari, J. (2016). Teaching issues of inequality through a critical pedagogy of place. *Journal of Sustainability Education, 25*, 11.

Bourdieu, P. (1977). *Outline of a theory of practice*. Cambridge: Cambridge University Press.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA, USA: Harvard University Press.

Buus, B., Aida, B., Jacobsen, E., Muller-Nielson, K., Jorgen, A., & Rossen, C. (2017). Adapting and implementing open dialogue in the Scandinavian countries: A scoping review. *Issues in Mental Health Nursing, 38*(*5*), 391–401.

Carr, A. (2000). *Family therapy: Concepts, process and practice*. Chichester, Eng: Wiley.

Clemens, C. (2017). *Ally or accomplice? The language of activism*. Retrieved from https://www.tolerance.org/magazine/ally-or-accomplice-the-language-of-activism

Compas, B., & Gotlib, I. (2002). *Introduction to clinical psychology*. New York, NY: McGraw-Hill Higher Education.

Cresswell, M., Karimova, Z., & Brock, T. (2013). Pedagogy of the privileged: Elite universities and dialectical contradictions in the UK. *Journal of Critical Education Policy Studies, 1740-2743*(11), 25–48.

Denborough, D., Koolmatrie, C., Mununggirritj, D., Marika, D., Dhurrkay, W., & Yunupingu, M. (2006). Linking stories and Initiatives: A narrative approach to working with the skills and knowledge of communities. *International Journal of Narrative Therapy and Community Work, 2*, 19–51.

Diamond, G. S., Siqueland, L., & Diamond, G. M. (2003). Attachment-based family therapy for depressed adolescents: Programmatic treatment development. *Clinical Child and Family Psychology Review, 6*, 107–127.

Dudgeon, P. (2017). Australian indigenous psychology. *Australian Psychologist, 52*(4), 251–252.

Dudgeon, P., & Calma, T. (2013). The social and emotional wellbeing of Aboriginal & Torres Strait Islander Peoples. *Perspectives – Mental Health & Wellbeing in Australia, 1*, 36–39.

Freire, P. (1970). *Pedagogy of the oppressed*. New York: Herder and Herder.

Fryer, S. (2008). Some questions about the history of community psychology. *Journal of Community Psychology, 36*(*5*), 572–586.

Gridley, H., Fisher, A., Thomas, D., & Bishop, B. (2007). Development of community psychology in Australia and Aotearoa/New Zealand. *Australian Psychologist, 42*, 15–22.

Harland, T. (2016). Deliberate subversion of time: Slow scholarship and learning through research. In F. Trede & C. MCewen (Eds.), *Educating the deliberate professional. Professional and practice-based learning* (Vol. 17). Cham: Springer.

Hoffman, L. (2002). *Family therapy: An intimate history*. New York, NY: W.W. Norton & Co.

Hooks, B. (1994). *Teaching to transgress: Education as the practice of freedom*. New York: Routledge.

Jahoda-Lazarsfeld, M., & Zeisel, H. (1933). *Die Arbeitslosen von Marienthal: Ein soziographischer versuch uber die wirkungen langdauernder Arbeitslosigkeit mit einem Anhangzur Geschichte der Soziographie*. [The unemployed of Marienthal: A sociographic investigation into the consequences of long term unemployment with an appendix on the history of sociography]. Leipzig: Hirzel.

Karageorge, A., Rhodes, P., Gray, R., & Papadopoulos, R. K. (2018). Family therapy for refugees: A single-site investigation of client and staff experiences. *Australian and New Zealand Journal of Family Therapy, 39*, 303–319.

Kraehe, A., & Brown, K. (2011). Awakening teachers' capacities for social justice with/in arts-based inquiries. *Equity & Excellence in Education., 44*, 488–511.

Kral, M. J., & Idlout, L. (2009). Community wellness and social action in the Canadian Arctic: Collective agency as sunjective well-being. In L. J. Kirmayer & G. G. Valaskakis (Eds.), *Healing traditions: The mental health of Aboriginal peoples in Canada. Vancouver* (pp. 231–324). BC, Canada: University of British Columbia Press.

Lazarsfeld, P. F. L. (1932). An unemployed village. *Character and Personality, 1*, 147–151.

Levine, M., & Perkins, D. (1997). *Principles of community psychology: Perspectives and applications* (2nd ed.). New York, NY: Oxford University Press.

Lyons, H., Bike, D., Ojeda, L., Johnson, A., Rosales, R., & Flores, L. (2013). Qualitative research as social justice practice with culturally diverse populations. *Journal for Social Action in Counseling and Psychology, 5*(*2*), 10–25.

MacKinnon, L. (1999). *Trust and betrayal in the treatment of child abuse*. New York, NY: Guilford.

Margolin, L., & Martiniello, M. (2015). Unpacking the invisible knapsack: The invention of white privilege pedagogy. *Cogent Social Sciences., 1*(1).

Merleau-Ponty, M. (1960). *Signes*. Paris, France: Gallimard.

Mezirow, J. (2000). Learning to think like an adult. In J. Mezirow & Associates (Eds.), *Learning as transformation* (pp. 3–33). San Francisco, CA: Jossey-Bass.

Moreira, V. (2015). Critical psychopathology. *Radical Psychology.* Spring*, 4*(*1*).

Nelson, G., & Prilleltensky, I. (Eds.). (2005). *Community psychology in pursuit of liberation and well-being*. Hampshire, MA: Palgrave Macmillan.

Oakeshott, M. (1991). *Rationalism in politics and other essays. New and Expanded Edition*. Indianapolis: Liberty Press.

Olson, M., Seikkula, J., & Ziedonis, D. (2014). *The key elements of dialogic practice in open dialogue*. Worcester, MA, USA: The University of Massachusetts Medical School.

Orford, J. (1992). *Community psychology: Theory and practice*. Chichester, UK: Wiley and Sons Ltd.

Patience, A. (2008). The art of loving in the classroom: A defence of affective pedagogy. *Australian Journal of Teacher Education, 33*(2), 55–67.

Prilleltensky, I. (1997). Values, assumptions, and practices: Assessing the moral implications of psychological discourse and action. *American Psychologist, 52*(*5*), 517–535.

Ralph, S., & Ryan, K. (2017). Addressing the mental health gap in working with Indigenous *youth: Some considerations for non-Indigenous psychologists working with Indigenous youth*. *Australian Psychologist, 52*(*4*), 288–298.

Rappaport, J. (1977). *Community psychology: Values, research, & action*. New York, NY: Holt, Rinehart & Winston.

Reich, S., Bishop, B., Carolissen, R., Dzidic, P., Portillo, N., Sasao, T., & Stark, W. (2017). Catalysts and connections: The (brief) history of community psychology throughout the world. In M. A. Bond, I. Serrano-García, & C. B. Keys (Eds.), *APA handbook of community psychology: Theoretical foundations, core concepts, and emerging challenges*. American Psychological Association (APA).

Rhodes, P. (2003). The Maudsley model of family-based treatment for anorexia nervosa: Theory, practice and empirical support. *Australian and New Zealand Journal of Family Therapy, 24*(*4*), 191–198.

Rhodes, P., & Wallis, A. (Eds.). (2011). *Working with families: A practical guide*. Melbourne, VA, Australia: IP Communications.

Ridani, R., Shand, F., & Christiansen, H. (2014). Suicide prevention in Australian Aboriginal communities: A review of past and present programs. *Suicide & Life-Threatening Behaviour, 45*(*1*), 111–123.

Salter, M., & Rhodes, P. (2018). On becoming a therapist: A narrative inquiry of personal-professional development. *Australian Psychologist., 53*(6), 486–502.

Seikkula, J., Alakare, B., Aaltonen, J., Holma, J., Rasinkangas, A., & Lehtinen, V. (2003). Open dialogue approach: Treatment principles and preliminary results of a two-year follow-up on first episode schizophrenia. *Ethical Human Sciences and Services, 5*(*3*), 163–182.

Slesnick, N., Gizem, E., Bartle-Haring, S., & Brigham, G. (2013). Intervention with substance-abusing runaway adolescents and their families: Results from a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 81*(*4*), 600–614.

Sugarman, J. (2015). Neoliberalism and psychological ethics. *Journal of Theoretical and Philosophical Psychology, 35*(*2*), 103–116.

Swift, C. F., Bond, M. A., & Serrano-Garcia, I. (2000). Women's empowerment: A review of community psychology's first 25 years. In J. Rappaport & E. Seidman (Eds.), *Handbook of community psychology* (pp. 857–895). Dordrecht, Netherlands: Kluwer Academic Publishers.

Turnbull, M., & Rhodes, P. (2019). Burnout and growth: Narratives of Australian psychologists. *Qualitative Psychology.* https://doi.org/10.1037/qup0000146

Verhaeghe, P. (2014). *What About Me? The Struggle for Identity in a Market-Based Society.* Melbourne: Scribe.

Watzlawick, P. (1977). *The language of change*. New York, NY: Basic Books.

Wells, R., Barker, S., Boydell, K., Buus, N., Rhodes, P., & River, J. (2020). Dialogical inquiry: Multivocality and the interpretation of text. *Qualitative Research.* https://doi.org/10.1177/1468794120934409

White, M. (1995). Reflecting teamwork as definitional ceremony. In M. White (Ed.), *ReAuthoring lives: Interviews and essays* (pp. 172–198). Adelaide: Dulwich Centre Publications.

Wingard, B., & Lester, J. (2001). *Telling our stories in ways that make us stronger.* Adelaide: Dulwich Centre Publications.

Indigenous Psychology

30

Danilo Silva Guimarães

Contents

Abstract

Indigenous psychology is an intellectual worldwide movement against the hegemony of Eurocentric psychologies, in their reflected or unreflected missionary path of promoting Eurocentric tradition under a scientific appearance. The core teaching and learning objectives in indigenous psychology includes the understanding that colonialism produced threatening impacts to indigenous peoples around the world. The core contents and topics of indigenous psychology involves three main set of contents: (1) to understand, from the history and philosophy of psychology, the predicate of psychological theories and systems in its articulation with specific sociocultural contexts, through ontological reflection; (2) to understand possibilities and limits of dialogues between distinct traditions of knowledge construction, approaching socio-historical distances between psychological communities and indigenous communities, through indigenous and ethnographic approaches focusing concrete communities; (3) to understand that the theoretical

D. Silva Guimarães (✉)
Universidade de São Paulo, São Paulo, Brasil
e-mail: danilosg@usp.br

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and document-based works about indigenous issues are distinct from the concrete work with indigenous peoples – demanding the development of expertise in social dialogue, availability to participate in indigenous communities' life and support their struggles. The approaches and strategies for teaching, learning, and assessment in indigenous psychology involve two main dimensions, (1) reading and discussion of pertinent bibliography concerning the core contents and topics and (2) engaging the students in co-authored works with concrete indigenous peoples and communities. The integration of both dimensions depends on supervised dialogues at the indigenous communities and at the university. We argue that distinct social and personal realities are constructed, grounded in the rites and myths people learn and transform from their relation with the sociocultural environment. The learned and transformed rites and myths guide perceptions, imaginations, and human actions within each tradition. Besides, there is a border of unknown between the predication of the distinct traditions, demanding the assessment of limits and the creation of conditions for equitable dialogues, bringing ontological reflections to the process of psychological knowledge construction.

Keywords

Epistemology · Ontology · Ethics · Tradition · Predication · Dialogicality

Introduction

The term "indigenous" is of Latin origin. It refers to that which is native to the land, generated in its own land. Despite its widespread use to refer to non-European populations in remote regions, who were there before colonization, the term formerly encompassed any autochthonous group native to a land or country that was later colonized. Therefore, any group of people are indigenous in relation to their original territory and cease to be when they assume a colonialist relation with their surroundings.

Indigenous psychology is an intellectual worldwide movement against the mainstream psychology, in its reflected or unreflected missionary path of promoting European tradition under a scientific appearance (see APA [Retrieved from https://www.apadivisions.org/division-32/leadership/task-forces/indigenous, January 2, 2021.]). Indigenous psychology claims that local problems need to be solved through indigenous practices and applications, including respectful dialogues between different traditions. For indigenous psychology, the generality of psychological systems depends on the openness to ontological issues grounding diverse theoretical systems and practices. It is a field of knowledge that emerges in the border between the science of psychology, historically exported to the colonized portions of the world, and the knowledge produced in indigenous contexts. It relates with historically threatened and silenced sociocultural perspectives, arising at the

resilient border of differentiation from colonized perspectives, where the colonization of peoples, territories, and knowledge still advance. Indigenous psychologies are counterparts of the colonial process, a resistance movement assuming that indigenous knowledge and ontology contribute to psychological descriptions, theories, and methods. It converges with an ethical horizon, committed to the attention and care to the peoples and communities and understanding that science is a sociocultural production. Scientific knowledge depends on the relational processes involving multiple perspectives and meanings about human experiences.

The study of the role of culture in the constitution of the Self is part of psychology in its multiple theories and systems. Historically, the border between psychology and anthropology is tenuous and the demarcation between these disciplines is not precise from the very beginning of their differentiation (cf. Jahoda, 1982). The efforts of disciplinary differentiation and their limits were grounded in predication, such as (1) the psychological processes are natural, therefore, their explanatory models are the same, to be verified in all human beings and social communities, or (2) the psychological processes are social, therefore, need to be comprehended in the particularity of historical and community-based settings. Both claims are based on the naturalistic ontology that grounds most, if not all, modern sciences. From naturalistic predication, psychological studies seek the confirmation of theories proposed as universals, disputing the validation of these theories to encompass a larger number of phenomena located in cultural contexts increasingly diverse. And idiographic psychology is reduced to a contextual descriptive method without any explanatory power. Both conceptions constitute European and North American psychological tradition spread across the globe, finding resistance from the peoples they met.

Contemporary cultural and dialogical psychologies criticize the Eurocentrism of psychological theories and methodologies (cf. Boesch, 2007; Hermans, Kempen, & van Loon, 1992; Oliveira e Guimarães, 2016; Valsiner, 2007). Cross-cultural concerns based on the qualitative homogeneity and temporal stability of culture and people (cf. Valsiner, 2007) approach culture as an independent variable, consider plausible to collect representative samples to compare different cultures, and consider the equivalence of meanings of measurement instruments in different cultures. The personal idiosyncrasies of researchers and the fact that the specificities of the research problems meet the demands of the researcher's culture are not included as part of the investigation. It assumes that the participants' information fits comfortably with the information required by the researcher. However, for cultural and indigenous psychologists, the psychological study of other people should not happen as if they were just a source of data for a supposedly well-intentioned investigation (Boesch, 2007). Cross-cultural psychologies work with concepts and methodologies that come from and are more adequate to the reality of WEIRD (Western, Educated, Industrialized, Rich and Democratic) societies (cf. Groot, Hodgetts, Nikora, & Leggat-Cook, 2011; Hwang, 2015; Teo, 2011). A study from Henrich, Heine, and Norenzayan (2010) showed that 96% of psychological samples of the top journals in six sub-disciplines of psychology come from countries with only 12% of the world's population. Of the remaining 4%, the samples used in these countries are not

representative of the population as a whole (cf. Brock, 2016). In this context, cross-cultural psychologies tend to construct psychological processes as part of the human nature but categories constructed according to the view of particular traditions (cf. Valsiner, 2017a; Guimarães, 2018).

Cultural psychology proposes a relevant theoretical and methodological turn in order to understand the diversity of senses and meanings constructed in multiple cultural fields of actions (Boesch, 1991). Collective and personal cultures are constructed through human actions of semiotic elaboration from experiences in the dynamic stream of embodied lived temporality (cf. Simão, Guimarães, & Valsiner, 2015). The theoretical and methodological turn of cultural psychology (cf. Valsiner, 2017a, 2017b, 2019, 2020) addresses the construction of psychological theories as semiotic elaborations about investigated processes. Knowledge advances through case studies that problematize sample studies point-like schemes about human mind, in their static form as a time-freed epistemological stance.

Alongside cultural and dialogical psychologies, ethnopsychiatry, and ethnopsychoanalysis emerged from troubled dialogues between psychoanalysis and anthropology throughout the twentieth century (cf. Barros e Bairrão, 2010). Ethnopsychoanalysts attempted to articulate theories from psychoanalysts and anthropology combined with their clinical practice (Martins-Borges, Lodetti, Jibrin, & Pocreau, 2019). However, they avoided a fusion between the different areas of knowledge, preserving interdisciplinarity. Assuming the dimension of alterity between fields of knowledge, ethnopsychiatry and ethnopsychoanalysis articulate differences in the ways of understanding health and disease, between Eurocentric naturalistic predication and the predication from the ontologies of different ethnicities, which have health concepts and care practices sophisticated and distinct from each other. Some basic assumptions of the field (cf. Borges e Pocreau, 2009) can be articulated with contemporary issues of indigenous psychology: (1) the difference of the other exceeds the explanatory models of psychological theories and systems, demanding approaches to the philosophical notion of alterity, to anthropological theories and to indigenous reflection; (2) suffering is a universal human condition that expresses itself in culturally diverse ways; and (3) the need of open-ended theories and methodologies for the development of technical devices of intervention and psychological attention.

The training of indigenous people in psychology, in the universities that spread the psychological knowledge worldwide, strengthened indigenous psychology movements, highlighting the limits of hegemonic psychologies for the understanding of local events and processes of psychological interest. This movement has gained strength in Asia Pacific part of the world (Groot, Grice, Le, & Nikora, 2019; Hwang, 2014, 2015, 2017; Kim, 2000; Li, Hodgetts, & Foo, 2019; Shiah, 2016; Liu, 2014; Hwang, Shiah, & Yit, 2017; Sundararajan, 2014; Yin, 2018). Simultaneously, in Africa and the Americas, a criticism to persistent impact of colonialist parasitism in countries that have gained their independence but which support local elites international relations that, directly or indirectly, inherited the forms of social parasitism founded in the colonial period (cf. Bomfim, 2012; Mignolo, 2017; Quijano, 1993, 2005) face hegemonic psychologies from Europe and the United States.

Among the aims of indigenous psychologies, in general, are the claims to broaden empirical data of studies including more diverse sociocultural contexts, and the revision of methods of construction, analysis, and interpretation of the data, addressing the elimination of epistemic violence (cf. Held, 2020; Gonzalez & Guimarães, 2020; Teo, 2011) in the processes of knowledge construction.

Indigenous psychology emphasizes the need for an ontological turn, since theoretical and methodological reviews are not enough to establish an equitable dialogue including basic indigenous prediction that guide reflections and practices for indigenous knowledge construction (cf. Guimarães, 2011, 2015, 2016, 2018, 2019, 2020b; Kawaguchi & Guimarães, 2019; Guimarães & Simão, 2017). For example, the ontological naturalism, prevalent in European societies after the renaissance, have a foundational role in modern sciences, but the knowledge produced by indigenous peoples around the world are based on distinct presuppositions. Descola (2005), comparing ethnographic data from different societies around the world, concluded that all can be framed into at least one of four possible ontologies, according to how they classify existing beings and their forms of relationship (cf. Kawaguchi & Guimarães, 2019, p. 377). Each ontology brings different distinct predicate concerning the dualities (1) interiority (in psychological terms, soul, spirit or mind) versus exteriority (body, appearance or physical attributes) and (2) similarity (the assumption of a contiguity between beings, as per in evolutionary theory) versus difference (a clear separation and distinction between the different types of beings).

Indigenous psychology, then, propose an ontological turn to general psychology (cf. Guimarães, 2020b), since psychological reflections of researchers are situated and formed in concrete socially situated chronotopos, that is, it is attuned to a rhythm of exchanges that is characteristic of each society. Temporality here is not chronology or history; it is not a regular calendar system or a series of events that can be situated in chronological time. Temporality is the sense of the passing of time, of experiences lived in reciprocal activity, in which "the person, performing their tasks, also answers to other's demands" (Ingold, 2000, p. 196). Temporality emerges from reciprocal actions, in which those involved, human and non-human. Therefore, the chronotopos of psychology is configured by the tension in the melting pot of different traditions that meet each other through human and environmental exchanges. Psychological theories and practices reflect the ontological ground of knowledge construction, through which the psychologists speak and act in the world with others. Some conscious or unconscious predicate underlie as a foundation for all possible rational knowledge.

The ontological turn is being proposed in anthropology in dialogue with phenomenological philosophy (cf. Pedersen, 2020), involving issues that connect the anthropological discussion with psychological ones. For instance, an anthropological-philosophical reflection carried out in the context of Americanist anthropology proposes multinaturalism as a predicate that unfolds from the academic reflection on the Amerindian ethos (cf. Viveiros de Castro, 1998, 2004). Attentive to Amerindian reflections, unfolding them, the anthropologist proposed, as one of the contrasting features of Amerindian thought, that the indigenous do not apprehend or reflect about the environment that surrounds them presupposing the unity of nature given by the objective universality of body and substance. Besides,

they do not understand the relation between human beings and societies as based on the plurality of cultures, subjective particularity of psyche, and meaning. Rather, the Amerindian multinaturalism (in contrast with other Eurocentric conceptions of cultural pluralism and natural monism) proposes a relational ontology:

> Kinship terms are relational pointers; they belong to the class of nouns that define something in terms of its relations to something else (linguists have special names for such nouns—"two-place predicates" and such like). Concepts like fish or tree, on the other hand, are proper, self-contained substantives: they are applied to an object by virtue of its intrinsic properties. Now, what seems to be happening in Amerindian perspectivism is that substances named by substantives like fish, snake, hammock, or beer are somehow used as if they were relational pointers, something halfway between a noun and a pronoun, a substantive and a deictic. (There is supposedly a difference between "natural kind" terms such as fish and "artifact" terms such as hammock: a subject worth more discussion later.) You are a father only because there is another person whose father you are. Fatherhood is a relation, while fishiness is an intrinsic property of fish. In Amerindian perspectivism, however, something is a fish only by virtue of someone else whose fish it is. (Viveiros de Castro, 2004, pp. 472–473)

The issue of the social construction of objective and subjective realities is not a novelty to the European phenomenological philosophy and sociology in the twentieth century (see, for instance, Berger & Luckmann, 1991). Ontological issues become more crucial in dialogue with Amerindian knowledge because it conflicts with the monologue of naturalist ontology in science, addressing an effective inclusion of multiple traditions and their predication. For indigenous psychology, the diversity of psychological systems and theories is reflected taking into account their ontological conceptions. It addresses the creation of an ethical ground for open dialogues with the multiplicity of ontological routes traveled by distinct human traditions. Nevertheless, differences between scientific and indigenous worldviews continue to create barriers to meaningful collaboration, as does the widespread assumption that science (based on the naturalistic ontology) is superior to other knowledge systems (cf. United Nations Educational, Scientific and Cultural Organization about Indigenous Knowledge and Biodiversity (retrieved in January, 2021 at https://en.unesco.org/).) Indigenous knowledge is frequently associated to devaluated irrational myths and rites at a delayed stage in relation to the superiority of the scientific knowledge, making dialogue between the indigenous and the psychologists unfeasible in the dialogical sense of the term. For an understanding of the opposition between higher and lower thinking and the dialogical ways of overcoming this dichotomy, see Marková (2016), focusing on the ontological and ethical predication of dialogism.

Purposes and Rationale of the Curriculum in Indigenous Psychology

The core teaching and learning objectives in indigenous psychology include the understanding that colonialism produced threatening impacts to indigenous peoples around the world. These impacts are persistent and create limitations for human life

in the globe. Colonialism is foundational for modernity: configures nationalities, institutions, arts, and sciences. It hierarchizes inferior and superior thinking, desensitizing the perception of the suffering of those considered inferior. This hierarchy is correlated to other modern dichotomies, such as logos versus myth; rationality versus irrationality, and science versus shamanism. It is relevant to understand that significant studies in indigenous psychology need to approach the consequences of the lack, or poverty, of ethically oriented reflections and actions from the macrosocial to the microsocial levels of human interaction. Indigenous psychology does not advocate irrational relativism as a solution to the threatening impacts of colonialism, but the rational epistemology together with the naturalistic ontology, grounding modern sciences, is insufficient to face relevant issues that impact human life in the planet.

Psychology emerged as a field of knowledge in the border between great dichotomies of modern societies, i.e., mind versus body; spiritualism versus materialism, nomothetic versus idiographic, conscience versus unconscious, etc. It collaborates with the creation of semiotic devices for communicating differences. Therefore, indigenous psychology does not exclude Western psychology but argues the benefits of including all indigenous perspectives in the dialogue, recognizing the traditions that originated psychology and reflecting on how other traditions contribute to it, sustaining the heterogeneity in our field of knowledge and work.

Indigenous psychology has diversified worldwide and gained visibility in the field of dispersion characteristic of the contemporary scenario of psychology as science and profession. The demands for psychological work with indigenous populations also increase, as the circulation of goods, information, and people become more intense and dynamic worldwide. Along with this movement, we see expanded indigenous demands: for public health policies, education, and for fundamental human rights, in which psychology can articulate knowledge that contribute to a scenario of complex attempts at dialogue. Understanding the specificity of this scenario of increasing visibility of diversity is relevant for the students addressing the production of collaborative ways of knowledge construction and professional work with the indigenous peoples and communities.

Therefore, teaching and learning indigenous psychology involves a twofold aim: on the one hand, to criticize the unreflected coloniality in psychological theories, focusing on history and philosophy that ground psychological systems, theories, and methodologies; on the other hand, it involves an engagement with indigenous communities, participation in the communities' life, sharing their struggles, predicate, and openness to dialogue.

According to the IWGIA, 5 thousand indigenous peoples resist around the world. (International Work Group for Indigenous Affairs (https://iwgia.org/).) Diversity and complexity are associated to obstacles for the dialogue of psychology and indigenous peoples, for instance, (1) linguistic, the need to include the spoken language of the indigenous people; (2) time-space, to reach the communities, usually far from the cities and universities; (3) extra-verbal, to adapt to new environmental conditions, social routines, rites, and rituals; (4) suspicion, the indigenous do not necessarily trust science as contributing to crucial issues that concerns the contemporary world;

and (5) implication, the indigenous usually need to check the level of implication of the teachers and students with coloniality, its threatening impacts to their communities and environment.

A barrier is an area that is difficult to overcome and may need particular interposed actions for the passage; once the barrier crossed, however, the action can proceed more or less as before (cf. Boesch, 1991). Overcoming some barriers without consequences for the psychological knowledge is not sufficient for learning indigenous psychology. Possible dogmatic attitude of some learning and teaching practices prevent the development of their criticism to rigid theoretical-methodological boxes, avoiding the dialogue with other conceptions and procedures about topics of knowledge approached in indigenous psychology (i.e., indigenous, shamanic understandings), disqualifying them as inferior or unnecessary to science. The eclectic attitude could also prevent some students from the contact with the different, by disqualifying the difference itself, as if the understanding of the other could be easily translated into preshaped scientific knowledge, values, and beliefs. For a discussion about the eclectic and dogmatic attitudes in psychology, see Vygotski (1991) and Figueiredo (2007). Rather, indigenous psychology is a frontier, in Boesch's (1991) sense, that is, it marks the separation between two areas of behavior, which requires an area-specific adaptation in the form, and direction of action taken by the individual. It demands theoretical and methodological innovations emerging from specific dialogues with concrete indigenous communities, traditions, and predicate.

Core Contents and Topics of Indigenous Psychology

The core contents and topics of indigenous psychology involves three main set of contents: (1) to understand, from the history and philosophy of psychology, the predicate of psychological theories and systems in its articulation with specific sociocultural contexts, through ontological reflection; (2) to understand possibilities and limits of dialogues between distinct traditions of knowledge construction, approaching socio-historical distances between psychological communities and indigenous communities, through indigenous and ethnographic approaches focusing concrete communities; and (3) to understand that the theoretical and document-based work about indigenous issues is distinct from the concrete work with indigenous peoples, demanding the development of expertise in social dialogue, availability to participate in indigenous communities' life, and support their struggles.

Concerning the first set of contents, the student of indigenous psychology needs to understand that science, arts, and other spheres of human symbolic action (cf. Boesch, 1991) are specific modes of meaning construction, emerged from personal activity in a socially shared reality (cf. Simão, 2004, 2005, 2010, 2015, Guimarães, 2020a). Modern thinking is based on belief in the progress of reason and the criticism of the limits of methodical experience of the world. Its roots go back to long-term history of secularization of Christianity, after the silencing of the pagan

gods (cf. Gadamer, 2010a). Nevertheless, the myth, referring to what is said (fable), the testimony accepted, but not questioned, remains at the base of human experiences, for which the reflective experience is episodic and circumscribed to social interests and needs:

> The idea of an absolute reason is an illusion. The reason is only as a real historical reason. It is difficult for our thinking to recognize this. So great is the dominance exercised by ancient metaphysics over the self-understanding of human existence that it is known to be historical and finite. (Gadamer, 2010a, p. 62)

Reasoning is, therefore, a possibility to answer the needs emerged from an experience or interpretation of a belief, the elaboration of a demonstrative speech, able to gather and enumerate the objects referred in the speech (cf. Gadamer, 1981/2010b). Lived experiences reported and reflected are social constructions, as the objects produced in the socio-environment we live in. Foucault (1980/2017) presents a genealogy of the medical clinics showing how the discourse that makes the human beings objects of scientific studies is similar to the discourse that allowed the emergence of psychology. While medicine is born as a science of the individual from the reflection about the death in the medical thinking, psychology is born from deranging experiences of the unreason.

Nevertheless, life and death, reason and madness, are reflected through distinct predicate in different traditions, guiding other procedures for knowledge construction. While science constructs a language able to gather and enumerate the bodies according to simple and objective regularities, for the Amerindians, for instance, to know something is to configure it as a subject (cf. Viveiros de Castro, 2006).

The aim of gathering and enumerating psychological processes led psychologists to create concepts and categories that ranked and downgraded indigenous peoples around the world. These peoples were viewed as belonging to a less developed mental stage, because of their supposed more primitive living condition, which deprived them of the necessary transitions in order to overcome the "series of intermediate steps to the more developed and higher civilizations" (Wundt, 1916, p. 4). Representations of native inhabitants from diverse parts of the world pervaded the European intellectual circles and gave support to the racist scientific theories on the nineteenth century. Philosophers, artists, and scientists built their knowledge and took it as true, convinced that their hierarchy of human societies and cultures was justified (Jahoda, 1999). This knowledge was founded on ancient preconceptions and prejudices, which taint to this day the European tradition's approach to foreigners. Their vestiges are as stones embedded in the towers of academic and common sense knowledge. Valsiner (2000) discussed the issue of the European ethnocentrism in different theories in psychology throughout the twentieth century, especially until World War II. The European ethnocentrism of the nineteenth century was marked by the fascination that took over the Europeans in relation to the ways of life of "natural people" (e.g., indigenous people), in contrast to their own ways of life, which they affirmed to be the ways of "the person who has culture" (Valsiner, 2000, p. 284). The former were seen as less developed than the later. Valsiner (2000)

points out that the nineteenth-century European psychologies clearly projected this distinction in their views of the considered as primitive man. Wundt and other psychologists in the twentieth century incorporated the consensual view that the distinction between nature and culture applied to the European distinction "us – them" (Valsiner, 2000; p. 284).

Quijano (1993, 2005), Mignolo (2017), and other Latin American sociologists discuss on how the intended universality of the scientific thinking of modern societies ends up as an irrational superimposition of the ontological perspective from a specific ethnic tradition over other traditions. The violence of this superimposition distorts and blocks the multiplicity of perceptions and imaginations grounding indigenous frameworks of knowledge construction, leading the indigenous to vanish their own memories and predication, when assuming the European predication as the only valid and true.

The study of Todorov (2011) about the European invasion of the continent now called the Americas argues that to know the history of colonization is relevant because it offers us an instructive example. It allows us to reflect on ourselves, the similarities as the differences between our present attitudes and those of the invaders, since "we resemble and we differ from them; [. . .] we will never be sure that, by not behaving like them, we are precisely not imitating them, adapting to new circumstances" (pp. 214–215). Todorov (2011) acknowledges the invasion of the Americas and the knowledge of the Amerindians as "the most astonishing encounter in our history" (p. 8), due to the feeling of radical strangeness it produced. The invasion of the Americas founded the identity of modern societies, transformed the existential, political, and epistemological bases of the contemporary society where psychology is included as a science and profession.

All these philosophical and historical reflections are, then, instances of relevant content preparing the students in indigenous psychology to the second set of contents, where possibilities and limits for the dialogue between psychology and indigenous peoples will be assessed. Here is relevant to get in contact with the diversity of indigenous peoples, through the main ethnographic studies about them, in parallel with the indigenous documented discourses and the published work of indigenous psychologists. From the multiplicity of indigenous psychologies, the student can deepen the understanding of specific local realities and the impact of colonization and coloniality on selected peoples in focus. Contributions to these studies come from a broad approach on diverse anthropological and interdisciplinary studies discussing the notion ontological turn. They are relevant to prepare the students to recognize approximations and distances between indigenous traditions and psychological traditions as part of the challenges for dialogues proposed in the field of indigenous psychology.

Another content in the formation of an indigenous psychologist involves the awareness that working with indigenous issues is different from working with indigenous persons (cf. Lima, Martim, & Guimarães, 2019). Here, the main readings are about methodological issues concerning the construction of dialogical grounds for co-authoring teaching and learning projects between the academic community of the psychologist and the indigenous communities. Peu, Mulaudzi, Rikhotso,

Ngunyulu, and Rasweswe (2020), for instance, discuss how academic health practitioners have to adapt their protocols to the needs of indigenous settings in Africa. Groot, King, Nikora, Beckford, and Hodgetts (2020) discuss that "people take shape through their interactions with others that are in turn molded by the histories and traditions of the groups with whom they belong" (p. 151), reflecting on a ritual of encounter indigenous to *Aotearoa* New Zealand. Guimarães (2020b) reflects on a series of meetings with people from the indigenous communities in *Pindorama* Brazil, in order to identify psycho-social vulnerabilities faced by them, aiming at collaboratively elaborating possible strategies to overcome some persistent threatening impacts of the colonial processes. From these works, the participation in the rites and rituals of the communities is relevant to researching, teaching, and learning indigenous psychology, addressing misconceptions that can emerge when the translation between psychological terms and practices dos not involve the necessary semantic rectifications in the daily life sharing. Semantic rectifications are about the transformation of meanings, from a tradition to another, due to the encounter between people with distinct predication about the topics approached in the dialogue (cf. Achatz & Guimarães, 2018). Important to this topic are methodological reflections on observant participation (cf. Bastien, 2007), controlled equivocation (Viveiros de Castro, 2004), and dialogism (Guimarães, 2020a).

Teaching, Learning, and Assessment in Indigenous Psychology

Approaches and Strategies

The approaches and strategies for teaching, learning, and assessment in indigenous psychology involve two main dimensions, (1) reading and discussion of pertinent bibliography concerning the core contents and topics and (2) engaging the students in co-authored works with concrete indigenous peoples and communities. The integration of both dimensions depends on supervised dialogues at the indigenous communities and at the university.

Based on these approaches and strategies, we developed a culture and extension program called Indigenous Support Network at the Institute of Psychology (*Universidade de São Paulo*, Brazil) (cf. Gonzalez & Guimarães, 2020; Lima et al., 2019; Guimarães, Lima Neto, Soares, Santos, & Carvalho, 2019; Bertholdo & Guimarães, 2018; Achatz & Guimarães, 2018; Achatz, Souza, Benedito, & Guimarães, 2016), working with distinct indigenous communities near the university, located in the forest and urban areas. The approaches and strategies adopted in this network converge with other experiences of indigenous psychology around the world (cf. Peu & cols. 2021; Groot & cols. 2020).

Indigenous Support Network is organized in distinct workgroups the students are invited to engage. For instance, one of these workgroups approaches the elaboration and implementation of psychological assistance, in different modalities, to indigenous people. Social and community particularities of indigenous peoples require transformations of theoretical-methodological and technical conceptions of

psychological interventions. To an adequate training, we maintain a regular group of studies and regular supervision of the practical work, such as psychotherapy.

Another workgroup concerns the promotion of inter-ethnic encounters. It emerged from psycho-social demands of the communities for increasing the visibility of the indigenous presence in São Paulo, addressing the reversal of prejudices from the dominant society. Our meetings are, usually, promoted at the University, interacting people from all ages about topics of indigenous interest. Aligned with the inter-ethnic meetings workgroup, we address educational, ecological and community-based tourism. We support the communities' projects focusing to welcome students and educators as well as tourists interested in knowing indigenous lifestyle and challenges they face. This workgroup is in line with the need for local development and social inclusion, with the socioeconomic insertion of the local population in activities related to the expression of indigenous culture and values through tourism. It points to indigenous identity strengthening when some communities demand it to our network.

Teaching and learning of indigenous languages and lifestyle are the focus of another workgroup. We develop, in co-authorship with indigenous teachers from the communities, educational materials and the infrastructure for the open courses they offer at the university.

All workgroups from the Indigenous Support Network are concerned with the three set of core contents of indigenous psychology discussed in the previous topic of this chapter, approaching them through collaborative works with indigenous people in the construction of concrete projects, addressing distinct objects of interest, i.e., psychotherapy, meetings, tourism, indigenous languages, etc. The collaborative work is improved with studies about the indigenous tradition of the peoples and communities engaged and with regular visits to communities to better approaching and understanding their struggles and proposals to the network. The exposure of the body of the student to ritualized contexts from different cultural patterns, in contrast to their original culture, gives rise to unease and disquieting feelings that characterize the relationship with alterity (cf. Guimarães et al., 2019). As tools for the elaboration of this mode of relation, the indigenous communities propose dialogues in which the priority is to establish an adequate attunement to the attunement of the other (cf. Rommetveit, 1992). Such attunement is a preliminary condition to discuss and forward projects that deals with challenging issues related to situations of psychosocial vulnerabilities the focused communities face (cf. Peu & cols. 2021; Groot & cols. 2020).

The diversity of themes and communities articulated in the network is reflected at regular meetings, where spokespersons from all working groups participate, communicating their challenges in the preparation and execution of ongoing projects. These are moments of assessment, when the network listens and comments, supporting affective-cognitive processes of each student learning indigenous psychology. This strategy of Indigenous Support Network resonates with traditional Indigenous restorative justice systems (cf. Hand, Hankes, & House, 2012), especially those involving the experience of one person talking at once with everyone respectfully listening. The *Japyxaka* (Guarani term for the mutual listening process

involving all members of the community, from all ages and genders) that happens every evening in the communities was, then, introduced as a regular practice at the university, for teaching, learning, and assessment in indigenous psychology. It happens at an adequate space we built at the campus, the House of Indigenous Cultures.

The House of Indigenous Cultures is a traditional *Mbya Guarani opy*, built by a group of Mbya persons in the Institute of Psychology (Universidade de São Paulo, Brazil), as the result of a collaboration between our academic service and the Jaraguá community. The *Opy'i* is a typical house for community meetings, where activities range from informal talks to ceremonies. In the later, they dance, sing, and have the *Japyxaka*, preparing the community for relevant and shared decisions. The house, at the Institute of Psychology, received the Guarani name *Xondaro kuery xondaria kuery onhembo'ea ty apy*, that is, a place for teaching, learning, and protecting indigenous knowledge, for caring persons and communities, protecting them against possible menaces (cf. Lima et al., 2019). The implantation of the house at the university changed the academic environment through distinct architectural features, inclusive of indigenous ways of communication.

Durie (2002), reflecting about the Maori academic context in *Aotearoa* New Zealand, argues that the encounters commonly witnessed on a *Marae* in modern times "point toward Maori world views as well as providing a basis for understanding distinctive ways of knowing and behaving" (p. 19). The Maori *Marae*, as the Guarani *Opy'i*, configures specific indigenous *ethos*, that is, ways of "[. . .] propitiating, configuring shaping and constituting human beings and their worlds—their dwellingplace, both subjects and their objects, social, private and "subjective" experiences of each individual" (Figueiredo, 2013, p. 48). The inclusion of traditional indigenous architecture at the universities is a sign of openness for an equitable dialogue on knowledge construction, addressing to overcome the historical barriers of indigenous access and permanence at the universities and producing a frontier (cf. Boesch, 1991) where indigenous and psychological predication exchanges.

The etymology of the word ethics goes back to the Greek notion of ethos, used to designate human ways of being and relating. Figueiredo (2013) discusses it as a mode of propitiate, configure, shape, and construct people and their worlds, including socially shared and secretive experiences. Ethos and ethics have an etymological root that link them to the notion of ethnicity (from Greek ethnikos) (cf. Partridge, 2006). Originally used to refer to the foreigners, heathen peoples, expressing an opposition between "us" and "the others," today ethnicity is a category to address people that share, among other aspects, an ethos. In this sense, ethics as a branch of philosophy concerned with the duties and effects of human actions in the world with others, addressing varied understandings of well-being that differ among peoples and communities.

Considering that indigenous psychology is in the border between persistent coloniality, strengthening indigenous paths of resistance, is relevant to understand that methodologically, it learns from the observation through participation, collaborating with indigenous resistance in concrete communities. Theoretically, it

reflects the dialogue with shamanic meanings and practices. Indigenous psychology validity is based on the ethical effectiveness of its propositions, addressing duties and effects of human actions in the world with others, a commitment with sheltering varied understandings of well-being that differ among peoples and communities.

Therefore, next to the epistemological and ontological philosophical reflections, the assessment in indigenous psychology teaching and learning involves ethical concerns. Figueiredo (2013) distinguishes two ways the term ethics can be used, as a noun or as an adjective. As a noun, ethics refers to implicit patterns or explicit codes of conduct that prescribes or forbid human actions or behavior as much as the modes of implication and obedience of someone to the socially convened rules. Some cultural fields are stricter or more rigid or flexible, accepting one or multiple interpretations of the rule. As an adjective, ethics refers to an existential dimension concerning the relations between humans, between humans and other beings, and the environment. It implies value-oriented attitudes to the others and the world, next to the necessary or efficient goals of human actions.

Nowadays, intense migratory movement of people with different ethnicity amplifies the need for understanding the conditions for dialogue and for implementing desirable modes of mutual coexistence with the other, between distinct ethos. For Coelho Junior (2008), Emmanuel Lévinas' philosophy of ethics reflects that the intersubjective relations imply dislocation, splitting or modification of subjective experience. Ethics is, then, a permanent reflection that acknowledges the precedence of other guiding and making the Self possible:

> Undoubtedly, Lévinas' great statement is that the relationship with the other is not an act of knowledge, it is not situated, therefore, at the epistemological level, but it is, above all, an ethical relationship that institutes subjectivity itself. The subjective experience is conceived as a permanent and inevitable opening to the other, in its alterity. (Coelho Junior, 2008, p. 220)

Ethical, ontological, and epistemological issues are, then, relevant dimensions for cultural psychology studies, and all sciences, since the instrumental rationality defines modern sciences, in contrast to a contemplative knowledge, supposedly neutral and unimplicated of the problems that afflict our social life. These considerations touch the interests and the thoughtless of other aspects that exceeds the reason methodically employed in the formulation of scientific knowledge (cf. Gadamer, 2010a, 2010b), demanding the reflection on the mythopoetic roots and their extra scientific truths grounding all semiotic elaborations of human experiences.

From the reflections presented above, teaching, learning, and assessment in indigenous psychology involves stages promoting dialogical process between psychology and indigenous peoples. Their progress can be assessed as the following (cf. Guimarães, 2020a, 2020b): The first stage implies the follow-up of the activities that are ongoing in the community, attentively listening and actively collaborating with it. This way of participation allows the construction of the pair expectancy-confidence. The second stage implies the construction of collaborative projects when the topics of dialogue are selected and start to be further detailed and sophisticated.

Finally, the development of the agreed projects, in which each interlocutor contributes from their own asymmetric position. The interethnic relationship is converted into co-authorship, which implies dedifferentiation and differentiation actions addressing indigenous and psychological types of knowledge.

Challenges and Lessons Learned

From our experience in learning and teaching indigenous psychology, in the context of the Amerindian Support Network, we implemented a culture and extension service hitherto nonexistent at the Institute of Psychology (Universidade de São Paulo, Brazil). This service feeds our theoretical and methodological reflections, listening to the other and transforming preconceptions about the other. We learned how distinct social and personal realities are constructed, grounded in the rites and myths, guiding perceptions, imaginations, and human actions within each tradition. Nevertheless, deal with a border of unknown, a territory of ignorance, between the paths followed by the distinct traditions in dialogue, constraining human actions. Psychologists are largely unaware about meaningful dimensions of the sociocultural multiplicity of constructed realities.

Through the regularity of meetings in which the listening and the participation in the community activities are fundamental, the construction of trust, through the expectancy of the presence and collaboration of the participant in the inter-ethnic dialogue can be achieved. Within each socially constructed reality, there are objects referred in the language from a specific culture or from a specific cultural field that are nonexistent in the other sociocultural field. For instance, the House of Indigenous Cultures we have built at USP is referred in Guarani language as a *Opy'i*, a sort of house that we found equivalence in the university's culture of Maori indigenous people in *Aotearoa* New Zealand. Nevertheless, there is not a translation to *Marae* or *Opy'i* in English terms and a literal translation is not possible. They are terms and objects that exists in a cultural field but that are nonexistent in the other cultural field.

Similarly, other terms are untranslatable. For instance, from Guarani to English, there is no literal translation notion of *Teko Porã*, important for studies on indigenous psychology in Brazil: *Teko Porã* is being translated to English as well-live. On one hand, it could be confused with things the capitalist propaganda understands as a good life (cf. Guimarães, 2020b; Sousa, Gonzalez, & Guimarães, 2020). On the other hand, indigenous myths and rites, in their variation, guide indigenous reflection addressing the *Teko Porã*. It implies the construction of people attentive to the interdependent network involving our social life, including human beings, animals, vegetables, mineral beings, and aquatic, terrestrial, aerial, visible and invisible beings, under some circumstances. Besides, the word psychology is a term that exists in English, from the cultural tradition of modern Eurocentric societies; however, it has no referent or equivalent, in Guarani language. Therefore, translation issues are basic to indigenous psychology approaches, considering the diversity of indigenous languages used to describe rites, to narrate myths, to construct, and to understand the environment.

Indigenous psychology understands communication as creative approximations. When the translations are sought, many times, similar words are used to address distinct objects, for instance, the notion of *land*. Although it is usually conceived by the market logic from part of Brazilian society that makes the property speculation, interested in seizing the indigenous lands or interested, somehow, treat the land as commodity, for the indigenous peoples, the use of the word land has distinct meanings. It refers to the experience we have in relation to something that cannot be bought or sold; it is a common space for all beings, where all beings would inhabit, and does not have an owner. This is the case when the use of the same word ends up referring very distinct objects, considering indigenous and non-indigenous backgrounds.

There are words without translation between sociocultural traditions; on the other hand, the same words used by people from different cultural fields, although they use the same word, are referring to very distinct objects. Therefore, we observe that translation produce mistakes (cf. Viveiros de Castro, 2004; Achatz & Guimarães, 2018), because the terms of the other address distinct objects and subjects to each other socially constructed reality. Although communication produce mistakes, some senses and meanings about the experiences can be shared. Some shares are produced or constructed through the participation with the other in regular activities. It has a consequence for methodological propositions, when we are interested in knowledge construction, because to know depends on a participation in the social environment.

From the participation in indigenous life and struggles, however, some topics of personal interest to explore in more detail emerge, addressing the construction of joint projects. At this stage, the self and the other achieve a common task in the interethnic dialogical process, with the definition of a shared horizon for the future of the interethnic relation. The participation allows embodied awareness, guiding perceptions and imaginations in the engagement with the other (cf. Guimarães, 2020b; Guimarães et al., 2019). Such engagement is essential for knowledge construction. Then, indigenous psychology learning and teaching propitiate a series of meetings with the other, encounters with the diversity different from the colonialist violence in persistent coloniality that threatens peoples and communities. We promote them as encounters that, in fact, propitiate engagement, exchanges, knowledge construction; and not domination or elimination of the difference.

The process of domination and elimination of the difference, transforming the other in object for the control of a specific social group, is recurrently happening in the history of our societies. The meetings with alterity have been disastrous encounters, from the colonization, with the invasion of the indigenous lands, the transformation of the lands in commodity, and the transformation of the people in commodity makers. Modern sciences contributed with objectivation of the world and the objectivation of the people. However, the indigenous paths address another direction, the valuation of the other as subject, and the possibility of reciprocity in the exchanges.

The continuity of the interethnic dialogue demands the recognition of the asymmetric and nonhierarchical positions in the dialogue, including the dynamic process of dedifferentiation-differentiation. Then, the psychologist needs to be able to

sustain the availability to the community's active elaboration of their cultural reflexivity and ethnic self-affirmation through the continuous increment of pertinent changes in the path of interaction. The verbal content of the interaction is not the only aspect to be observed in the construction of the interethnic trust; the rhythmical attunement is a relevant dimension to grasp the quality of the dialogical exchange. When the psychologists occupy a protagonist role in the relation, seeking for coherence from the people in relation to the psychologist's expectancies uttered solely in verbally agreed contracts they usually enter in a process of silencing the other. The same happens when the psychologists are not able to persist in offering his/her availability, uncritically giving up the previously paths agreed in the dialogical process or passively waiting for his/her inclusion in the otherness' protagonist path.

Indigenous psychologies suppose that the encounter with the other will be always harmonic. More research is needed to understand the process for the construction of reciprocity, diplomacy, and exchanges between the diversity of indigenous and the psychological generality, which could be valuable for both sides, although, considering all the challenges the encounter with the different could bring. The presentation of alterity, dimensions of oneself, of others, and of things that cannot be assimilated, produces disquieting feelings (cf. Simão, 2015, 2016) that demand a semiotic mediation in order not to threaten the fragile affective self-organization of the psychologist. It would be great if people became used to facing diversity from early childhood, then they might not be so frightened in adult life and/or feel the need to better protect themselves subjectively when facing disruptive experiences. Feeling protected is, then, a condition to cast oneself in the flow of the experience with others, to house their performances/utterances and better elaborate the experience during and after living it.

Teaching, Learning, and Assessment Resources

Complimentary information can be found in:

- Portal of Indigenous Support Network hosted by the Institute of Psychology, Universidade de São Paulo, Brazil: https://redeindigena.ip.usp.br/
- Portal of the Ngā Pae o te Māramatanga (NPM) is New Zealand's Māori Centre of Research Excellence (CoRE) funded by the Tertiary Education Commission (TEC) and hosted by The University of Auckland. http://www.maramatanga.co.nz/
- Page of Indigenous Psychology Task Force From Division 52, Society for Humanistic Psychology, American Psychological Association: https://www.apadivisions.org/division32/leadership/task-forces/indigenous
- Page of UNESCO policy on engaging with indigenous peoples: https://en.unesco.org/indigenous-peoples/policy
- Portal of the International Work Group for Indigenous Affairs: https://iwgia.org/
- Portal of the Brazilian Articulation of Indigenous Peoples: https://apiboficial.org/

Cross-References

- ▶ Community Psychology and Psychological Distress
- ▶ Developmental Psychology
- ▶ Epistemology of Psychology
- ▶ Qualitative Methodology
- ▶ The Methodology Cycle as the Basis for Knowledge

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References

Achatz, R. W., & Guimarães, D. S. (2018). An invitation to travel in an interethnic arena: Listening carefully to Amerindian Leaders' speeches. *Integrative Psychological and Behavioral Science, 52*(4), 595–613.

Achatz, R. W., Sousa, F. R., Benedito, M. A., & Guimarães, D. S. (2016). Considerações sobre o trabalho com comunidades indígenas a partir do serviço "Rede de Atenção à Pessoa Indígena". In: CRPSP (Org.), *Povos indígenas e psicologia: a procura do bem viver* (pp. 189–198). São Paulo, Brasil: CRPSP.

Barros, M. L., & Bairrão, J. F. M. H. (2010). Etnopsicanálise: embasamento crítico sobre teoria e prática terapêutica. *Revista da SPAGESP – Sociedade de Psicoterapias Analíticas Grupais do Estado de São Paulo, 11*(1), 45–54.

Bastien, S. (2007). Observation participante ou participation observante? Usages et justifications de la notion de participation observante en sciences sociales. *Recherches Qualitatives, 27*(1), 127140.

Berger, P. B., & Luckmann, T. (1991). *The social construction of reality: A treatise in the sociology of knowledge*. London, England: Penguin books. (Original text published in 1966).

Bertholdo, M., & Guimarães, D. S. (2018). Amerindian support network. In: S. Schliew, N. Chaudhary, & G. Marsico (Orgs.), *Cultural psychology of intervention in the globalized world* (pp. 119–134). Charlotte, NC: Information Age Publishing.

Boesch, E. E. (1991). *Symbolic action theory and cultural psychology*. Berlin, Germany: Springer.

Boesch, E. E. (2007). The Seven Flaws of cross-cultural psychology: The story of a conversion. In W. J. Lonner & S. A. Hayes (Eds.), *Discovering cultural psychology: A profile and selected readings of Ernest E. Boesch* (pp. 247–258). Charlotte, NC: Information Age Publishing. (Texto original publicado em 1996).

Borges, L. M., & Pocreau, J.-B. (2009). Reconhecer a diferença: o desafio da etnopsiquiatria. *Psicologia em Revista, 15*(1), 232–245.

Brock, A. C. (2016). The universal and the particular in psychology and the role of history in explaining both. In S. H. Klempe & R. Smith (Eds.), *Centrality of history for theory construction in psychology* (pp. 75–90). Cham, Switzerland: Springer.

Coelho Junior, N. (2008). Da fenomenologia à ética como filosofia primeira: notas sobre a noção de alteridade no pensamento de E. Lévinas. *Estudos e Pesquisas em Psicologia, 8*(2):213–223.

Descola, P. (2005). *Par-delà nature et culture*. Paris, França: Gallimard.

Durie, M. (2002). Keynote address: Is there a distinctive Māori psychology? In: *The Proceedings of the National Māori Graduates of Psychology Symposium*, University of Waikato.

Figueiredo, L. C. M. (2007). *A invenção do psicológico: quatro séculos de subjetivação 1500–1900*. São Paulo, Brasil: Escuta (Trabalho original publicado em 1992).

Figueiredo, L. C. M. (2013). *Revisitando as psicologias: da epistemologia à ética das práticas e discursos psicológicos*. Petrópolis, RJ: Vozes. (Trabalho original publicado em 1996).

Foucault, M. (2017). *O nascimento da clínica* (trad. Roberto Machado). Rio de Janeiro, Brasil: Forense universitária. (Original publicado em 1980)

Gadamer, H.-G. (2010a). Mito e Razão. In H.-G. Gadamer (Ed.), *Hermenêutica da Obra de Arte*. São Paulo, Brasil: Martins Fontes. (Texto original publicado em 1954).

Gadamer, H-G. (2010b). Mito e Logos. In H.-G. Gadamer (Ed.), *Hermenêutica da Obra de Arte* (pp. 6568). São Paulo, Brasil: Martins Fontes. (Texto original publicado em 1981).

Gonzalez, R., & Guimarães, D. S. (2020). For a knowledge with the other in psychological science. *Theory & Psychology, 30*(3), 419–424.

Groot, S., Hodgetts, D., Nikora, L. W., & Leggat-Cook, C. (2011). A Maori homeless woman. *Ethnography, 12*(3), 375–397.

Groot, S., Le Grice, J., & Nikora, L. W. (2019). Indigenous psychology in New Zealand. In W. W. Li, D. Hodgetts, & K. H. Foo (Eds.), *Asia-Pacific perspectives on intercultural psychology*. Abingdon, UK: Routledge.

Groot, S., King, P., Nikora, L. W., Beckford, K. A., & Hodgetts, D. (2020). Commentary 2: Pōwhiri: Rituals of encounter, recognition and engagement: A commentary on 'dialogical multiplication: Principles for an indigenous psychology'. In D. S. Guimarães (Ed.), *Dialogical multiplication: Principles for an indigenous psychology* (pp. 151–159). Cham, Switzerland: Springer. (2020b).

Guimarães, D. S. (2011). Amerindian anthropology and cultural psychology: Crossing boundaries and meeting otherness' worlds. *Culture & Psychology, 12*(2), 139–157.

Guimarães, D. S. (2015). Temporality as reciprocity of activities: Articulating the cyclical and the irreversible in personal symbolic transformations. In L. M. Simão, D. S. Guimarães, & J. Valsiner (Eds.), *Temporality: Culture in the flow of human experience* (pp. 331–358). Charlotte, NC: Information Age Publishing.

Guimarães, D. S. (2016). *Amerindian paths: Guiding dialogues with psychology*. Charlotte, NC: Information Age Publishing.

Guimarães, D. S. (2018). Affectivation: A cut across the semiotic hierarchy of feelings. In: C. Cornejo, G. Marsico, & J. Valsiner (Eds.), *I activate you to affect me* (Annals of cultural psychology, Vol. 3, pp. 203–223). Charlotte, NC: Information Age Publishing.

Guimarães, D. S. (2019). Towards a cultural revision of psychological concepts. *Culture & Psychology, 25*(2), 135–145.

Guimarães, D. S. (2020a). Co-authorship in interethnic dialogues: Reflections on the Amerindian support network. In M. Lopes-de-Oliveira, A. Branco, & S. Freire (Eds.), *Psychology as a dialogical science* (pp. 169–184). Cham, Switzerland: Springer.

Guimarães, D. S. (2020b). *Dialogical multiplication: Principles for an indigenous psychology*. Cham, Switzerland: Springer.

Guimarães, D. S., Lima Neto, D. M., Soares, L. M., Santos, P. D., & Carvalho, T. S. (2019). Temporalidade e corpo numa proposta de formação do psicólogo para o trabalho com povos indígenas. *Psicologia: Ciência e Profissão, 39*(special issue), 147–158.

Guimarães, D. S., & Simão, L. M. (2017). Mythological constrains to the construction of subjectified bodies. In M. Han (Org.), *The subjectified and subjectifying mind* (pp. 3–21). Charlotte, NC: Information Age Publication.

Hand, C. A., Hankes, J., & House, T. (2012). Restorative justice: The indigenous justice system. *Contemporary Justice Review, 15*(4), 449–467.

Held, B. S. (2020). Epistemic violence in psychological science: Can knowledge of, from, and for the (othered) people solve the problem? *Theory & Psychology, 30*(3), 349–370.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33*(2/3), 61–135.

Hermans, H. J. M., Kempen, H. J. G., & van Loon, R. J. P. (1992). The dialogical self: Beyond individualism and rationalism. *American Psychologist, 47*(1), 23–33.
Hwang, K.-K. (2014). Cultural system vs. Pancultural dimensions: Philosophical reflection on approaches for indigenous psychology. *Journal for the Theory of Social Behaviour, 45*(1), 2–25.
Hwang, K.-K. (2015). Cultural system vs. pan-cultural dimensions: Philosophical reflection on approaches for indigenous psychology. *Journal for the Theory of Social Behaviour, 45*(1), 2–25.
Hwang, K.-K. (2017). The rise of indigenous psychologies: In response to Jahoda's criticism. *Culture & Psychology, 23*(4), 551–565.
Hwang, K.-K., Shiah, Y.-J., & Yit, K. (2017). Editorial: Eastern philosophies and psychology: Towards psychology of self-cultivation. *Frontiers in Psychology, 8*, 1083.
Ingold, T. (2000). *The perception of the environment: Essays on livelihood, dwelling and skill*. Abingdon, Oxon/New York, NY: Routledge.
Jahoda, G. (1982). *Psychology and anthropology: A psychological perspective*. New York, NY: Academic Press Inc. (270p).
Jahoda, G. (1999). *The images of savages: Ancient roots of modern prejudice in western culture*. New York, NY: Routledge. (320p).
Kawaguchi, D., & Guimarães, D. S. (2019). Is everybody human? The relationship between humanity and animality in Western and Amerindian myth narratives. *Culture & Psychology, 25*(3), 375–396.
Kim, U. (2000). Indigenous, cultural, and cross-cultural psychology: A theoretical, conceptual, and epistemological analysis. *Asian Journal of Social Psychology, 3*(3), 265–287.
Li, W. W., Hodgetts, D., & Foo, K. H. (Eds.). (2019). *Asia-Pacific perspectives on intercultural psychology*. Abingdon, UK: Routledge.
Lima R. V., Martim J. A., Guimarães D. S. (2019). Nhembo'ea Reko Regua: Trajectories of the Mbya Guarani Struggle for a differentiated education. In P. Hviid & M. Märtsin (Eds.), *Culture in education and education in culture* (Cultural psychology of education, vol. 10). Cham, Switzerland: Springer.
Liu, J. (2014). Globalizing indigenous psychology: An East Asian form of hierarchical relationalism with worldwide implications. *Journal for the Theory of Social Behavior, 45*(1), 8294.
Marková, J. (2016). *The dialogical mind: Common sense and ethics*. Cambridge, UK: Cambridge University Press.
Martins-Borges, L., Lodetti, M. B., Jibrin, M., & Pocreau, J.-B. (2019). Inflexões epistemológicas: a Etnopsiquiatria. *Fractal: Revista de Psicologia, 31*(spe), 249–255.
Mignolo, W. D. (2017). Colonialidade: O lado mais escuro da modernidade. *Revista Brasileira de Ciências Sociais, 32*(94), e329402.
Oliveira, M. C. L., & Guimarães, D. S. (2016). [Apresentação] Dossiê: Psicologia dialógica. *Psicologia USP, 27*(2), 165–167.
Partridge, E. (2006). *Origins: A short ethymological dictionary of modern English*. London, England/New York, NY: Routledge. 4218p. (Original published in 1958).
Pedersen, M. A. (2020). Anthropological Epochés: Phenomenology and the ontological turn. *Philosophy of the Social Sciences, 50*(6), 610–646.
Peu, M., Mulaudzi, F., Rikhotso, S., Ngunyulu, R., & Rasweswe, M. (2020). Reflections on accessing indigenous research settings: Encounters with traditional health practitioners and leaders in Vhembe district, South Africa. *Culture & Psychology*, *27*(2), 227–242. https://doi.org/10.1177/1354067X20971249
Quijano, A. (1993). Colonialidad del Poder, Eurocentrismo y América Latina. In E. Lander (org.), *La Colonialidad del Saber: Eurocentrismo y Ciencias Sociales* (Perspectivas Latinoamericanas, pp. 201–246). Buenos Aires, Argentina: CLACSO.
Quijano, A. (2005). Don Quixote e os moinhos de vento na América Latina. Dom Quixote e os moinhos de vento na América Latina. *Estudos Avançados, 19*(55), 9–31.
Rommetveit, R. (1992). Outlines of a dialogically based socio-cognitive approach to human cognition and communication. In A. H. Wold (Ed.), *The dialogical alternative: Towards a theory of language and mind* (pp. 19–44). Oslo, Norway: Scandinavian University Press.

Shiah, Y.-J. (2016). From self to nonself: The nonself theory. *Frontiers in Psychology, 7*, 124.
Simão, L. M. (2004). Alteridade no diálogo e construção do conhecimento. In: A. M. Martínez & L. M. Simão (Orgs.), *O outro no desenvolvimento humano: diálogos para a pesquisa e a prática profissional em psicologia* (pp. 29–39). São Paulo, Brasil: Pioneira Thomson Learning.
Simão, L. M. (2005). Bildung, culture and self; A possible dialogue with Gadamer, Boesch and Valsiner? *Theory & Psychology, 15*(4), 549–574.
Simão, L. M. (2010). *Ensaios Dialógicos: compartilhamento e diferença nas relações eu outro*. São Paulo, Brasil: HUCITEC.
Simão, L. M. (2015). The contemporary perspective of semiotic cultural constructivism: For an hermeneutical reflexivity in psychology. In R. Marsico & S. Salvatore (Eds.), *Reflexivity and psychology* (pp. 65–85). Charlotte, NC: Information Age Publishing.
Simão, L. M. (2016). Culture as a moving symbolic border. *Integrative Psychological and Behavioral Science, 50*, 14–28.
Simão, L. M., Guimarães, D. S., & Valsiner, J. (Eds.). (2015). *Temporality: Culture in the flow of human experience* (pp. 331–358). Charlotte, NC: Information Age Publishing.
Sousa, F. R., Gonzalez, R., & Guimarães, D. S. (2020). Luta e resistência: dimensões para a promoção de saúde Mbya Guarani. *Psicologia USP, 31*, e180070.
Sundararajan, L. (2014). Indigenous psychology: Grounding science in culture, why and how? *Journal for the Theory of Social Behavior, 45*(1), 64–81.
Teo, T. (2011). Empirical race psychology and the hermeneutics of epistemological violence. *Human Studies, 34*(3), 237–255.
Todorov, T. (2011). *A conquista da América: A questão do outro.* São Paulo, Brasil: Martins Fontes. (Texto original publicado em 1982).
Valsiner, J. (2000). *The social mind: Construction of the idea.* Cambridge, UK: Cambridge University press. (504p).
Valsiner, J. (2007). Human development as migration: Striving toward the unknown. In L. M. Simão & J. Valsiner (Eds.), *Otherness in question: Labyrinths of the self* (pp. 349–378). Charlotte, NC: Information Age Publishing.
Valsiner, J. (2017a). *Between self and societies: Creating psychology in a new key.* Tallin, Estonia: ACTA. 420p.
Valsiner, J. (2017b). *From methodology to methods in human psychology.* Cham, Switzerland: Springer. 115p.
Valsiner, J. (2019). Cultural psychology as a theoretical project / La psicología cultural como proyecto teórico. *Estudios de Psicología, 40*(1), 10–47.
Valsiner, J. (2020). Where occidental science went wrong: Failing to see systemic unity in diversity. *Psychology and Developing Societies, 32*(1), 7–14.
Viveiros de Castro, E. B. (1998). Cosmological deixis and the Amerindian perspectivism. *The Journal of the Royal Anthropological Institute, 4*(3), 469–488.
Viveiros de Castro, E. B. (2004). Perspectival anthropology and the method of controlled equivocation. *Tipití: Journal of the Society for the Anthropology of Lowland South America, 2*(1), 1–22.
Viveiros de Castro, E. B. (2006). A floresta de cristal: Notas sobre a ontologia dos espíritos amazônicos. *Cadernos de Campos, 14*(15), 319–338.
Vygotski, L. S. (1991). El Significado Histórico de la crisis em Psicología [The historical meaning of the crisis in psychology: A methodological investigation (van der Veer, R. Translator)]. Em Vygotsky (1991) *Obras escogidas I: problemas teóricos y metodológicos de la Psicología* (pp. 257–407). Madrid, Spain: A. Machado Libros, S. A. (Original work published in 1927).
Wundt, W. (1916). *Elements of folk psychology.* London, England: George Allen and Unwin Ltd. 533p.
Yin, J. (2018). Beyond postmodernism: A non-western perspective on identity. *Journal of Multicultural Discourses, 13*(3), 193–219.

Teaching Psychopharmacology for Undergraduates

31

Jennifer M. J. McGee

Contents

Abstract

Psychopharmacology is the study of the effects of drugs on behavior, cognition, and the mind. It is the field dedicated to understanding the way human and nonhuman animals respond to both recreational drugs and drugs to treat mental illness. Undergraduate students are statistically very likely to have exposure to or experience with many psychoactive substances, but few have had a comprehensive and accurate education on the effects these drugs have on behavior and on the central nervous system. This chapter is meant to offer ideas for the development of learning objectives and best practices for teaching a psychopharmacology course to undergraduate students. The proposed learning objectives were derived, in part, from national organizations in North America dedicated to educating professionals in the field and the suggestions for assessments and

J. M. J. McGee (✉)
Department of Psychology, Oxford College of Emory University, Atlanta, GA, USA
e-mail: jmjuerg@emory.edu

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deep learning activities are based on empirical research. Though the target students for such a class are likely to be junior or seniors majoring in a related discipline (psychology, neuroscience, or other pre-health fields), these recommendations can be tailored for any level of education, regardless of student background.

Keywords

Psychopharmacology · Teaching · Undergraduate · Drug · High-impact teaching strategies · Assessment

This chapter will attempt to provide a framework for an undergraduate course in psychopharmacology, including learning outcomes derived in part from an advanced graduate curriculum and course activities and assessments derived from peer reviewed sources. I will also offer suggestions for how to organize your course. I hope you will consider these recommendations merely as a starting point and that they might lead you to engage in on-going conversations about best practices in teaching and learning psychopharmacology.

Introduction

Often referred to as "traditional medicine," humans have used plants and herbs to relieve suffering for thousands of years. Prehistoric humans may have foraged and used plants such as chamomile and yarrow for medicinal purposes (Hardy 2019), and early written accounts from China (Houghton 2007), India (Shakya 2016), Europe (Rackham et al. 1938), and Africa (Dawson 1934) outline hundreds of plants and herbs that were used to treat a variety of ailments. As early humans sought out the best ways to use the plants that grew naturally around them, they came across some that not only treated ailments of the body but also emotional or mental problems with no known bodily origin. Many ancient writers from Europe, including Greek historian Diodorus Siculus, recorded that the sap of the poppy flower's seed pod could alleviate anger and grief (Hayter 1968). In China, *Ginkgo biloba* was used to prevent memory decline (Nakanishi 2005). And in the Americas, American skullcap was used to treat anxiety and depression (Uritu et al. 2018).

These early civilizations discovered plants whose active compounds could pass through the blood-brain barrier to interfere with neural signaling. While their mechanisms of action may not have been discovered until centuries later, oral and written traditions passed down recipes, dose recommendations, warnings, and other fruitful information. In short, psychopharmacology is an ancient field of study that reflects contributions from all over the world.

Technological advances in the last 150 years have exponentially increased the speed of scientific discovery, and this acceleration eventually decreased reliance on and trust in the medicinal power of plants in favor of synthetic pharmaceuticals.

However, there is now a resurgence of interest by consumers, researchers, and physicians into plant-based medicines, and modern psychopharmacology now has the tools available to ensure safety and consistency of these compounds.

While the modern field of pharmacology developed slowly from these ancient traditions, the modern field of *psycho*pharmacology burst onto the scene in the mid-twentieth century with the synthesis of chlorpromazine (Thorazine). This drug marked a new scientific approach to mental illness not only because it showed remarkable success in the symptomatic treatment of agitation and psychosis but because of a complex confluence of factors including the United States interest in deinstitutionalization and the impact of the changing nature of psychology as a discipline. As psychology was turning from its philosophical roots, early experimental scientists developed tests of behavior based on operant and classical conditioning principles that are still widely used today by psychopharmacologists. As most drugs of abuse were unregulated during the turn of the twentieth century, many notable scientists, among them Emil Kraepelin, B.F Skinner, and John B. Watson, used opiates, cocaine, and alcohol in their experimentation on animal behavior. When the pharmaceutical revolution began in earnest in the 1950s, the field was already saturated with behavioral methodology including using animal behavior as a proxy for human behaviors and operant conditioning chambers with variable schedules of reinforcement. Due to increasingly stringent governmental controls on certain plant-based drugs, the next 70 years of drug investigation focused on psychopharmacotherapy that used synthetic pharmaceuticals, which helped to usher in the biological psychology and neuroscience revolution. So, although psychopharmacology may have stemmed from an ancient tradition of using plants for medicine and recreation, it is now marked by influences from the earliest days of experimental psychology as well as by cutting-edge techniques in neuroscience. It is commonly defined as the study of the effects of drugs on behavior, cognition, and the mind and is the field dedicated to understanding the way human and nonhuman animals respond to both recreational drugs and drugs to treat mental illness.

Today, many mental health conditions are treated with psychopharmaceuticals and the psychopharmaceutical business accounts for billions in sales. As the stigma surrounding mental illness and treatment continues to fade, this business will likely continue to grow. Currently, one in six adults in the United States is using a drug to treat a mental health condition (Moore and Mattison 2017). It is therefore imperative that we educate our students about the many topics associated with the clinical use of drugs, including the mechanism of action, effectiveness, and potential adverse events.

Though often omitted from psychopharmacology courses, we should also be telling our students about the science behind drugs that we humans have long used for relaxation, entertainment, and for communion with others and with our gods. Worldwide, peak levels of drug use are seen among those aged 18–25 (United Nations Office on Drugs and Crime, World Drug Report 2017), and in the United States, nearly 64% of adults aged 19 to 28 have tried at least one illicit drug in their lifetime and 85% have used alcohol (U.S. Department of Health and Human Services 2018). For one thing, the study of recreational and illicit drugs has, like

the study of their medicinal counterparts, provided insights into the ways in which our brain works. A foremost example appeared when Candace Pert's discovery of opiate receptors led to the identification of endorphins. So students should know about these drugs – how they work, their impact, how to use them responsibly, and what we can learn by studying them.

The central psychopharmacology research paradigm has always consisted of the observation of behavior before and after drug administration, but modern techniques have allowed more and more refined methods of analysis. We now regularly employ methods that not only allow us to observe behavior in living and conscious human and nonhuman animals, but also to conduct real-time imaging of the brain, brain tissue manipulations including site-specific intracerebral injections and deep brain stimulation of targeted neurons, and numerous genetic manipulations including optogenetics and gene targeting (including CRISPR). Like many other subfields related to neuroscience, psychopharmacology is trending toward a more molecular perspective. Increasingly, scientists are trying to parse the effects of various receptors, receptor complexes, and small-scale neural circuits in drug experiences.

As we learn more about how the brain interacts with the body and how the introduction of drugs can shape the effects of the brain-body connection, we begin to see specialized psychopharmacological subfields, such as those defined by age (childhood, adolescence, geriatric) and by reason for drug use (medicinal, recreational). We are only just beginning to explore important variables such as the role of polydrug use in recreational drugs and prescribed medication, how sex hormones interfere with drug experiences, and how the user's expectation of the drug experience may alter a drug's effects. Other emerging avenues of exploration focus on pharmacogenomics, historically under-researched drugs such as ayahuasca, and new drugs such as synthetic marijuana.

In short, psychopharmacology has come a long way from its roots as a plant-centric way to alleviate acute suffering of the body and mind, but we still have a long way to go to fully understand the way in which drugs interact with the brain and nervous system. Progress has been impeded, though, by laws and regulations applying both to the pharmaceutical industry and to the black market for drugs deemed illicit in various countries. The impact of these laws and regulations on the cost of developing and producing new therapeutic drugs has stifled some innovation for the rarer disorders, and the drug scheduling system of the United States and World Health Organization has substantially decreased research on the effects (including the pharmacokinetics/pharmacodynamics) of even well-known and commonly used drugs like marijuana.

Purposes and Rationale of the Curriculum in Psychopharmacology

Progress has been made in clearly articulating and stating learning objectives for psychopharmacology courses in graduate programs, particularly in nursing, but there remains a distinct need to modify them for undergraduate education. Indeed, at the

undergraduate level, there are currently no widely accepted core teaching and learning objectives specific to the psychopharmacology curriculum. Here is a suggested core set of learning objectives (LO) that is derived in part from standards at other levels of education in North America, including the Faculty for Undergraduate Neuroscience Blueprints for Undergraduate Education (LO #1); the National Institute on Drug Abuse (NIDA) Strategic Plan (LO # 2); the American Psychiatric Nurses Association Specific Core Nursing Content as well as the Association of American Medical Colleges (AAMC) and the Howard Hughes Medical Institute (HHMI) Scientific Foundations for Future Physicians (LO #3); and the American Psychological Association (APA) Guidelines for the Undergraduate Psychology Major (LO # 4).

Learning Objectives in an Undergraduate Psychopharmacology Course

Students completing an undergraduate course in psychopharmacology should:

1. *Know* the facts, theories, principles, processes, and general concepts within the field of psychopharmacology. These should include:
   (a) Basic knowledge of neural anatomy, electrophysiology, and neurotransmission and how these inform the underlying assumptions of neuroscience.
   (b) An understanding of the historical and contemporary research methods in psychopharmacology.
   (c) The ability to explain the processes of pharmacokinetics and pharmacodynamics for each major drug class.
   (d) The ability to understand, compare, and evaluate current theories of addiction.
   (e) Be able to articulate knowledge of the neurobiological mechanism for various psychotropic medications.
2. *Understand* some of the biological, environmental, behavioral, and social causes and consequences of drug use and addiction across the lifespan.
3. *Apply* the principles of pharmacology to *evaluate* options for safe, rational, and optimally beneficial psychotropic drug therapy and medication-assisted treatment for drug dependency.
4. *Recognize* the systemic influences of sociocultural, theoretical, and personal biases on the research enterprise and *evaluate* the effectiveness with which researchers address those influences in psychological research.

Core Contents and Topics of Psychopharmacology

The field of psychopharmacology combines methods of psychology, pharmacology, and, increasingly, neuroscience. Students therefore should be exposed to the various ways of knowing that arise from each discipline and be encouraged to ask

meaningful questions that combine these perspectives. But the impact of psychopharmacology transcends those disciplinary frameworks and influences our social and political lives in many ways. As a result, it is a challenge to cover all necessary information in a single introductory course. Recognizing that most universities and colleges offer only a single, elective, course on psychopharmacology, what follows is an attempt to cover the most important content while also allowing room for students to explore the various ways in which drugs have affected and continue to affect the culture in which they live.

Considerations in Developing a Three-Unit Psychopharmacology Curriculum

By way of introduction, the first unit should center around the history, nomenclature, and research paradigms central to psychopharmacology. The second unit should take a more in-depth look at the various drugs and drug classes. The third unit should be reserved for learning broadly about drug use, misuse, addiction, and drug-related public policy.

Unit 1: History, nomenclature, and research paradigms. The goals for this unit come from the above Learning Objectives 1a, 1b, 1c, and 4. Exactly what is covered in this unit will depend on the level of your students' preparation. Ideally, they will have already taken an Introduction to Psychobiology course and therefore have a working knowledge of basic brain anatomy, neural structure and communication, and the biological basis of learning and memory. Alternatively, there is a strong argument in favor of designing the course so that any student can enroll, regardless of disciplinary preparation. This would allow students from diverse disciplines to offer their perspectives to a topic that is likely to have importance in their nonacademic lives. Either way, it is advisable to begin the semester with a review of the structure and function of the nervous system, as described here:

1. History of the Field of Psychopharmacology
   (a) Briefly describe the state of the field prior to the nineteenth century. Specific drug histories will be included in Unit 2, but a discussion of traditional medicines and serendipity in medical development should be included in this unit.
   (b) Describe the impact that the development of chlorpromazine had on the field.
   (c) Particular attention should be paid to the role of behaviorism in the early days of psychopharmacology. Not only was behaviorism the most popular perspective in psychology when chlorpromazine was invented, but its techniques are still widely used today.
   (d) Describe common experimental paradigms. US Department of Health and Human Services.
   (e) Preferably leave time to consider the future of psychopharmacology. As noted already, psychopharmacology is becoming much more genetically and

molecularly focused and our students need to be prepared to enter the field as it is now and as it is evolving while still being equipped with the lessons of the past to guide them.

2. Structure and Function of the Central Nervous System
   (a) Neurons: Types, structure, electrical transmission, and chemical signaling
      (i) Five steps of neurotransmission (neurotransmitter synthesis, storage, release, activation, termination of the signal)
   (b) Glia: Types, structure, role in neural function
      (i) Blood-brain barrier
   (c) Brain: Gross anatomy and microanatomy of relevant structures (i.e., nucleus accumbens, ventral pallidum, ventral tegmental area, and limbic regions of prefrontal cortex)
   (d) Related theories of CNS functioning
      (i) Hebbian learning
      (ii) Dale's Principle
3. Principles of Psychopharmacology
   (a) Pharmacokinetics, pharmacodynamics, and pharmacogenetics. While this course is not intended to be a pure pharmacology course, the ability to converse in the field is dependent on understanding these concepts.
      (i) Particular attention should be paid to routes of administration, as this concept is important for discussions about drug addiction as well as drug efficacy in medicine.
      (ii) Tolerance and sensitization
   (b) Receptor theory

Unit 2: In-depth look at various drugs and drug classes. The goals for this unit come from Learning Objectives 1c, 1e, 3, and 4. There is no single "right" way to organize this unit. If you use a textbook, they often make a distinction between familiar drugs (e.g., caffeine) and restricted drugs (e.g., psychedelics). Others distinguish between drugs of abuse (e.g., opioids) and psychotherapeutic drugs (e.g., antidepressants). Still others make no distinction and simply address each drug sequentially. As you make your own organizing decisions, you might find it useful to consider the following list of drugs that are both commonly used and commonly found in introductory psychopharmacology textbooks and other readings:

1. Opioids
2. Cocaine, amphetamines, and other psychostimulants
3. Cannabis
4. Nicotine
5. Alcohol
6. Caffeine
7. Psychedelics
8. Benzodiazepines and other anxiolytics
9. Antidepressants
10. Antipsychotics

Other drugs, or drug classes, that may be considered if there is time or interest are:

1. Inhalants
2. Performance enhancers
3. Alzheimer's treatments
4. Herbal supplements or over-the-counter drugs
5. Designer or new drugs

For each drug or drug class, it is advisable that students are exposed to the following information:

1. History: Contextualizing the role of drug use in societies across time and cultures is essential to learning objectives 3 and 4. For example, although psychopharmacology was named and proliferated as a science in the mid-twentieth century, descriptions of how psychoactive plants changed behavior have been around for centuries. Knowing the history of where these plants grew, how they were used, and by whom, as well as what was known of their action, can help inform students' understanding of modern perceptions of drug use and the laws that regulate or criminalize them.
   (a) For plant-based drugs:
      (i) In what area of the world the plant was first cultivated
      (ii) How civilizations in those regions used the plant (for medical, religious, ritualistic, or textile use, or pleasure)
      (iii) How use proliferated across borders
      (iv) How, where, when, and why these drugs became more potent
         1. Examples: coca leaves → powered cocaine → crack; marijuana → "shatter"; Opium → morphine → heroin → fentanyl
   (b) Non-plant-based drugs:
      (i) How, where, when, and why these drugs were invented
      (ii) How usage patterns changed over time
2. ADME: Absorption, distribution, metabolism, and excretion.
3. Mechanisms of action (neural disruption)
4. Behavior profile:
   (a) With evidence from human and nonhuman animals
5. Highlights (for illicit drugs):
   (a) Tips for responsible use, when possible
   (b) A timeline of drug regulation, with important dates
   (c) Discussion of evidence (or lack thereof) for using nonprescription ADHD medication as a study drug
6. Highlights (for prescription drugs):
   (a) Prescription guidelines
   (b) Discussions of specific populations (e.g., children, the elderly)
   (c) Side effects

Unit 3: Drug use, abuse, and dependence. The goals for this unit come from Learning Objectives 1d, 2, and 4. This unit is the capstone of the course. If you are using a textbook you will find that many of them begin with this material, but I suggest it is better held until after students have learned about the history,

effects, and neural mechanisms of action of each drug class. Many students enter this class with an incomplete understanding of who uses drugs, what addiction is, and why their country's drug policies have been put into place. By ending with this material, students will already have established some understanding of the history of drugs and will have had some practice with the complex vocabulary of neuroscience. Here is a suggested content outline for this unit:

1. Definitions
   (a) Deviant drug use, misuse, abuse, addiction, dependence
2. Epidemiology
   (a) Trends across time
   (b) Use among subgroups (age, race, sex, education)
   (c) Risk and protective factors
3. Nosology of substance abuse
   (a) DSM-V and ICD-10
   (b) Historical notions of substance abuse
4. Current theories of addiction (with an emphasis on how these theories complement rather than compete with each other)
   (a) Incentive-sensitization
   (b) Developmental
   (c) Genetic
   (d) Biopsychosocial Model
5. Substance abuse treatment (with an emphasis on how these treatments complement rather than compete with each other)
   (a) Pharmacotherapy
      (i) Future directions, including vaccines and deep brain stimulation
   (b) Psychotherapy
   (c) Alcoholics Anonymous and Narcotics Anonymous
6. Public Policy
   (a) Current conceptions of drug sales, use, and abuse in the penal system in your country
   (b) International comparisons
   (c) Impact of the criminal justice system
      (i) If you are teaching in the United States, particular attention should be focused on the available statistics regarding the effects of the War on Drugs on minority populations.

Teaching, Learning, and Assessment in Psychopharmacology: Approaches and Strategies

In the United States, and in many other countries, the use of psychotropic medications is exceedingly common from childhood through adulthood. For example, approximately 25% of college students in the United States are using these medications and traditional-aged college students are also at heightened risk for drug and

alcohol use, misuse, and dependence. So you might expect that curriculum planners in higher education would include a comprehensive introductory course on psychopharmacology. Yet, in the United States, at least, the course is rarely required for any academic major, though it is often available as an upper-class elective housed in a psychology or neuroscience program (Norcross et al. 2016; Wiertelak et al. 2018). Even in medical schools and graduate programs in nursing, where courses on psychopharmacologic principles are often required, it is rare that substantial time is dedicated to the review of illicit drugs or other drugs of abuse, such as alcohol and nicotine.

So most undergraduate psychopharmacology courses are likely to be populated by third or fourth year students in psychology or neuroscience. Given that many students from those majors are interested in working in a health-related field (APA 2018; Ramos et al. 2016), we should not only provide the knowledge they will need in their jobs, but also promote the skills they will need to be successful in those jobs. Students entering health-care fields should be experienced in reading (and understanding) primary literature, creative and critical thinkers, and good writers and speakers who have developed a high level of empathy. Class activities and assessments should recognize, evoke, develop, and practice those skills.

Course Assessments and Activities

Several high-impact teaching practices work particularly well to increase student engagement and learning in this field and simultaneously prepare them for future careers. While a lab-based course provides an especially useful venue for these practices, but many colleges and universities either cannot provide the necessary lab space or choose to offer the course online. So although a few examples in this section are particularly valuable lab exercises, most of them can be accomplished outside a laboratory.

Whether you are teaching with or without a laboratory component, I recommend that you consider using backwards course design, an idea often attributed to Wiggins and McTighe's 2005 book, *Understanding by Design*. In this approach, you start by establishing the desired learning outcomes (LOs), determine what evidence will demonstrate that students have achieved those outcomes, and then plan learning experiences, instruction, and resources that will help students to show that they have met the learning outcomes.

The specific types of activities and assessments you choose should be based on the characteristics of your course and the context in which you will be teaching it. You need to consider class size, your access to a laboratory, any particular student-outcomes required by your college, budget constraints, instructional delivery methods (e.g., online vs. face to face), and your other academic and nonacademic obligations and workload. But regardless, try to choose assessment techniques that are varied, perceived by students as fair and attainable, and that provide opportunities to evaluate student learning both objectively and subjectively.

To help you think through course preparation for your particular situation, the following section presents ideas for assessment of the LOs described earlier, along with activities designed to prepare students for those assessments, and for developing some of the skills they will need for success in a job or in post-baccalaureate education.

Learning Objective #1: Know the facts, theories, principles, processes, and general concepts within the field of psychopharmacology. This learning objective provides the fundamental information necessary for future coursework in neuroscience, biological psychology, and pharmacology. As such, precision and accuracy of information are paramount. Assessment techniques aimed at this learning objective should value declarative learning, with the classic exemplar being multiple-choice questions (MCQ). Because this type of knowledge lays the groundwork for the other learning objectives, nearly all activities will contribute to successful mastery of this learning objective.

Forced-choice items (e.g., MCQ and true/false) are often considered to reflect only surface-level thinking, but there is value in declarative learning as it can be an important step towards a deeper understanding of the material. For example, asking students to identify "Which neurotransmitter is released by cells located in the ventral tegmental area?" may represent the base level of Blooms taxonomy, but familiarity with the midbrain dopamine system is an essential prerequisite for later teasing out the nuances of the role of dopamine in addiction. Of course, forced-choice questions do not have to be surface-level. Careful item design can tap into higher order thinking and critical thinking skills (Tractenberg et al. 2013). These are the types of questions commonly found on graduate school entrance exams and in medical. For example, to answer correctly the item from the popular online study resource KahnAcadamy.org quoted below, students must have a clear understanding of the basic facts regarding the mechanism of action for caffeine, but must also be able to engage critical thinking in applying that knowledge

"Caffeine belongs to a class of general stimulants, which all increase the metabolic activity in cells. What is the process that causes jitters from excess amounts of coffee or other highly caffeinated beverages?

(A) Caffeine inhibits an enzyme that breaks down dopamine. The increase in dopamine increases GABA production. This increase in cellular activity results in action potentials that are briefer and released in bursts.
(B) Caffeine inhibits an enzyme that breaks down cyclic adenosine monophosphate (cAMP). The increase in cAMP increases glutamate production. This increase in cellular activity results in action potentials that are briefer and released in bursts.
(C) Caffeine inhibits an enzyme that breaks down serotonin. The increase in serotonin increases glutamate production. This increase in cellular activity results in action potentials that are briefer and released in bursts
(D) Caffeine inhibits an enzyme that breaks down norepinephrine. The increase in norepinephrine increases GABA production. This increase in cellular activity results in action potentials that are briefer and released in bursts."

Frequent low-stakes quizzes with well-crafted forced-choice items like this one can be important feedback tools for students (Karpicke and Roediger 2007). They can identify areas of weakness in students' understanding of the material, signal which definitions are most important to learn, and help students to tease out nuanced differences between concepts (e.g., agonist vs. antagonist). To make these quizzes even more effective for promoting learning and retention, I suggest that you offer feedback explaining what makes the answers correct or incorrect. This type of assessment can also be completed using learning management software (LMS) such as WebCT, Blackboard, or ClassFronter, thus reducing your workload while still providing a good student learning opportunity. Some evidence suggests that timed, multiple-choice quizzes presented online may not be as effective as in-class quizzes because of students' tendency to draw on outside sources rather than on their memories.

When designing each of your quizzes, you might want to prepare a pool of items that is large enough to allow students to take more than one quiz on the same topic areas. (The items do not have to be completely different; you can just rephrase them or change certain details.) If you do this, quizzes can serve as both a learning activity designed to reinforce understanding and as an assessment strategy for LO #1. You might also consider allowing students to drop or replace their lowest quiz grade. While the evidence for this policy is limited and mixed (see MacDermott 2013), this practice recognizes the fact that assessment of student learning often includes assessing skills that are not in our learning objectives – such as ability to work under time pressure – and that our students do not always perform to their potential. Finally, do not be afraid to let students challenge the fairness of the items. Let's face it, sometimes forced-choice questions are confusing, or can be interpreted in multiple ways depending on the students' background and experiences. Allowing students to submit a challenge to a question can help them demonstrate the depth of their knowledge (suggestions for item-challenge forms are presented in a number of sources (e.g., Bernstein et al. 2020)).

Here are some suggestions for **LO#1 activities** that will help prepare your students for doing well on forced-choice questions.

The first is to ask students to write their own multiple-choice questions. There is some evidence that these *student-derived questions* provide an active learning strategy that helps students to learn (Bobby et al. 2012; Craft et al. 2017). Having these questions to edit later can also increase your pool of available quiz or test items.

Second, you can present frequent, anonymous, *un-graded forced choice items* as you deliver your lecture. Some teachers use them at the beginning and end of class (Mandla et al. 2016), but you can also use them to slow down the pace of your lecturing and allow your students to indicate their level of understanding for each topic covered. Clickers, Plickers.com, colored response cards, scratch off cards, and hand raising are all equally effective response systems that can increasing student learning (see Zayac et al. 2016).

Third, consider using some *team-based learning (TBL)* activities. TBL is a cooperative strategy in which students complete a short forced-choice quiz alone and then in a team, and then getting instant feedback about their team answers (see

Michaelsen and Sweet 2008). This strategy effectively prepares students for assessment (Swanson et al. 2019) and may increase their emotional intelligence (Clarke 2010), a trait important for future health professionals.

Finally, you might want to employ *tactile models. In one example students use* modeling clay (Herur et al. 2011), trash/found objects (McGee 2018), food (Carter and Smith 2013), or other material to reproduce biological systems, such as a brain or a part of a brain. Such activities have been shown to increase student engagement with and retention of course content (Hardiman et al. 2019). Two of examples are designed to help students learn and remember the steps of the action potential. One of them comes from the Society for Neuroscience (Conley and Shepley 1996) and another can be found at wardsci.com (MacMullan n.d.). Both activities have been associated with better student performance on activity-related multiple-choice assessments when compared to assessment scores following a standard lecture (Keen-Rhinehart et al. 2009).

LO #2: Understand some of the biological, environmental, behavioral, and social causes and consequences of drug use and addiction across the lifespan. As you move up a level in cognitive taxonomies, your assessments should begin to vary in complexity and depth. While forced choice-test questions can still be used to assess this domain, other assessment techniques and activities can enhance students' communication skills.

Consider, for example, *short answer and/or short essay exams and quizzes.* Like forced choice quizzes, these assessments are commonly used for summative assessment, but when used as frequent quizzes, can also help students to practice retrieval and enhance learning and retention (e.g., McDaniel et al. 2007; Butler and Roediger 2007; Smith and Karpicke 2014). To increase the effectiveness of this type of assessment:

1. Set clear expectations for student answers. For example, ask students to "Compare and contrast the neurobiological approach to addiction with the socio-developmental theory of addiction" instead of to "Discuss two theories of addiction."
2. Ask more questions requiring shorter answers rather than asking just a few questions that demand longer answers. This will allow you to gauge students' knowledge of the course material more broadly.
3. Consider providing students with a list of questions in advance, then select a subset of that list for the actual exam. This helps ensure that students will prepare answers to questions spanning the content you want them to learn, but reduces the amount of time you will have to spend on grading;
4. Develop a grading rubric and stick to it. Rubrics are an assessment tool for clearly communicating teacher expectations for student answers. Short answer questions are not as objective as forced choice questions, so rubrics help increase grading reliability (Jonsson and Svingby 2007).

Students' performance on your short-answer and essay assessments can be enhanced through activities that require some of the same speaking, writing, and

reading skills that employers and graduate programs typically value. For example, *w*riting does not have to be assessed in a formal way to be valuable; including writing opportunities as low-stakes activities can enhance a student's confidence when it comes time to complete open-ended exam questions, research papers, or case studies (Spix and Brasier 2018). Here are some ideas for bringing writing into your classroom:

(a) *Informal writing.* Blogs (Spix and Brasier 2018), discussion boards (Sheen et al. 2017), and journaling can help students to learn the discipline's technical vocabulary (LO #1), deal with the complexities of drug addiction (LO #2), and assess systemic issues in the field (LO #4). More formal writing such as letters to the editor or to elected officials (Kennedy 2016; McGee, 2018) or writing an opinion piece on related topics for the student newspaper (Kennedy 2016) increases engagement with the material, helps develop scientific literacy in students and their readers, and raises the students' (and the topic's) public profile.
(b) *Grant proposals*. Many of your students will go on to graduate school (APA 2018), where grant writing will be an important part of their education. What better way to enhance writing about a course topic then to assign students to write a mock grant proposal? This strategy builds upon the "inquiry as pedagogy" framework favored by many STEM disciplines. Students often find the process of writing grants to meaningful contribute to their learning of factual information (LO #1; Köver et al. 2014). Consider using peer review or oral questioning procedures to help evaluate the grant proposals.

As with writing, *speaking* is a communication skill that takes practice to master, is transferable, and does not need to be formally assessed to be valuable. Your current formal assessment techniques or rubrics may not include a speaking component, but consider allowing students the opportunity to speak about certain topics, because doing so may enhance their ability to synthesize information more effectively. Here are some ideas for creating such opportunities:

(a) *Debates* can be used to assess LO #4 but can also be used as preparation for a longer research paper or for short answer questions on a more traditional exam. Students have reported a better understanding of course material following a debate, even if they were at first nervous about the debate format (Kennedy 2009). Debates can even be used with success in an online environment (Jugdev et al. 2004). Debate topics may include drug legislation or other controversial topics such as medication-assisted treatment. For a review, with tips for implementation and assessment, see Kennedy 2007.
(b) *In-class discussions* can be used as an assessment strategy (particularly for LOs #2-#4), but if your class size is larger than 25, it may be difficult for all students to contribute. Therefore, these are better used as an ungraded "developmental playground" in which students can talk about ideas they will use in papers, short answer exams, or other assessment techniques.

(c) *Presentations* (live or recorded) require students to have a strong understanding of the material so they can apply it to related phenomena, making this an appropriate way to assess LO #2 and #4 while giving the students the opportunity to practice public speaking. Recorded presentations (or other video formats) work particularly well in online classrooms, and in large classes, presentations can be based on peer evaluations. l

(d) *Jigsaw* is a cooperative learning strategy that gives students the chance to study a particular reading or topic in small groups, thereby allowing them to master the content together before teaching it to others in the class. Each group is given a reading on one of several related concepts. For example, one group might read an article on the biological approach to addiction while the other groups read articles on the developmental, cognitive, or social approaches to addiction. After determining the main points and identifying other important information, the groups are rearranged so that each new group is comprised of one member from each of the original groups. The new groups now discuss the various topics or approaches they have mastered in order to compare and contrast them, create policy recommendations, write a grant proposal, or the like. In these small group settings, it is often easier to promote conversation among students, particularly for those who are introverted or anxious, and thus jigsaw may be a particularly inclusive teaching strategy for reinforcing oral communication.

Reading activities, too, can also be important parts of your course. Learning how to read and critique primary literature, how to distinguish fact from opinion, and how to critically examine popular press articles are all skills that are highly sought after in graduate programs and employment settings. Undergraduate engagement with primary literature has been associated with improved critical thinking (Segura-Totten and Dalman 2013) and increased application to graduate and medical schools (Kozeracki et al. 2006). As such, it is not surprising that enhancing these skills can lead to improved performance on many of the assessment techniques for each of the four learning outcomes of the psychopharmacology course. However, if you decide to use readings as the basis for classroom discussions, consider administering pre-discussion quizzes about those readings in order to ensure that students actually do the reading and also to enhance their learning of the material (Heiner et al. 2014; Hodges et al. 2015; Connor-Greene 2016). These quizzes might include questions that can only be answered correctly by those who have done the assigned reading, but you can also ask questions that are sufficiently open ended that students can answer them using material from any classroom source (textbooks, lectures, activities, or readings). Here are three ideas for incorporating reading into your psychopharmacology classroom:

Journal clubs: Designate certain days as "primary source days" and have a class discussion about 3–4 related journal articles (see Miller and Mercer 2017). In online classes, you can utilize your LMS discussion board (or breakout rooms if there is a synchronous component). In large classes, you can have students discuss the material in small groups with a peer leader.

Nonfiction reading: There are many nonfiction books on addiction that can enhance student learning about the topic. Pollack (2015) and Lynd-Balta (2006) chose the memoir genre and identified strong gains in critical thinking and student engagement.

Primary source-only pedagogy: This approach uses primary source literature as the main source of knowledge about the topic. Many instructors have successfully employed this style in their classroom (e.g., Willard and Brasier 2014).

LO #3: Apply the principles of pharmacology to evaluate options for safe, rational, and optimally beneficial psychotropic drug therapy and medication-assisted treatment for drug dependency. Learning objective #3 represents another step up in cognitive taxonomies and as teachers our assessments should again increase in complexity and depth. While the previous assessment strategies such as forced-choice and short essay questions also work well for this learning objective, evaluating medical options can best be practiced using case studies or grant proposals. Because successful completion of a case study is best prepared through related practice, for this learning objective assessments and activities can be one and the same. Although grant proposals, short essay questions, and well-crafted forced-choice questions may suffice for this learning objective, assessments in the form of case studies are optimal. They are recommended because of their utility for the target students, their ubiquitous use in further health professional training, and their tremendous value in promoting critical thinking (Tsui 2002; Popil 2011).

Case studies can be used as an assessment technique by assigning each student to prepare a formal response to the case and then providing feedback and a grade. Case studies can also be used in the classroom as a deep-learning activity to prepare students for a different type of assessment (such as a short-answer or essay exam). If you choose to use case studies as a learning activity, consider allowing students to work on the case in small groups, because there is some evidence that small-group work improves students' critical thinking skills (Jones and Carter 1998; Springer et al. 1999; Quitadamo et al. 2007; Greenwald and Quitadamo 2014). Consider also the possibility of asking your students to generate their own case studies. Doing so could provide an opportunity for a student-led publication. Here are four resources for locating and structuring case studies relevant to psychopharmacology.

(a) In one of two fictional scenarios, students answer questions related to a newly discovered neurotransmitter. In the other, they are acting as a consultant to a police department that is trying to understand the mechanisms of a novel illicit drug (Cammack 2017).
(b) Two teachers (Greenwald and Quitadamo 2014) successfully used Blumenfeld's clinical case studies (Blumenfeld 2002) to enhance student's critical thinking skills and their understanding of neuroanatomy.
(c) Two other teachers (Nagel and Nicholas 2017a) developed for class use seven mini case-studies representing each major drug class that later mapped onto increases in student understanding of the material (Nagel and Nicholas 2017b).

(d) For more case studies, see Stahl (2011) and visit http://sciencecases.lib.buffalo.edu/cs/collection/.

LO #4: Recognize the systemic influences of sociocultural, theoretical, and personal biases on the research enterprise and evaluate the effectiveness with which researchers address those influences in psychological research. This LO is at the highest level of Blooms taxonomy and requires students to express their own ideas and critiques of the status quo. One way for students to assess systemic influences that affect the research enterprise is to engage in experiential learning opportunities beyond the classroom. If it is not possible for students to engage in off-campus experiences in the service of this LO, other assessments such as open-ended exam questions, debates, in-class discussions, journaling, presentations, research papers, or even forced choice questions will have to suffice. Nevertheless, here are some examples of how teachers of psychopharmacology have combined in-class activities with experiential ones. As you can see, these activities encourage students to engage thoughtfully with the challenges and controversies of the field, while allowing you to gain information about what they are learning.

(a) Clinical Neuroscience in Practice is an upper-level course at Virginia Tech University in Virginia, USA. Professors in neuroscience there have teamed up with clinicians in neurosurgery at a local hospital to give students observational access to the surgeries and students accompany doctors on pre- and postsurgical rounds. In class, psychopharamcology students are taught basic course material through multiple active learning techniques, including case studies, in-class discussions, and partner presentations. See Simonds et al. 2018 for a full description.
(b) Mead and Kennedy (2012) describe how they sent psychopharmacology students out to share their knowledge about the brain with audiences ranging from elementary school students to residents of senior living facilities. This activity gave the students teaching experience while spreading scientific literacy and volunteering in the community.
(c) Susan Kennedy (2016, 2018) outlines the final project requirements for two courses, Health Psychology and Psychopharmacology, in which her students developed materials related to stimulant and alcohol misuse for distribution across the campus. Not only did these projects reinforce the students' knowledge of course content and contribute to their scientific literacy, their distribution efforts had a direct and beneficial impact on their fellow students.
(d) Colpitts, Seymour, and Harris Bozer (2019) described a project in which they developed and implemented a low-cost neuroscience summer academy for local high school students. The academy was taught by volunteer undergraduates in the neuroscience major. The authors provide an outline of the four-day academy experience as well as suggestions for teachers who might like to implement a similar course. Even if a summer academy may be outside the scope of your teaching, the features described in this article could be well suited to a semester-

long project with local high school or advanced elementary school partners (see Brown et al. 2019; Vollbrecht et al. 2019).

(e) Finally, there are several laboratory-based experiences that have been empirically shown to enhance student learning. If you do not have, and cannot create, a neuroscience lab, consider partnering with a local institution (McCoy et al. 2018) that does. Here are some laboratory experiments that are recommended for use in a psychopharmacology course:

Howerter, D. D., Larson, J. G., & Hill, E. M. (2018). The Behavioral Effects of Oral Psychostimulant Ingestion on a Laboratory Rat Sample: An Undergraduate Research Experience. *Journal of Undergraduate Neuroscience Education*, *17*(1), A72.

Pagán, O. R., Coudron, T., & Kaneria, T. (2009). The Flatworm Planaria as a Toxicology and Behavioral Pharmacology Animal Model in Undergraduate Research Experiences. *Journal of Undergraduate Neuroscience Education*, *7*(2), A48.

Bergstrom, B. P. (2012). Using In Vivo Voltammetry to Demonstrate Drug Action: A Student Laboratory Experience in Neurochemistry. *Journal of Undergraduate Neuroscience Education*, *10*(2), A113.

Pritchard, L. M., Van Kempen, T. A., Williams, H., & Zimmerberg, B. (2008). A Laboratory Exercise for a College-Level, Introductory Neuroscience Course Demonstrating Effects of Housing Environment on Anxiety and Psychostimulant Sensitivity. *Journal of Undergraduate Neuroscience Education*, *7*(1), A26.

Peterson, H. P., Troconis, E. L., Ordoobadi, A. J., Thibodeau-Beganny, S., & Trapani, J. G. (2018). Teaching Dose-Response Relationships Through Aminoglycoside Block of Mechanotransduction Channels in Lateral Line Hair Cells of Larval Zebrafish. *Journal of Undergraduate Neuroscience Education*, *17*(1), A40.

Vilinsky, I., Hibbard, K. L., Johnson, B. R., & Deitcher, D. L. (2018). Probing Synaptic Transmission and Behavior in Drosophila with Optogenetics: A Laboratory Exercise. *Journal of Undergraduate Neuroscience Education*, *16*(3), A289.

Mirrione, M. M., Ruth, N., Alexoff, D., Logan, J., Fowler, J., & Kernan, M. (2014). Positron Emission Tomography (PET) and Graphical Kinetic Data Analysis of the Dopamine Neurotransmitter System: An Exercise for an Undergraduate Laboratory Course. *Journal of Undergraduate Neuroscience Education*, *12*(2), A114.

A Summary of Activity and Assessment Options

There are obviously many activities that can be organized both in and out of the classroom to help deepen students' understanding of the material in psychopharmacology courses, but it essential to select those that support your learning objectives and assessment strategies. Best practices for assessing student

learning in psychopharmacology can include a mix of frequent multiple choice quizzes, short open-ended responses (orally, as in a discussion, or written), case studies, and more time-intensive student-driven work, such as research papers, presentations or posters, or experiential learning opportunities. As suggested by the backwards course design approach, it is ideal to prepare your assessments before selecting the activities and other teaching methods you will employ. This means a lot of advance planning, including writing questions for all your quizzes and exams and developing rubrics for the case studies, research papers, or other forms of assessments you will be using. For excellent rubrics related to many of these assessments, be sure to read the AAC&U Value Rubrics, found online at www.aacu.org/value/rubrics. For sample course syllabi, visit Project Syllabus at the website of the Society for the Teaching of Psychology (teachpsych.org).

Teaching, Learning, and Assessment Resources

Tips for Teaching Psychopharmacology

1. **You cannot cover everything**: Given all the thousands of substances people take for recreation and for treating diseases and conditions, it will be up to you to decide which of them to include in your course, and what is most essential for your students to learn. Some teachers focus on substances that are most likely to be used or abused by the local population. Others select the ones that allow them to explore fundamental concepts of neuroscience. But no one can cover them all, so you will be doing your students a service if you dive deeply into select content instead of offering a shallow overview of every drug that could possibly be of interest.
2. **Choose activities wisely**: There is no right way to teach. Do discussions fill you with dread? Does the thought of reading student writing samples keep you up at night? Then do not assign them! Select activities if they match your assessment plans and learning objectives but also consider your strengths as a teacher and the characteristics of your students. If most of your students are working full time, caring for family, or driving long distances to class, then service-learning activities might not work to enhance their learning (and could detract from it). If many of your students will be continuing into nursing, perhaps adding an activity on correct dosing would be advisable.
3. **Do not change too much too fast**: Have you been inspired by the literature cited in this chapter and in the rest of this book? Are you excited to redesign your course? Do not start from scratch. Incremental changes with opportunities for self-reflection, evaluation, and student input will be more manageable to handle and are more likely to lead to results that work for you and your students.
4. **Link content meaningfully**: There are many ways to organize your material, so do not feel obliged to follow a particular sequence, such as a textbook's table of contents. For example, I like to teach about cocaine and amphetamines early in the semester because it is a classically addictive drug that affects very discrete

areas of the brain in very predictable ways. I then discuss biological theories of addiction. This sequence gives students something concrete to hold on to when thinking theoretically about how addiction may be driven by biological mechanisms. Later, after discussing marijuana, I cover behavioral theories of addiction. Similarly, I introduce long-term potentiation in the marijuana unit due to marijuana's impact on glutamate receptors its common side effect of memory impairment. But you should feel free to create a sequence that makes sense to you.

5. **Establish a communication network with other teachers of psychopharmacology**: Too often the teachers of psychopharmacology are the only biological psychologists in a department, making it difficult to share successes and discuss challenges with others teaching the same course. So make contact with those others at conferences (e.g., Society of Teaching Psychology Annual Conference on Teaching; Faculty for Undergraduate Neuroscience) or online (e.g., Facebook group: Teaching Resources for Biological Psychology and Neuroscience).

Annotated List of Recommended Websites

1. World Health Organization: https://www.who.int/substance_abuse/en/
   The World Health Organization (WHO) is an agency of the United Nations that is concerned with international public health concerns, including substance use and abuse. They collect and summarize data from over 155 participating counties regarding trends in substance use, education, and treatment. This site is rich with facts, figures, policy suggestions, and publications about substance use as a global issue.
2. Learn.Genetics: https://learn.genetics.utah.edu/ & https://teach.genetics.utah.edu
   These websites at the University of Utah offer sources for teaching and learning about genetics and how genes influence behaviors. They offer modules on topics such as basic genetics, precision medicine, and addiction. Learn.genetics.utah.edu is student-centered and rich with images, videos, and other interactive tools such as virtual labs and other hands-on activities. Teach.genetics.utah.edu is teacher-focused and offers lesson plans, full lab protocols, discussion guides, worksheets with answer keys, and classroom demonstrations. The very popular Mouse Party (https://learn.genetics.utah.edu/content/addiction/mouse/) is also hosted here, but currently uses a Flash plug-in which will be obsolete in 2020. The team at the Genetic Learning Science Center at the University of Utah is working on converting it and will hopefully relaunch it soon.
3. Dana Foundation & Brain Awareness: http://www.dana.org/ & https://brainawareness.org/
   The Dana Foundation is a private philanthropic organization dedicated to advancing understanding about the brain in health and disease through research grants and public outreach. Their website contains several educational resources on

neuroscience, including lesson plans for student activities, links to webcasts and podcasts on neuroscience, and resources for science communication. The Dana Foundation also supports Brain Awareness Week, a global campaign to foster public enthusiasm and support for brain science, by providing planning tools, resources, and ideas for implementation.

4. National Institute of Drug Abuse (NIDA): http://nida.nih.gov
   NIDA is a component of the National Institutes of Health, US Department of Health and Human Services. NIDA supports much of the world's research on the health aspects of drug use and addiction. Their web page includes resources about drugs and their effects on the brain, written in accessible language. Infographics, videos, and factsheets will help students learn the basics of drug science and addiction, but they also highlight and summarize recent research in the field which can extend student learning beyond the classroom.
5. Neuroscientifically Challenged: https://www.neuroscientificallychallenged.com
   This website is run by Marc A. Dingman, Director of the Online Bachelor of Science Degree and Associate Teaching Professor of Biobehavioral Health at the Pennsylvania State University College of Health and Sciences, USA. It features blog posts on topics ranging from the role of dopamine in reward to the origins of psychotherapeutic drugs. There are also links to the very popular 2-minute neuroscience videos hosted on YouTube, that Dr. Dingman also creates and that can be very valuable to college students. Dr. Dingman just published a book, *Your Brain*, *Explained*, which was written to be a "friendly, engaging introduction to the human brain and its quirks using real-life examples and Dingman's own, hand-drawn illustrations."
6. Neuroscience for Kids: http://faculty.washington.edu/chudler/neurok.html
   A comprehensive website from the University of Washington features child-friendly activities and resources for neuroscience education. While these resources were not designed for higher education students, many of the activities can be adapted or used as-is for your college or university level course. Each drug class is represented and many college students will appreciate the accessible language in the educational modules. This would also be a great resource for any community outreach your students are interested in performing.
7. Backyard Brains: https://backyardbrains.com/experiments/
   Backyard Brains is an online store that sells kits that help students learn about the workings of the nervous system. While there is a charge for their products, they offer lesson plans, step-by-step instructions, and video tutorials free of charge.
8. Art of Neuroscience: https://aon.nin.knaw.nl/
   The Art of Neuroscience is an annual competition for inspiring and provocative imagery from neuroscience labs hosted by the Netherlands Institute for Neuroscience (NIN), an institute of the Royal Netherlands Academy of Arts and Sciences (KNAW). While not directly related to psychopharmacology, showing students the beauty and art of neuroscience can encourage them to take a different perspective. You could pair this with your lesson on types of neurons and the role of Santiago Ramón y Cajal.

Cross-References

► Neuroscience in the Psychology Curriculum

References

American Psychological Association. (2018). Degree pathways in psychology [Interactive data tool]. Retrieved from https://www.apa.org/workforce/data-tools/degrees-pathways

Bernstein, D. A., Frantz, S., & Chew, S. L. (2020). *Teaching psychology: A step by step guide* (3rd ed.). New York: Routledge.

Blumenfeld, H. (2002). *Neuroanatomy through clinical cases*. Sunderland: Sinauer Associates.

Bobby, Z., Radhika, M. R., Nandeesha, H., Balasubramanian, A., Prerna, S., Archana, N., & Thippeswamy, D. N. (2012). Formulation of multiple choice questions as a revision exercise at the end of a teaching module in biochemistry. *Biochemistry and Molecular Biology Education, 40*(3), 169–173.

Brown, A. R., Egan, M., Lynch, S., & Buffalari, D. (2019). Neuroscience and education colleagues collaborate to design and assess effective brain outreach for preschoolers. *Journal of Undergraduate Neuroscience Education: JUNE: a publication of FUN, Faculty for Undergraduate Neuroscience, 17*(2), A159–A167.

Butler, A. C., & Roediger, H. L. (2007). Testing improves long-term retention in a simulated classroom setting. *European Journal of Cognitive Psychology, 19*, 514–527. https://doi.org/10.1080/09541440701326097.

Cammack, K. M. (2017). A critical thinking activity on drug tolerance for undergraduate neuroscience courses. Journal of undergraduate neuroscience education: JUNE: a publication of FUN. *Faculty for Undergraduate Neuroscience, 15*(2), A157–A161.

Carter, K. E., & Smith, C. (2013). Synaptic snacks: Using food to teach neuroscience. Poster presented at the American Psychological Association Convention, Honolulu.

Clarke, N. (2010). Developing emotional intelligence abilities through team-based learning. *Human Resource Development Quarterly, 21*(2), 119–138.

Colpitts, K. N., Seymour, K. P., & Bozer, A. H. (2019). Development of an introductory neuroscience teaching experience for undergraduates with a low-cost neuroscience summer academy. *Journal of Undergraduate Neuroscience Education, 17*(2), A125.

Connor-Greene, P. A. (2016). Assessing and promoting student learning: Blurring the line between teaching and testing. *Teaching of Psychology, 27*(2), 84–88.

Conley, T., & Shepley, B. (1996). Action potential – Epilepsy. In M. L. Bellamy & K. Frame (Eds.), *Neuroscience laboratory and classroom activities* (pp. 191–214). Washington, DC: Society for Neuroscience.

Craft, J. A., Christensen, M., Shaw, N., & Bakon, S. (2017). Nursing students collaborating to develop multiple-choice exam revision questions: A student engagement study. *Nurse Education Today, 59*, 6–11.

Dawson, W. R. (1934). Studies in the Egyptian medical texts – III. *The Journal of Egyptian Archaeology, 20*(1), 41–46. https://doi.org/10.1177/030751333402000108.

Greenwald, R. R., & Quitadamo, I. J. (2014). A mind of their own: Using inquiry-based teaching to build critical thinking skills and intellectual engagement in an undergraduate neuroanatomy course. *Journal of Undergraduate Neuroscience Education: JUNE: A Publication of FUN, Faculty for Undergraduate Neuroscience, 12*(2), A100–A106.

Hardiman, M. M., JohnBull, R. M., Carran, D. T., & Shelton, A. (2019). The effects of arts-integrated instruction on memory for science content. *Trends in Neuroscience and Education, 14*, 25–32.

Hardy, K. (2019). Paleomedicine and the use of plant secondary compounds in the Paleolithic and Early Neolithic. *Evolutionary Anthropology, 28*, 60–71. https://doi-org.proxy.library.emory.edu/10.1002/evan.21763.

Hayter, A. (1968). *Opium and the romantic imagination*. Berkeley: Univeristy of California Press.
Herur, A., Kolagi, S., Chinagudi, S., Manjula, R., & Patil, S. (2011). Active learning by play dough modeling in the medical profession. *Advances in Physiology Education, 35*(2), 241–243.
Heiner, C. E., Banet, A. I., & Wieman, C. (2014). Preparing students for class: How to get 80% of students reading the textbook before class. *American Journal of Physics, 82*(10), 989–996.
Hodges, L., Anderson, E., Carpenter, T., Cui, L., Gierasch, T. M., Wagner, C., Leupen, S., & Nanes, K. (2015). Using reading quizzes in STEM classes–the what, why, and how. *Journal of College Science Teaching, 045*(01).
Houghton, P. (2007). Ethnopharmacology of medicinal plants: Asia and the Pacific. *British Journal of Clinical Pharmacology, 64*(2), 248. https://doi.org/10.1111/j.1365-2125.2007.02888.x.
Jones G. M., & Carter, G. (1998). Small groups and shared constructions. In J. J. Mintzes, J. H. Wandersee & J. D. Novak (Eds.), *Teaching science for understanding: A human constructivist view* (pp. 261–279). San Diego, CA: Academic Press.
Jonsson, A., & Svingby, G. (2007). The use of scoring rubrics: Reliability, validity and educational consequences. *Educational Research Review, 2*(2), 130–144.
Jugdev, K., Markowski, C., & Mengel, T. (2004). Using the debate as a teaching tool in the online classroom. *Online Cl@ssroom, 1*(10), 4–6.
Karpicke, J. D., & Roediger, H. L., III. (2007). Expanding retrieval practice promotes short-term retention, but equally spaced retrieval enhances long-term retention. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 33*(4), 704.
Keen-Rhinehart, E., Eisen, A., Eaton, D., & McCormack, K. (2009). Interactive methods for teaching action potentials, an example of teaching innovation from neuroscience postdoctoral fellows in the fellowships in research and science teaching (FIRST) program. *Journal of Undergraduate Neuroscience Education, 7*(2), A74.
Kennedy, R. (2007). In-class debates: Fertile ground for active learning and the cultivation of critical thinking and oral communication skills. *International Journal of Teaching & Learning in Higher Education, 19*(2), 183.
Kennedy, R. R. (2009). The power of in-class debates. *Active Learning in Higher Education, 10*(3), 225–236.
Kennedy, S. (2016). Lights! Camera! Action projects! Engaging psychopharmacology students in service-based action projects focusing on student alcohol abuse. *Journal of Undergraduate Neuroscience Education, 14*(2), A138.
Kennedy, S. (2018). Raising awareness about prescription and stimulant abuse in college students through on-campus community involvement projects. *Journal of Undergraduate Neuroscience Education, 17*(1), A50.
Köver, H., Wirt, S. E., Owens, M. T., & Dosmann, A. J. (2014). "Thinking like a neuroscientist": Using scaffolded grant proposals to foster scientific thinking in a freshman neuroscience course. *Journal of Undergraduate Neuroscience Education: JUNE: a publication of FUN, Faculty for Undergraduate Neuroscience, 13*(1), A29–A40.
Kozeracki, C. A., Carey, M. F., Colicelli, J., Levis-Fitzgerald, M., & Grossel, M. (2006). An intensive primary-literature–based teaching program directly benefits undergraduate science majors and facilitates their transition to doctoral programs. *CBE—Life Sciences Education, 5*(4), 340–347.
Lynd-Balta, E. (2006). Using literature and innovative assessments to ignite interest and cultivate critical thinking skills in an undergraduate neuroscience course. *CBE Life Sciences Education, 5*(2), 167–174. https://doi.org/10.1187/cbe.05-08-0108.
McGee, M. J. (2018). Using found object art to learn neuroanatomy [Unpublished Manuscript]. Department of Psychology, Emory University.
MacDermott, R. J. (2013). The impact of assessment policy on learning: Replacement exams or grade dropping. *Journal of Economic Education, 44*(4), 364–371.
MacMullan, C. (n.d.). Ward's® manipulate your own action potential neuron. Retrieved 25 Oct 2019, from https://www.wardsci.com/store/product/8865622/ward-s-manipulate-your-own-action-potential-neuron

Mandla, J., Shaik, H., Pidigundla, D., & Katepogu, V. (2016). Evaluation of lectures by pre & post-test MCQS. *Journal of Education Technology in Health Sciences, 3*(2), 65–67.

McCoy, J. G., Heather, J. Y., Niznikiewicz, M., McKenna, J. T., & Strecker, R. E. (2018). Partnerships in neuroscience research between small colleges and large institutions: A case study. *Journal of Undergraduate Neuroscience Education, 16*(2), A159.

McDaniel, M. A., Anderson, J. L., Derbish, M. H., & Morrisette, N. (2007). Testing the testing effect in the classroom. *European Journal of Cognitive Psychology, 19*, 494–513. https://doi.org/10.1080/09541440701326154.

Mead, K. S., & Kennedy, S. (2012). Service learning in neuroscience courses. *Journal of Undergraduate Neuroscience Education, 11*(1), A90.

Michaelsen, L. K., & Sweet, M. (2008). The essential elements of team-based learning. *New Directions for Teaching and Learning, 2008*(116), 7–27.

Miller, L. N., & Mercer, S. L. (2017). Drugs of abuse and addiction: An integrated approach to teaching. *Currents in Pharmacy Teaching & Learning, 9*(3), 405–414.

Moore, T. J., & Mattison, D. R. (2017). Adult utilization of psychiatric drugs and differences by sex, age, and race. *JAMA Internal Medicine, 177*(2), 274–275. https://doi.org/10.1001/jamainternmed.2016.7507.

Nagel, A., & Nicholas, A. (2017a). Drugs & the brain: Case-based instruction for an undergraduate neuropharmacology course. *Journal of Undergraduate Neuroscience Education, 15*(2), C11.

Nagel, A., & Nicholas, A. (2017b). Don't believe the gripe! Increasing course structure in a large non-majors neuroscience course. *Journal of Undergraduate Neuroscience Education, 15*(2), A128.

Nakanishi, K. (2005). Terpene trilactones from Gingko biloba: From ancient times to the 21st century. *Bioorganic & Medicinal Chemistry, 13*(17), 4987–5000. https://doi.org/10.1016/j.bmc.2005.06.014.

Norcross, J. C., Hailstorks, R., Aiken, L. S., Pfund, R. A., Stamm, K. E., & Christidis, P. (2016). Undergraduate study in psychology: Curriculum and assessment. *American Psychologist, 71*(2), 89–101. https://doi.org/10.1037/a0040095.

Pollack, A. E. (2015). Non-fiction memoirs in the neuroscience classroom: A window into the minds of those affected by addiction. *Journal of Undergraduate Neuroscience Education: JUNE: A Publication of FUN, Faculty for Undergraduate Neuroscience, 14*(1), A39–A45.

Popil, I. (2011). Promotion of critical thinking by using case studies as teaching method. *Nurse Education Today, 31*(2), 204–207.

Quitadamo, I. J., Kurtz, M. J., & Kincaid, W. B. (2007). Learning to improve: Using writing to increase critical thinking performance in general education biology. *CBE—Life Sciences Education, 6*(2), 140–154.

Rackham, H., Andrews, A., Eichholz, D., Jones, W., & Pliny. (1938). *Natural history* (Loeb classical library; 330, 352–353, 370–371, 392–394, 418–419). Cambridge, MA: Harvard University Press.

Ramos, R. L., Guercio, E., Levitan, T., O'Malley, S., & Smith, P. T. (2016). A quantitative examination of undergraduate neuroscience majors applying and matriculating to osteopathic medical school. *Journal of Undergraduate Neuroscience Education: JUNE: a publication of FUN, Faculty for Undergraduate Neuroscience, 14*(2), A87–A90.

Segura-Totten, M., & Dalman, N. E. (2013). The CREATE method does not result in greater gains in critical thinking than a more traditional method of analyzing the primary literature. *Journal of Microbiology & Biology Education, 14*(2), 166–175. https://doi.org/10.1128/jmbe.v14i2.506.

Shakya, A. K. (2016). Medicinal plants: Future source of new drugs. *International Journal of Herbal Medicine, 4*(4), 59–64.

Sheen, M., AlJassmi, M. A., & Jordan, T. R. (2017). Teaching about psychological disorders: A case for using discussion boards in the classroom. *Teaching of Psychology, 44*(1), 74–77. https://doi.org/10.1177/0098628316679971.

Simonds, G. R., Marvin, E. A., Apfel, L. S., Elias, Z., Howes, G. A., Witcher, M. R., . . . Rogers, C. M. (2018). Clinical neuroscience in practice: An experiential learning course for

undergraduates offered by neurosurgeons and neuroscientists. *Journal of Undergraduate Neuroscience Education, 16*(2), A112.

Smith, M. A., & Karpicke, J. D. (2014). Retrieval practice with short-answer, multiple-choice, and hybrid tests. *Memory, 22*(7), 784–802.

Spix, T. A., & Brasier, D. J. (2018). Using blogs as practice writing about original neuroscience papers enhances students' confidence in their critical analysis of research. *Journal of Undergraduate Neuroscience Education: JUNE: a publication of FUN, Faculty for Undergraduate Neuroscience, 16*(2), A120–A125.

Springer, L., Stanne, M. E., & Donovan, S. S. (1999). Effects of small-group learning on undergraduates in science, mathematics, engineering, and technology: A meta-analysis. *Review of Educational Research, 69*(1), 21–51.

Stahl, S. M. (2011). *Case studies: Stahl's essential psychopharmacology.* New York: Cambridge University Press.

Swanson, E., McCulley, L. V., Osman, D. J., Scammacca Lewis, N., & Solis, M. (2019). The effect of team-based learning on content knowledge: A meta-analysis. *Active Learning in Higher Education, 20*(1), 39–50.

Tractenberg, R. E., Gushta, M. M., Mulroney, S. E., & Weissinger, P. A. (2013). Multiple choice questions can be designed or revised to challenge learners' critical thinking. *Advances in Health Sciences Education, 18*(5), 945–961.

Tsui, L. (2002). Fostering critical thinking through effective pedagogy: Evidence from four institutional case studies. *The Journal of Higher Education, 73*(6), 740–763.

U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. (2018). *National Survey on Drug Use and Health 2018* (NSDUH-2018-DS0001). Retrieved from https://datafiles.samhsa.gov/

United Nations Office on Drugs and Crime, World Drug Report (2017). (ISBN: 978-92-1-148291-1, eISBN: 978-92-1-060623-3, United Nations publication, Sales No. E.17.XI.6).

Uritu, C. M., Mihai, C. T., Stanciu, G. D., Dodi, G., Alexa-Stratulat, T., Luca, A., . . . Tamba, B. I. 2018). Medicinal plants of the family Lamiaceae in pain therapy: A review. *Pain Research & Management, 2018*, 7801543. https://doi.org/10.1155/2018/7801543.

Vollbrecht, P. J., Frenette, R. S., & Gall, A. J. (2019). An effective model for engaging faculty and undergraduate students in neuroscience outreach with middle schoolers. *Journal of Undergraduate Neuroscience Education: JUNE: a publication of FUN, Faculty for Undergraduate Neuroscience, 17*(2), A130–A144.

Wiertelak, E. P., Hardwick, J., Kerchner, M., Parfitt, K., & Ramirez, J. J. (2018). The new blueprints: Undergraduate neuroscience education in the twenty-first century. *Journal of Undergraduate Neuroscience Education: JUNE: a publication of FUN, Faculty for Undergraduate Neuroscience, 16*(3), A244–A251.

Willard, A. M., & Brasier, D. J. (2014). Controversies in neuroscience: A literature-based course for first year undergraduates that improves scientific confidence while teaching concepts. *Journal of Undergraduate Neuroscience Education, 12*(2), A159.

Zayac, R. M., Ratkos, T., Frieder, J. E., & Paulk, A. (2016). A comparison of active student responding modalities in a general psychology course. *Teaching of Psychology, 43*(1), 43–47.

Part II

Psychology Learning and Teaching for All Audiences

Monica Mollo and Ruggero Andrisano Ruggieri

Contents

Abstract

The objective of this chapter is to provide skills in the analysis of the relationship between individual, social, and educational contexts. To do this, some of the theories of context in the literature are examined, which propose different interpretative models useful to understanding the relationship between context and human action. In this chapter, the concept of context is understood in terms of a complex cultural construct and represents the theoretical-conceptual background of this chapter. Following socio-constructivist theories, it is shown how the mind is influenced by context. Moreover, we provide theoretical-methodological tools that are necessary, in our opinion, to analyze the individual-mind-context relationship.

Keywords

Mind · Context · Culture · Psychology intervention · School psychology

M. Mollo (✉) · R. Andrisano Ruggieri
University of Salerno, Fisciano, Italy
e-mail: mmollo@unisa.it; rruggeri@unisa.it

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Introduction

The purpose of this chapter is to provide the theoretical and methodological foundations for the study of social and educational psychology, as applied in social and educational settings. The ability to fruitfully analyze the network of meaning and significance present in interpersonal activities, in our opinion, allows stakeholders in the fields of education and social science to be able to enact a change in those same activities in terms of development. This is made possible when we understand the role that contexts play in the lives of individuals, how they influence their worldviews, and how they help generate meaning and significance in their actions.

In recent decades, the concept of context has been defined in multiple senses and widely used by human sciences on theoretical and operational levels. The construct has been used to understand and interpret the collective dimension of activities that human beings perform within community structures or groups.

The explicit intent of this chapter is to provide skills in analyzing the relationship between the individual and social and educational contexts. For this reason, we present some context theories that are most useful for analysis.

Empirical research on the role that social interaction plays on cognitive activity, conducted within the socio-constructivist genetic approach (Grossen & Perret-Clermont, 1984; Schubauer-Leoni, Bell, Grossen, & Perret-Clermont, 1989), has led to the re- examination of the notion of context itself, abandoning the idea of context as a mere moderator or an element external to cognitive activity. Research has empirically demonstrated how context is an integral part of cognitive activity. This notion of context has allowed research to be oriented toward more specific characteristics of social interaction, referring to the organizational factors of the setting such as norms, rules, scripts, or scenarios. Research in this direction has shown how implicit and explicit systems of rules, present within each type of social context, orient the processes of interaction and communication, creating specific spaces of activity (Iannaccone & Zittoun, 2014; Perret-Clermont, 2004).

From another point of view, the concept of context, understood in terms of social and cultural place, refers first to a general cultural theory of education (Andrisano Ruggieri, Pozzi, & Ripamonti, 2014; Bruner, 1990; Cole, 1996; Mollo, 2021; Salvatore & Scotto di Carlo, 2005; Vygotsky, 1934), which is heir to a well-established tradition of thought that has marked, with varying incisiveness, humanistic studies and particularly the search for specific interpretative models of human activity. In this way, it has been shown how individuals construct knowledge of reality by attributing meaning to it. Learning and thinking are always situated in a sociocultural context and always depend on the use of cultural resources; in this sense, the context conditions positively and/or negatively affect both the activity and the relationships and the codes of meaning and significance present (Bruner, 1996; Carli & Paniccia, 2004).

From here emerges a definition of in-text context as the place of psychic interconnection between individuals (cum *text* = text put together, written together), in which the activities of individuals, the processes through which the mind generates

systems of knowledge and thought, and relationships come to be configured as inseparable from interpretive processes and the constant search for meaning within specific cultural frameworks (Bruner, 1990; Cole, 1996; Perret-Clermont, 2004; Vygotsky, 1934).

Adopting this last perspective and following a socio-constructivist approach, we intend to show in this work both how the mind is influenced by context and how the mind forms the context in connection with other minds, based on the recognition of an inter- and intra- subjective model of mental functioning. At the same time, we provide the tools necessary to analyze the individual-mind-context relationship and develop skills in this regard. In addition, the chapter examines the practical-operational implications of the proposed theoretical-methodological framework, with the example of a teacher education case.

In summary, the learning objective of this chapter is to provide theoretical-methodological tools for analyzing the relationship between the individual and context, both social and educational.

Mind and Context: What Is the Relationship?

As mentioned above, the point of this work is to show how the main processes through which the mind generates systems of knowledge, thought, and action can be analyzed from theoretical/practical perspectives that consider the contextual, psychosocial, and cultural dimensions of human activity. Although numerous empirical studies over the years have helped to break down the individualist conception of the mind and its products, even today and particularly in collective and shared representations, this conception persists, supported by the undue generalization of the biological isolation of the human body from the environment. When we find ourselves in front of a "behavior" that we consider *strange*, i.e., not conforming/conventional, the explanation that we give is usually anchored to the individual dimension and rarely to the relational/contextual one. However, the mind, from our point of view, cannot be considered as Leibniz's monad, as a sophisticated apparatus isolated from social reality and, therefore, external to it. Vygotsky (1934) already showed how cognitive processes evolve into higher processes, thanks to the cultural dimension present in the external context and interpersonal interactions. According to Vygotsky, it is through relationships with others, mediated by cultural artifacts, that we become exponents of the human race (and ourselves). Being born part of the human species is not enough to account for the greatest creation of humanity: culture.

Even Wundt, in his famous masterpiece, *Völkerpsychologie* (Wundt devoted the last 20 years of his life to deepening the study of *Völkerpsychologie* to the point of mentioning it in his will), written in ten volumes between 1900 and 1920, stressed the importance of studying the relationship between the mind and context and, in particular, the influence that the language and customs of a given culture have on thought. Wundt's (1900) psychology analyzes consciousness, understood both in terms of individual consciousness and collective consciousness. Collective

consciousness, according to Wundt, is connected to the unions between individuals and limited to certain aspects of psychic life. According to Wundt (1900), the subordinate concepts of collective consciousness, national consciousness, and others can be distinguished in the general concept of consciousness. Individual consciousness is the basis of all these further forms of consciousness. In Wundt, we find two parallel orientations: the first analyzing the individual mind, its structures, and functions, with a rigorously experimental method, and the second, interested in the mind that relates to other minds, in a historical and cultural context. According to Wundt, a further task of psychology is to explain the relationships from which the products of collective consciousness, collective will, and their properties arise.

The effort to understand the problem of the relationship between the individual mind and collective consciousness, as posed by Wundt, was taken up by George Herbert Mead, whose symbolic interactionism approach, traditionally recognized as socio-constructivist, assumes that both mind and self are constituted in social interaction. According to Mead (1934), it is through others that we become objects to ourselves; awareness of the existence of others is at the origin of awareness of ourselves. Mead theorized a constructive movement from mind to society, at the center of which is the self. In this way, he attempted to resolve the Wundtian antimony of the relationship between mind and collective consciousness, in relation to society. Mead attached considerable importance to the social act, understood as a communicative act that, according to Mead, is transformed during phylogeny, evolving from conversation to gestures to communication. Mead starts from an evolutionary perspective and takes gestures, typical of the animal species, as the key to fully understanding the construction of the mind at the level of individual development. This should be considered as part of an action completed by others; the meaning and sense are given by the response that it arouses in the person to whom the act is addressed.

For Mead, the existence of mind or intelligence is possible only in terms of gestures that are understood as meaningful symbols, because only in this way can thought take place. Thinking is an internalized or implicit conversation of the individual within the individual that takes place through such gestures, as gestures have the same meanings for all members of the society or social group. If this were not so, the individual could not internalize them or be aware of their meanings. Internalizing the external conversations of gestures that we carry on with other individuals is the essence of thought (Mead, 1934). It follows that the mind is nothing more than the internalization by the individual of the social process of communication consisting of symbols, the meaning of which is attributed during interaction.

The social act and communicative interaction are the basis of self-awareness, and from that awareness, according to Mead, emerges the self, defined as the self-aware mind. The self is divided into me and I (ego). The me is the generalized other, the internalization by the individual of the attitudes of the social group of reference. The ego, on the contrary, is the spontaneous part of the self; it is the individual who knows him/herself as an object to him/herself (Mead, 1934).

From Lewin to Bronfenbrenner: Environment and Person

Within a processual and dynamic perspective, Kurt Lewin (1935) analyzed the psychological influence of the environment on behavior, affirming that all aspects of child behavior (instinctive activity, play, emotion, language, and expression) are co-determined by the environment. Lewin (1935) conceived of the environment as both a momentary situation and a *milieu*, that is, the main characteristics of a situation considered as something permanent. Behavior depends on individual characteristics and the structure of the situation at a given time, meaning that it is generally impossible to separate what is attributable to the individual and what is attributable to the environment. The reference to a specific environment and a set of specific environments is indispensable to the concept of predisposition. According to Lewin, a predisposition or characteristic of an individual person (*Pa*) can be defined by a set of forms of behavior ($B\alpha$, $B\prime \ldots$) that different environmental situations arouse (*E1*, *E2*) at that particular time. In the presence of the same individual characteristics, variations in behavior may also occur ($B\alpha$, $B\prime \ldots$). For example, a child may appear shy in one situation, negativistic in another, and yet at ease in another (Lewin, 1935). The genetic conditional nature of Lewin's theory focuses attention on the relationship between the occurrence of certain forms of behavior and the presence of certain environmental situations.

This brings us to Lewin's field theory (Lewin et al., 1972), which can be defined as a method of analyzing the causal relationships between events, a scientific construct aimed at providing a scientific understanding of social facts. The basic assumption of the theory is that any behavior or change within a psychological field depends on the particular configuration of the field at that given moment (in the *hic et nunc*, the here and now). The field, a dynamic system defined by Lewin as the totality of facts coexisting in their interdependence, is a system of forces in which laws derive from the configuration of the overall system, the energy that the field possesses, and the direction of the forces in play. A mutation in the direction of the force results in a mutation in behavior. To understand behavior (*B*), we must consider, for each type of psychological event (actions, emotions, expressions, needs, ideals, cognitive structure, etc.), the overall situation of the moment, that is, the structure and state of the person (*P*) and the psychological environment *(E)* at a given time: $B = f\,(PE)$.

From this, the concept of "living space" emerges, which is the relationship between the person (*P*) and the psychological environment (*E*). The environment is understood in psychobiological terms (quasi-physical, quasi-social, quasi-mental structure), and therefore, every fact that has a psychobiological existence must find a place in this field, and only facts that find such a place have dynamic effects (i.e., are causes of events). In this regard, Lewin considered the relationship between environment and needs and assumed the existence of direct relationships between the momentary state of the individual and the structure of the individual's psychological environment. The psychological environment, even when it remains the same, depends on individual characteristics and the degree of development of the individual but also on the individual's momentary condition (the actual state of individual's needs at a given time). Within the range of facts existing at a given time, we find the

facts that are located in the border area (or frontier). According to Lewin (1935), the individual is, dynamically, a relatively closed system. Therefore, the intensity with which the environment affects the individual is determined by the structure and the forces that characterize a situation and also by the functional solidity of the borders between the living space and the outside world in a process of continuous interchange through perceptual processes. This area is important for understanding changes in the field and the direction in which they may occur. From here, it emerges how context is understood in terms of what is psychologically significant to the individual.

According to Lewin, when studying the fundamental dynamic relationships between the individual and the environment, it is necessary to constantly keep in mind the overall real situation in its concrete individuality. For this reason, methods of individual-environment analysis that rely exclusively on statistical methods (obtaining numerical values to, for example, characterize the position of an individual within a group) tend to return descriptive analyses with levels of abstraction that make it impossible to study the relationship or concrete position of the individual in a comprehensive and well-defined situation. Therefore, from a dynamic perspective, scientific research must be anchored in everyday life to improve and activate valid social interventions (action research).

Bronfenbrenner's (1979) ecological model has had important implications for understanding the relationship between developmental and environmental systems. Like Lewin, Bronfenbrenner argued for the importance of studying social behaviors as they occur in real-life contexts, thus orienting research in social and developmental psychology toward an ecological perspective of analyzing everyday life contexts. Bronfenbrenner's perspective considers the developing person, the person's environment, and particularly the evolving interaction between the developing person and the environment. Development is defined in terms of enduring change in the way a person perceives and treats the environment (Bronfenbrenner, 1979). The ecological environment is conceptualized as a set of structures, each within the other, like a series of Russian dolls (see Fig. 1):

Bronfenbrenner understood context in terms of the developmental environment by articulating it into levels, the innermost of which is the immediate environment that contains the developing person.

1. The microsystem or environment in which the individual lives, i.e., the family, the peer world, school, or work (or, as is often the case for research purposes, the laboratory or testing room).

The next level requires going beyond individual settings and looking at the relationships between levels. Such interconnections can be as crucial to development as the events that take place within a given setting:

2. The mesosystem encompasses the relationships between microsystems. A child's ability to learn to read in elementary school may depend on how the child is taught and on the nature of connections between school and family.

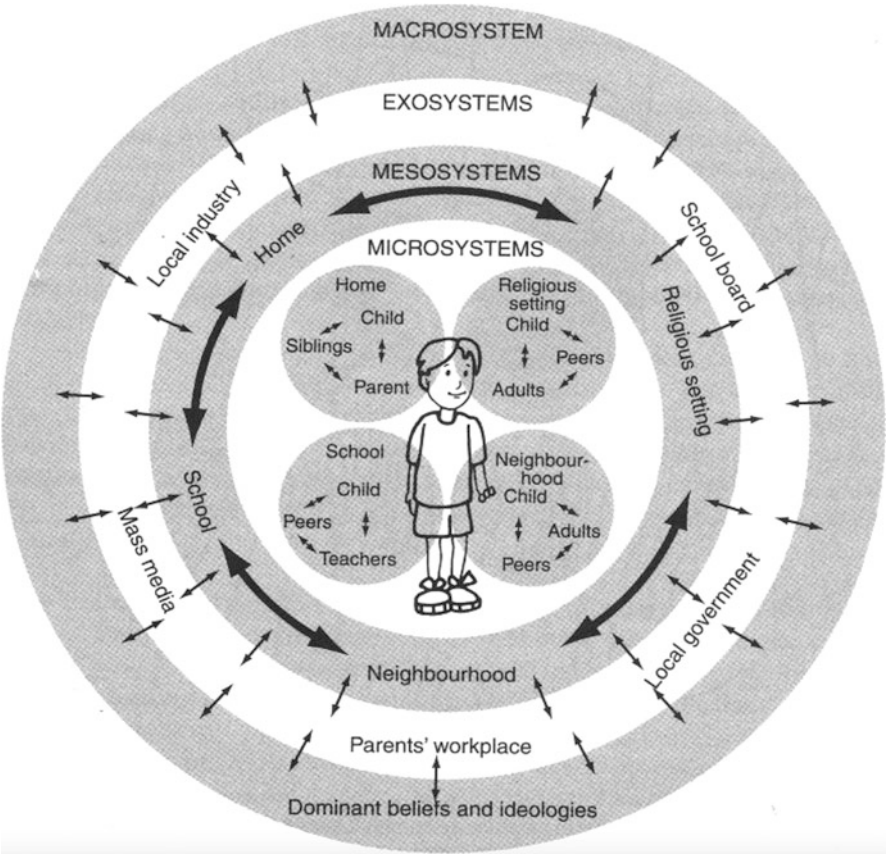

Fig. 1 The ecological environment. (Figure scanned from Penn, 2005)

The third level evokes the hypothesis that a person's development is profoundly influenced by events that occur in environments in which the person is not present and does not directly experience:

3. The exosystem. Among the most powerful influences affecting child development are the working conditions of the parents.

The last level concerns all environments and consists of the superstructural pattern of all three levels: a given culture or subculture(s) with particular reference points from a developmental point of view to belief systems, lifestyles, opportunities, nationality, ethnic groups, etc. Within any culture or subculture, settings of a given type – such as houses, streets, or offices – tend to be similar, whereas across cultures they are markedly different. Within each society or subculture, there is a pattern in the organization of each type of setting. Furthermore, an alteration of the

structure of settings in a society produces, in turn, corresponding changes in behavior and development (Bronfenbrenner, 1979):

4. The macrosystem or culture in which the individual lives. For example, according to Bronfenbrenner, a change in maternity ward practices that affects the relationship between the mother and infant may produce effects that are still detectable 5 years later. A severe economic crisis that occurs can have a positive or negative impact on the subsequent development of a child throughout life, depending on the age of the child at the time the family experienced financial constraints. An example of how a change at the macrosystem level results in a restructuring of different settings with effects on behavior and development is that of COVID-19. The arrival of the pandemic brought about a series of changes at the socio-ecological level (family, school, peer group), which resulted in a modification of the living environment and children's behavior, impacting the emotional level. Sprang and Silman (2013) found that levels of posttraumatic stress were four times higher in children who had experienced quarantine than in those who had not.

Finally, Bronfenbrenner considers time in the environmental changes caused by events or transitions across a person's lifespan. Time is present several times in the multidimensional structure of his model:

5. The macrochronological systems. For example, the increase in the number of working mothers, divorced parents, or extended families.

In analyzing various systems, it is necessary to consider the role of ecological transitions, understood as shifts in role or setting, that occur over a person's lifespan. The development of ecological transitions involves role shifts, particularly in the behavioral expectations associated with particular positions in society. This principle applies to the developing person and others in their world, as roles have the power to alter the way a person is treated and influence that person's actions, feelings, and thinking. According to Bronfenbrenner, a child is more likely to learn to talk in an environment that contains roles in which adults are required to talk to children (e.g., school) or that encourage or allow others to do so (such as when one parent does chores so that the other can read a story to the child).

Bronfenbrenner and Evans (2000) and Bronfenbrenner (2005) expanded his model to include biological influences. The bioecological model includes the role of the dimensions of continuity and change in the biopsychological characteristics of humans, both as individuals and as groups.

In analyzing the micro- and macro-dimensions of environmental systems, Bronfenbrenner is credited with emphasizing the role of the relationships between individual environments in development, since these environmental interconnections can be as decisive for development as the events that take place within a given context (again, see Fig. 1).

Context in Cultural-Historical Perspective and the Theory of Activity

That context, understood in terms of the sociocultural environment, influences the development of higher psychic functions cannot be fully understood without reference to the theories of Lev Semënovič Vygotsky and the Russian cultural-historical school. Vygotsky (1934) theorized a social nature of the mind, stating that it represents a set of social relations that become functions of personality and forms of its structure. For Vygotsky, development can be understood in the historical-cultural context from which it originates. In this context, through communication and social interactions, the child evolves and appropriates cultural tools, including language. Development is a consequence of the external learning situations to which the child is subjected. In this sense, context represents the place capable of activating the potential of the individual. One of the principles at the basis of the cultural-historical approach concerns human activity which, according to Vygotsky, is socially mediated. An example is given by the relationship between thought and language, where the latter is characterized by being both a product of historical evolution (active in communication) and a system of cultural mediation of cognitive functions. The individual, through communication, appropriates the signs and meanings produced by a given society. This mediation between thought and language (which in this case is configured as a social device of thought itself) allows the individual to act in that society in a culturally appropriate and effective way. Returning to the previously described principle, it is clear that the tools provided by the social and cultural context are at the origin of the individual's mental functioning. The appropriation of these tools does not occur in isolation but through relationships with others, which is also mediated by these devices – it is in interaction that higher mental functions originate. The schemas that the individual uses to interpret the physical and social world are the result of the social and communicative interactions to which they are subjected. From this perspective, the set of such relationships (and communications) allows individuals to act in society, adapt to it, and modify their behavior accordingly. Mental processes and categories are mediated by pre-existing devices in specific cultural contexts and historical moments. For Vygotsky (1934), cognitive skills are deeply influenced by and originate from the social and cultural context; they depend on learning and knowledge that is built by interaction with others.

For this reason, Vygotsky emphasized the importance of studying psychological processes in the practical activities of everyday social life, mediated by culture, artifacts, and the contexts within which they occur. Aleksej Nicolaevič Leont'ev agreed with Vygotsky that psychological processes are grounded in activity and that attention should be centered on action as the primary unit of analysis. Leont'ev disseminated and expanded on Vygotsky's studies on human action through the elaboration of the psychological theory of activity (Leontiev, 1977) (This theory was deepened and developed by Engeström (1987, 1991)). According to Leontiev (1977, p. 62), "the object of an activity is its motive"; this object shapes the activity itself, which is articulated in actions that generate operations within a given social context

(Manzi et al., 2021). The concept underlying the theory is that all psychological processes develop through activity, with action representing the only possible unit of analysis. As described above, however, this is always mediated by cultural tools. The analysis does not aim so much to understand the meaning behind action but, rather, aims to study goal-oriented activities.

Activity on the psychological plane is understood as a unit of life, mediated by mental reflection, by an image whose true function is to orient the subject in the objective world (Leontiev, 1977). Therefore, activity cannot be considered separately from social relations and social life; rather, it is a system that obeys the system of relations of a given society. Outside of these relations, human activity does not exist. Activities are articulated by a series of actions that, according to this theory, are undertaken consciously to achieve a purpose, through a series of operations generated by the action itself. Such operations, which represent the ways through which action is realized, are automatic and independent of the characteristics of the activity itself. The operations are produced by the action in a determined context of sociocultural activity. Taken in isolation, away from the context of activity that generated them, such actions lose their meaning (Engeström & Blackler, 2005; Leontiev, 1977; Ligorio & Pontecorvo, 2010; Nardi, 2005; Sannino, 2011; Zucchermaglio, 1996). Leontiev, in agreement with Vygotsky, showed how psychological processes can be adequately studied, on the condition that we understand their dimensions of meaning and activity.

From Bruner to Music: The Mind as a Generator of Sense and Meaning Within a Cultural Dynamic

Jerome Bruner (1990) attached considerable importance to culture as it shapes the minds of individuals. From his perspective, individual expression of culture is about creating meanings and assigning meanings within different contexts and on particular occasions. Such meaning-making involves placing encounters with the world in their appropriate social and cultural contexts. Indeed, although meanings are "in the mind," they derive their definitions from the culture in which they are created. It is this cultural location of meanings that ensures their negotiability and, ultimately, their communicability. Individuals internalize the cultural system of which they are part, consisting of symbols, beliefs, concepts, and values. This language (handed down from generation to generation) is the tool that allows the individual to know, interpret, and negotiate the meanings of reality. The development of knowledge and skills takes the form of an interactive process in which people learn from each other. This is made possible through language and the use of intersubjectivity, the human ability to understand the minds of others through language, gesture, and/or other means. From here emerges the socio-constructivist view of development and knowledge, which is attributed to an essentially social nature; development is conditioned by culture and the use of artifacts within a given context.

Bruner (1990) focused on the processes of acquisition and interpretation of the world, as he sought to understand how individuals construct their knowledge of

reality and the meanings attributed to it. The search for meaning is the way through which individuals appropriate and interpret the cultural systems to which they belong. During this continuous process of interpreting reality, the self, and others, individuals build and develop their knowledge of the world. From this process, culture emerges as an integral part of the individual. For this reason, it seems essential to understand individual psychological functioning within its social and cultural context: mind, context, and culture are difficult to distinguish (Bruner, 1986, 1990; Cole, 1996; D'Andrade, 1992; Shweder, 1990; Valsiner, 1989a; Valsiner, 1989b; Wertsch, 1991).

Bruner was not alone in moving in this direction. For example, in an attempt to integrate different psychoanalytic theories, Graham Music (2016) indicates how the mind works according to inter- and intra-subjective modalities identifiable from the beginning in the relationship between infant and caregiver. Music highlights how even before language develops, the embryo and then the newborn can communicate with the mother and/or caregiver through precise mental functions that allow decoding the meaning and significance of their interactions. These functions, called reflexive function and affective tuning, are not related to mere technical instrumentation but find their value and specificity in the cultural process in which they are activated. That is, it is the context of interaction between caregiver and infant that determines how the child develops, which determines the activation of some genes rather than others but also the very possibility of living an experience and defining it as traumatic. In this sense, Music speaks of cultural nature, highlighting how culture is a factor that marks the development of a child's mind and, in particular, the main developmental stages, from life in utero to adolescence. In doing so, he uses concepts such as genes and environment, trauma, neglect or resilience, the development of language, play and memory, and, finally, moral principles and prosocial skills. Moving in this direction highlights how developmental modes and different theories of growth and development (e.g., attachment theory) are affected by cultural variability and contexts. Through a series of longitudinal and cross-cultural studies, Music highlights how the mind is culturally/context dependent in its functioning both in purely biological aspects (genes) and cognitive processes (learning, attention, etc.) related to the mental systems of the construction of reality. Moreover, other psychoanalytic authors have highlighted empirically how context is nothing more than a shared affective symbolization made possible through collusion between minds – a system of sharing in the construction of reality based on systems of attributions of meaning (with affective codes such as friend/enemy, inside/outside, high/low) and significance (Andrisano Ruggieri, 2015; Andrisano Ruggieri et al., 2014; Andrisano Ruggieri & Pecoraro, 2014; Carli, 2008; Salvatore & Scotto di Carlo, 2005).

From this perspective, the context is never the physical environment but a psychic space that indicates the inter- and intra-subjective dimension of the mind's functioning, in which the active codes of meaning and significance determine the construction of a specific reality that can be seen, for example, in the mode of interaction between people as well as in the exercise of specific activities. Contexts are always variable because they are inscribed and defined by the dynamic between minds, which generates a specific cultural dimension.

An Example of Using the Dependent Context of the Mind in Psychology Teacher Training

We hope that it will now be useful to provide the reader with an example of how we introduce theories of the dependent context of the mind in our psychology courses for future teachers. Specifically, we use the film *Dangerous Minds* to show students that "the individual does not exist" and that the mind is a relational matrix based on contextual dynamics. We hope that, either before or after reading about this example, the reader will watch the film because we think that doing so will enhance understanding of the content of this chapter.

The film is based on a true story and is set in the United States. The protagonist, Louanne Johnson (played by Michelle Pfeiffer), is a former Marine and divorcee with a Ph.D. degree, who hopes that teaching will help her to make sense of her life following the end of her relationship with her husband. With the help of her friend and colleague, Hal, she applies for a job teaching literature at a California high school, run by Principal Grandey. Her application is accepted immediately because few teachers were willing to teach the mostly Chicanos and African-American students of both sexes who were undisciplined, uninterested in education, and involved in gangs and drugs. The student leader of the literature class is Emilio Ramirez, the proudest and most unfriendly but also the most intelligent. Louanne finds herself in a whirlwind of hooligans. Mocked and humiliated, she finds it impossible to employ any standard teaching methods.

Being white, Louanne is immediately called "White Bread" by the students. It is evident in the dynamic that the teaching/learning setting does not follow the classic canons, as we normally know them. Louanne's systematic denigration highlights how teaching is organized through a systematic attribution of meaning based on the friend/enemy dichotomy. To the pupils in the class, the school and the teachers are enemies; for the school, these kids are an annoying problem. This leads to indifference: they are the black sheep who must adapt to the rules of the system. The result is a tug-of-war between the students and the school.

Louanne's class was designated as "special," which in the United States reflects a politically correct way of referring to students who are problematic in some way; in other countries, these students would more likely be referred to as "difficult." Both "special" and "difficult" refer to an idea of an individual mind in the system of attribution of meaning, disconnected from the context, in which the meaning of "difficult" and "special" does not imply a different action of the teacher in the modulation of the teaching and learning setting.

In other words, "special" and "difficult" do not immediately call into play the competence of the teacher and thus the teacher's ability to manage the teaching relationship in this situation. It recalls a dynamic between minds, a collusive system. On the contrary, in the film as in reality, the attribution of responsibility is entrusted to the individual student or to the class. Thus, the need to reshape action because of the context, and the culture active in that context, is denied.

This is how the school administration behaves toward the special class, treating it as something different, as a school within a school, ignoring the specificity of the

demand for instruction, education, and training. The school and the various teachers, reasoning in terms of predefined teaching/learning settings, fail in their social mandate because they pursue goals established a priori, that is, without taking into account the contextual variability of the forces in the field (using Lewin's terminology) or the different ecological levels (using Bronfenbrenner's terminology).

Louanne also falls into this trap at the beginning, as she tries to research and deepen her use of different teaching techniques. However, it is now evident that such techniques are based on the assumption of environmental and contextual invariance. For example, if your washing machine breaks down, you can call a technician who can repair it because he or she can establish what is broken, what needs to be fixed, and then fix it. But in education, we are talking about a defined variability environment and context.

Therefore, Louanne quickly realizes that all those techniques are useless because they are inapplicable. All that remains is for her to consider the system of attribution of meaning and the significance of which the contextual variability appears dense. She therefore decides to take a different approach. She declares that she is a former Marine on leave and that she knows how to use karate. From that moment, the class is interested in Louanne, because being street kids, strongly accustomed to fighting with their peers, finds it useful to learn karate. Karate, therefore, appears to be the pretext to redefining the teaching action through the need to establish a negotiated teaching/learning setting, that is, capable of defining methodological objectives based on the construction of competence to learn rather than to state objectives. In this case, the technique is constructed because of the educational objectives that are modified by the systems of attribution of sense and meaning active in the context.

Louanne explains the key to the song "Mr. Tambourine Man" to the boys: In this song, Bob Dylan talks about a drug mule, a subject that teases the boys because it is as close to their reality as karate. At the same time, on the subject of poetry, Louanne considers it useful to talk about the "other" Dylan, the poet Dylan Thomas. The students thus begin to develop skills to understand poetry in its deeper meaning. At the same time, Louanne tries to build an alliance with "Don Emilio," the class leader, and with the students' families. As per the models of analysis of context described earlier, it is evident that the models of Lewin and Bronfenbrenner appear useful not only in understanding the forces operating in this educational field but also how the context defines itself based on cultural processes in the interactions between the school and the families and the families with the children. Each level determines a level of signification based on the same sense, a violent conflict between social classes, ethnic groups, and the school world.

Some Concluding Remarks

People do not grow in a social vacuum. The learning objectives of this chapter were to provide conceptual and theoretical tools to analyze and understand the influence of social dimensions, socioeconomic status, and sociocultural context on people's lives, to activate appropriate social interventions from context analysis. The study of context

follows theories that focus more on some elements of the mind-context relationship and show how individuals participate in systems of coordinated actions, attributing specific meanings to them, and are strongly conditioned by social and cultural contexts. What emerges is a reading of context that emphasizes the role of culture (Bruner, 1990) and how cultural contexts influence the structuring of cognitive activities. Particular reference was made to the ways in which individuals attribute meaning to the experiences in which they are involved. The ways in which individuals interpret and orient their cognitive activity are inextricably linked to these contexts.

Education and culture cannot be analyzed and understood in isolation and separated from each other but must be understood in terms of uniqueness. Therefore, it is necessary to ask ourselves the function that education has in culture and the role that culture has in people's lives. Bruner (1996) has repeatedly pointed out that the mind could not exist without culture, as the evolution of the mind is linked to the development of a way of life in which knowledge is represented by a symbolism shared by members of a given cultural community, upon which the social context is built and organized. Therefore, human activity can only be fully understood from the analysis of the social and cultural context and the framework of thought within which it takes place (Bruner, 1990; Mollo, 2021; Perret-Clermont, 2001).

References

Andrisano Ruggieri, R. (2015). Theory of mind: Overcoming the dichotomy between culture and nature. *Europe's Journal of Psychology, 11*(4), 742–745. https://doi.org/10.5964/ejop.v11i4.1054

Andrisano Ruggieri, R., & Pecoraro, N. (2014). Family business dynamics: Generational change as identity transition. In S. Salvatore, A. Gennaro, & J. Valsinier (Eds.), *Mulitentric identitis in globalizing word* (pp. 133–160). IAP – Information Age Publishing.

Andrisano Ruggieri, R., Pozzi, M., & Ripamonti, S. (2014). Italian family business cultures involved in the generational change. *Europe's Journal of Psychology, 10*(1), 79–103. https://doi.org/10.5964/ejop.v10i1.625

Bronfenbrenner, U. (1979). *The ecology of human development*. Harvard University Press.

Bronfenbrenner, U. (2005). The bioecological theory of human development. In U. Bronfenbrenner (Ed.), *Making human beings human: Bioecological perspectives on human development* (pp. 3–15). Sage. (Original work published in 2001).

Bronfenbrenner, U., & Evans, G. W. (2000). Developmental science in the 21st century: Emerging questions, theoretical models, research designs and empirical findings. *Social Development, 9* (1), 115–125. https://doi.org/10.1111/1467-9507.00114

Bruner, J. (1996). *The culture of education*. Harvard University Press.

Bruner, J. S. (1986). *Actual minds, possible worlds*. Harvard University Press.

Bruner, J. S. (1990). *Acts of meaning*. Harvard University Press.

Carli, R. (2008). *Culture giovanili. Proposte per un intervento psicologico nella scuola*. Franco Angeli.

Carli R., Paniccia R. M. (2004). *L'Analisi della Domanda*. Il Mulino.

Cole, M. (1996). *Cultural psychology. A once and future discipline*. Harvard University Press.

D'Andrade, R. (1992). Schemas and motivation. In R. D'Andrade & C. Strauss (Eds.), *Human motives and cultural models* (pp. 23–44). Cambridge University Press.

Engeström, Y. (1987). *Learning by expanding: An activity-theoretical approach to developmental research*. Finland Orienta-Konsultit.
Engeström, Y. (1991). Activity theory and individual and social transformation. *Multidisciplinary newsletter for activity theory,* 1991a7/8617
Engeström, Y., & Blackler, F. (2005). On the life of the object. *Organization, 12*, 307–330.
Grossen, M. (1988). *L'intersubjectivité en situation de test*. Delval.
Grossen, M., & Perret-Clermont, A.-N. (1984). Some elements of social psychology of operational development of the child. *The Quarterly Newsletter of the Laboratory of Comparative Human Cognition, 6*, 51–57.
Iannaccone, A., & Zittoun, T. (2014). Overview: The activity of thinking in social spaces. In A. Iannaccone & T. Zittoun (Eds.), *Activities of thinking in social spaces*. Nova Publisher Inc.
Leontiev, A. N. (1977). *Activity, consciousness, personality.* Prentice-Hall.
Lewin, K. (1935). *A dynamic theory of personality.* McGraw-Hill.
Lewin, K., Baccianini, M., & Palmonari, A. (1972). *Teoria e sperimentazione in psicologia sociale*. Il mulino.
Ligorio, M. B., & Pontecorvo, C. (2010). *La scuola come contesto*. Carocci.
Manzi, F., Savarese, G., Mollo, M., & Iannaccone, A. (2021). Editorial: Sociomateriality in children with typical and/or atypical development. *Frontiers in Psychology, 11*.
Mead, G. H. (1934). *Mind, self and society.* University of Chicago Press.
Mollo, M. (2021). *Academic cultures: Psychology of education perspective*. Hu Arenas. https://doi.org/10.1007/s42087-021-00238
Music, G. (2016). *Nurturing natures. Attachment and Children's emotional, sociocultural and brain development*. Routledge.
Nardi, B. A. (2005). Objects of desire: Power and passion in collaborative. *Activity, Mind, Culture, and Activity, 12*(1), 37–51. https://doi.org/10.1207/s15327884mca1201_4
Penn, H. (2005). *Understanding early childhood development: Issues and controversies*. Bell & Bain Ltd..
Perret-Clermont, A.-N. (2001). Psychologie sociale de la construction de l'espace de pensée. In J.-J. Ducret (Ed.), *Actes du colloque Constructivismes: usages et perspectives en éducation, Genève, 4–8 Septembre 2000* (pp. 65–82). SRED.
Perret-Clermont, A.-N. (2004). The thinking spaces of the young. In A.-N. Perret-Clermont, C. Pontecorvo, L. Resnick, T. Zittoun, & B. Burge (Eds.), *Joining society: Social interactions and learning in adolescence and youth* (pp. 3–10). Cambridge University Press.
Renzo, C., & Paniccia, R. M. (2004). *Analisi della domanda. Teoria e tecnica dell'intervento in psicologia clinica*. Il Mulino.
Salvatore, S., & Scotto di Carlo, M. (2005). *L'intervento psicologico per la scuola. Modelli, metodi, strumenti*. Firera & Liuzzo Publishing.
Sannino, A. (2011). Activity theory as an activist and interventionist theory. *Theory & Psychology, 21*(5), 571–597.
Schubauer-Leoni, M. L., Bell, N., Grossen, M., & Perret-Clermont, A.-N. (1989). Problems in assessment of learning: The social construction of questions and answers in the scholastic context. *International Journal of Educational Research, 13*(6), 671–668.
Shweder, R. A. (1990). Cultural psychology- what is it? In J. W. Stigler, R. A. Shweder, & G. Herdt (Eds.), *Cultural psychology. Essays on comparative human development (pp. 27-66)*. Cambridge University Press.
Sprang, G., & Silman, M. (2013). Posttraumatic stress disorder in parents and youth after health-related disasters. *Disaster Medicine and Public Health Preparedness, 7*(1), 105–110. https://doi.org/10.1017/dmp.2013.22
Valsiner, J. (1989a). *Human development and culture: The social nature of personality and its study.* Lexington Books.
Valsiner, J. (1989b). Collective coordination of progressive empowerment. In L. T. Winegar (Ed.), *Social interaction and the development of children's understanding* (pp. 7–20). Ablex.

Vygotsky, L. S. (1934). *Thought and language*. Moscow/Leningrad, Russia: Sozekgiz.
Wertsch, J. V. (1991). A socio-cultural approach to socially shared cognition. In L. Resnick, J. Levine, & S. Teasley (Eds.), *Perspectives on socially shared cognition* (pp. 85–100). Hyattsville, MD: American Psychological Association.
Wundt, W. (1900). *Compendio di psicologia*. C. Clausen.
Zucchermaglio, C. (1996). *Vygotskij in azienda: apprendimento e comunicazione nei contesti lavorativi*. Nuova Italia Scientifica.

Psychology in Teacher Education

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Susanne Narciss and Joerg Zumbach

Contents

S. Narciss (✉)
School of Science - Faculty of Psychology, Psychology of Learning and Instruction, Technische Universitaet Dresden, Dresden, Sachsen, Germany
e-mail: susanne.narciss@tu-dresden.de

J. Zumbach
Department of Educational Research, University of Salzburg, Salzburg, Austria
e-mail: Joerg.Zumbach@sbg.ac.at

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Abstract

Teachers should be empowered to act as deliberate professionals, i.e., guiding their actions in an adaptive way to the affordances of educational situations by carefully choosing purposes and goals, by ethical and cultural considerations, as well as by conceptual and technical knowledge. The core goal of teaching psychology in teacher education and vocational programs is to contribute to the education of such deliberate professionals. With theoretical and empirical insights in areas such as human learning, cognition, and motivation; personality and social development; testing and measurement; individual diversity, group differences, and special needs; research on social and cultural factors in instructional contexts; and classroom management, teachers' professional development, and school effectiveness, educational psychology provides an important basis for the initial education of teachers. Yet, given the restricted time and space for psychology courses in initial teacher education, the curriculum and syllabus design for these programs poses several challenging issues, in particular how to deal with the trade-off between breadth and depth in covering scientific psychological insights and their various potential applications in teaching contexts.

This chapter aims at providing international perspectives and insights into the core goals, as well as evidence-based practices and approaches of teaching psychology in teacher education programs. Starting with an introduction to the rationale for teaching psychology in teacher education programs, the chapter offers a summarizing overview of frameworks of professional teacher standards from all over the world, as well as recommendations for teaching psychology, and especially educational psychology, in teacher education programs. Next, core contents and topics of psychology for (pre-service) teachers are analyzed and presented based on a review of respective textbooks being used in countries around the world. Evidence-based instructional suggestions for implementing teaching, learning, and assessment are also provided. Finally, the relevance of psychology teaching in teacher education programs is emphasized, particularly with regard to transferring psychological knowledge and theories into educational practice and understanding psychological epistemology.

Keywords

Teacher education · Educational psychology · Teaching standards · Teacher competences · Educational practice · Transfer · Competence

Introduction

Teaching psychology to prospective and in-service teachers is a highly relevant field of psychology learning and teaching in countries all around the world. The overarching goal in this field is to contribute to the development of (future) teachers' professional knowledge and competences in order to empower them as reflective practitioners, efficient problem-solvers, and lifelong learners in their future professional work and life as teachers.

The definition of teacher professionalism remains a much debated issue that is increasingly discussed not only locally or nationally but also globally (Menter & Flores, 2021). Teaching is a very complex and challenging professional field. According to Anderson et al. (1995), the multidimensionality, uncertainty, and social and ethical nature of teaching contribute to this complexity: Classroom situations are multidimensional because many events occur simultaneously and often require teachers to make trade-offs (e.g., balancing individual and class-wide needs or breadth vs. depth of content coverage). Furthermore, due to the diversity of students and teaching situations and to the dynamic changes taking place in global society, teachers must always deal with some degree of uncertainty about best tactics and strategies and thus have to constantly monitor and adjust their teaching acts. Finally, teachers' choices must also take into account societal and ethical values and goals, such as providing equal educational opportunities for all students. Accordingly, a core issue of teacher education programs is how they can address the complexities of teaching in order to help teachers to develop professional knowledge and competences for mastering these multifaceted and complex challenges.

Educational psychological knowledge can contribute in many ways to prepare teachers to master the challenges of this complex professional field in terms of evidence-based reflection and deliberate action (e.g., Anderson et al., 1995). For example, that knowledge can inform decisions regarding (a) the instructional design of learning environments, (b) the assessment and evaluation of learning and teaching, and (c) the selection and continuous adaptation of strategies for teaching heterogeneous groups of learners.

Thus, educational psychology courses are core components of teacher education programs and reviews. These courses have been included in teacher education for at least a century (e.g., Woolfolk Hoy, 2000), and psychological research and knowledge inspired several changes and reforms in teaching (e.g., by drawing attention to the conditions and effects of teaching for deep and generative understanding).

Over the last decades, the studies run within the Program for International Student Assessment (PISA) have attracted much attention to teachers' professional knowledge and competences and how their development can be improved. Furthermore, a meta-analysis of meta-analyses (Hattie, 2009) has attracted researchers' and education policy makers' attention to the role of teachers and to teacher factors that contribute to effective student learning. This has resulted in a remarkable

accumulation of educational research on teacher education (see, e.g., recent special issues edited by Mayer & Oancea, 2021; Menter & Flores, 2021). Moreover, PISA as well as continent-wide major policy programs such as the European Bologna Process (Bologna Working Group, 2005) have called for a worldwide harmonization of conceptual developments and changes regarding the standards and competences in the field of teaching and learning (Menter & Flores, 2021). This has resulted, among other things, in the specification of international frameworks of core educational objectives referred to as twenty-first-century skills (e.g., the comparative analysis by Voogt & Roblin, 2012, or Partnership for twenty-first Century Skills [P21], 2015). Addressing the twenty-first-century skills in learning and instruction requires that teachers are not only able to teach content in the context of their local classroom, but do so in a way such that students acquire the essential skills for working and living in today's world. These include learning and innovations skills such as (a) critical thinking, complex problem-solving, communication, and collaboration in diverse (multicultural) groups; (b) information, media, and technology skills such as information literacy, media literacy, and ICT literacy; and (c) life and career skills such as self-regulation, leadership, and social and cross-cultural competency.

Most recently, global social challenges have raised important educational affordances and issues related to educational equality and social justice that will contribute to further changes in views of teacher professionalism (e.g., Flores & Swennen, 2020; Menter & Flores, 2021). For example, rising awareness of global migration streams as well as of racism, sexism, and other kinds of social discrimination has increased attention to the urgent need to address educational equality and social justice in teaching and learning. Furthermore, the global Covid-19 pandemic has revealed the vital importance of being able to implement strategies for online teaching and learning. Moreover, an increase in the frequency of disastrous weather extremes has highlighted the need to develop ways of ensuring a sustainable future. Addressing these social challenges in a rapidly changing world adds at least three competency fields to teacher education programs, namely, competences for implementing inclusive learning environments, for digitalization of teaching and learning, and for teaching and reflecting the values and issues of sustainability.

Purposes and Rationale of Psychology in Teacher Education Curricula

As already mentioned, a major aim of educational psychology courses within teacher education programs is to help future teachers learn how they can use psychological knowledge and evidence to deal with the complexity of teaching. To identify and specify more concretely the core teaching and learning goals in this field, we will summarize and compare international frameworks of professional teaching standards and/or competences. Based on this review and comparison, core teaching and learning goals for the psychology curriculum targeting teacher students will be presented.

Frameworks for Professional Standards and Competences for Teacher Education Worldwide

Ever since the World Education Forum in Dakar in 2000, the development of teaching standards has been an important topic on the global education agenda. The aim has been to improve the quality of education in order to equip learners with the competences for effective participation in today's societies and economies. Hence, professional standards of teaching as well as teaching competency frameworks have been developed worldwide in order to specify the necessary knowledge, skills and strategies, values and attitudes, as well as teaching activities that contribute to successful professional behaviors in the field of learning and instruction. These standards provide the basis for teacher education and for promoting teachers' continued professional development (Centre of Study for Policies and Practices [CEPPE], 2013). Furthermore, they provide a yardstick that enables teachers to track their professional conduct in relation to the various competency domains of teaching (e.g., instructional design, classroom organization and management, and learning assessment and feedback). This subsection reviews and compares selected teacher standards and competency frameworks from different regions of the world, including Australia, Europe, Southeast Asia, Africa, and the USA.

Australian Standards

The Australian Education Standards Authority (NSW Education Standards Authority [NESA], 2014) identifies seven standards related to teacher competences and assigns them to the three professional sub-domains of knowledge, practice, and engagement (see Table 1). Work on the development of the Australian Professional Standards for Teachers started in 2009 and was finalized in July 2010. In December 2010 the standards were endorsed by the Ministerial Council for Education, Early Childhood Development and Youth Affairs.

European Conceptions of Teacher Standards and Competences

The teacher competency framework of the European Commission (2013; see Table 2) distinguishes three professional facets that are further described by several competency aspects. Given the federal system in Europe, this framework is considered to serve as a basis for the national discussions and developments of teacher standards, while respecting national traditions and policies.

Southeast Asia Standards

The Southeast Asia Teacher Competence Framework (SEA-TCF) consists of 4 essential, 12 general, and 31 enabling competences (see Table 3). The development of the SEA-TCF started in August 2007 and was iteratively further improved through 2017 and adopted in July 2018. It provides standards for teaching professionals of the 11 member countries of the Southeast Asian Ministers of Education Organization (SEAMEO) (Teachers' Council of Thailand, 2018).

Table 1 Overview on Australian professional standards for teachers (NESA, 2014)

Professional domain	*Standards* and focus areas
Knowledge	1. *Know students and how they learn* – Physical, social, and intellectual development and characteristics of students – Understand how students learn – Students' diverse linguistic, cultural, religious, and socioeconomic backgrounds – Strategies for teaching Aboriginal and Torres Strait Islander students – Differentiate teaching to meet the specific learning needs of students across the full range of abilities – Strategies to support full participation of students with disability 2. *Know content and how to teach it* – Content and teaching strategies of the teaching area – Content selection and organization – Curriculum, assessment, and reporting – Understand and respect Aboriginal and Torres Strait Islander people to promote reconciliation between Indigenous and Non-Indigenous Australians
Practice	3. *Plan for and implement effective teaching and learning* – Establish challenging learning goals – Plan, structure, and sequence learning programs – Use teaching strategies – Select and use resources 4. *Create and maintain supportive and safe learning environments* – Support student participation – Manage classroom activities – Manage challenging behavior – Maintain student safety – Use ICT safely, responsibly, and ethically 5. A*ssess, provide feedback, and report on student learning* – Assess student learning – Provide feedback to students on their learning – Make consistent and comparable judgments – Interpret student data – Report on student achievement
Engagement	6. *Engage in professional learning* – Identify and plan professional learning needs – Engage in professional learning and improve practice – Engage with colleagues and improve practice – Apply professional learning and prove student learning 7. *Engage professionally with colleagues, parents/carers, and community* – Meet professional ethics and responsibilities – Comply with legislative, administrative, and organizational requirements – Engage with parents/carers – Engage with professional teaching networks and broader communities

US Standards and Competences for Teachers

In the USA, the National Board for Professional Teaching Standards (NBPTS) was founded in 1987 with the objective to advance the quality of teaching and learning (NBPTS, 2016). Based on research and practitioner expertise, the NBPTS members

Table 2 Teacher competences – perspectives from research and policy (European Commission, 2013)

	Competence aspects
Knowledge and understanding	Subject matter knowledge
	Pedagogical content knowledge (PCK), implying deep knowledge about content and its structure: - Knowledge of tasks, learning contexts, and objectives - Knowledge of students' prior knowledge and recurrent subject-specific learning difficulties - Strategic knowledge of instructional methods and curricular materials
	Pedagogical knowledge (knowledge of teaching and learning processes)
	Curricular knowledge (knowledge of subject curricula)
	Educational sciences foundations (intercultural, historical, philosophical, psychological, sociological knowledge)
	Contextual, institutional, organizational aspects of educational,policies
	Issues of inclusion and diversity
	Effective use of technologies in learning
	Developmental psychology
	Group processes and dynamics, learning theories, motivational issues
	Evaluation and assessment processes and methods
Skills	Planning, managing, and coordinating teaching
	Using teaching materials and technologies
	Managing students and groups
	Monitoring, adapting, and assessing teaching/learning objectives and processes
	Collecting, analyzing, and interpreting evidence and data (school learning outcomes, external assessment results) for professional decisions and teaching/learning improvement
	Using, developing, and creating research knowledge to inform practices
	Collaborating with colleagues, parents, and social services
	Negotiation skills (social and political interactions with educational stakeholders, actors, and contexts)
	Reflective, metacognitive, interpersonal skills for learning individually and in professional communities
	Adapting to educational contexts characterized by multilevel dynamics with cross-influences (macro-level, government;, meso-level, school contexts; microlevel, classroom and student dynamics)
Dispositions: beliefs, attitudes, values, commitment	Epistemological awareness (issues concerning features and historical development of subject area and its status, as related to other subject areas)
	Teaching skills through content
	Transferable skills

(continued)

Table 2 (continued)

	Competence aspects
	Dispositions to change, flexibility, ongoing learning, and professional improvement, including study and research
	Commitment to promoting the learning of all students
	Dispositions to promote students' democratic attitudes and practices, as European citizens (including appreciation of diversity and multiculturality)
	Critical attitudes to one's own teaching (examining, discussing, questioning practices)
	Dispositions to teamworking, collaboration, and networking
	Sense of self-efficacy

developed and iteratively revised Five Core Propositions and Standards describing the knowledge, skills, and attitudes that enable proficient teachers to empower student learning (see also Thorpe, 2014). A first version of the Five Core Propositions and Standards was published in 1989 and an updated version appeared in 2016 (see Table 4 for a summary). The NBPTS emphasizes in the introduction to the description of the updated version that the five core propositions have proven their value and that the update of the explications of the propositions has mainly been of stylistic nature.

Driven by the affordances of twenty-first-century education needs and based on current research on teaching and learning, the Interstate Teacher Assessment and Support Consortium (InTASC) of the Council of Chief State School Officers (CCSSO) (2013) developed the *InTASC Model Core Teaching Standards*. These standards further specify the NBPTS's five core propositions and emphasize the key themes of "Personalized Learning for Diverse Learners," "A Stronger Focus on Application of Knowledge and Skills," "Improved Assessment Literacy," "A Collaborative Professional Culture," and "New Leadership Roles for Teachers and Administrators" (CCSSO, 2013; pp. 4–5; see Table 5). The *InTASC Model Core Teaching Standards* groups ten standards into four categories: learners and learning, content, instructional practice, and professional responsibility.

African Framework of Standards and Competences for the Teaching Profession

The African Framework of Standards and Competences for the Teaching Profession provides a guiding baseline of common references for the teacher qualification frameworks of the 55 member states of the African Union. Its key purpose is to serve as a common reference point for teacher qualification in Africa. In order to promote the comparability with international teacher qualification frameworks, the teaching standards and qualities of the teaching profession have been developed in alignment with the relevant global qualification levels and competency frameworks (e.g., the International Classification of Education, ISCED 2011 developed by the UNESCO Institute for Statistics, 2012, or the European Qualifications Framework (EQF), European Commission, 2018). Accordingly, as summarized in Table 6, the

Table 3 Overview on the Southeast Asia Teacher Competence Framework (SEA-TCF; SEAMEO)

Essential competence	*General* and enabling competences
1. **Know and understand what to teach**	1.1 *Deepen and broaden the knowledge base on what is taught* – Master subject content – Use research-based knowledge 1.2 *Understanding educational trends, policies, and curricula* – Update myself on new educational trends – Study educational policies and how they affect my teaching 1.3 *Updating knowledge on local, national, regional, and global developments* – Understand how to implement the curriculum – Check new changes in education environment
2. **Helping students learn**	2.1 *Knowing students and how they learn* – Identify my students' needs and strengths to help them learn better – Understand how my students learn – Value what makes students unique 2.2 *Using the most effective teaching and learning strategies* – Select appropriate teaching and learning strategy – Design clear and effective lessons my students can understand – Create a positive and caring learning space 2.3 *Assessing and feedback on students' learning* – Design assessment process and tools – Monitor my students' progress and provide appropriate support – Use results from assessment to improve instruction
3. **Engaging the community**	3.1 *Partner with parents and caregivers* – Build a support network – Create a welcoming space – Sustain the partnership 3.2 *Involve the community to help students learn* – Engage parents and caregivers to be partners in learning – Design learning activities using community conditions, local wisdom, tradition, knowledge 3.3 *Encourage respect and diversity* – Accept what makes people different – Practice inclusion and respect in the classroom
4. **Becoming a better teacher every day**	4.1 *Knowing myself and others* – Continue to grow by knowing myself more – Become more aware and responsible for my emotions and health – Nurture my relationships with care and respect 4.2 *Practicing human goodness in my work and my life* – Be kind and compassionate – Inspire my students and colleagues by setting my best example – Nurture my students' confidence on what they can do and become 4.3 *Mastering my teaching practice* – Keep alive my passion for teaching – Take responsibility in my own personal and professional growth – Inspire other teachers by setting an example

Table 4 Overview on the "Five Core Propositions" and their descriptors explicating the related teacher competences (NBPTS, 2016)

Proposition	Descriptors
Commitment to students and their learning	• Recognize individual differences in their students and adjust their practice accordingly • Understand how students develop and learn • Treat students equitably • Know that teacher's mission transcends the cognitive development of students
Knowledge of the subject area and how to teach it to students	• Appreciate how knowledge in subject area is created, organized, and linked to other disciplines • Command specialized knowledge of how to convey a subject to students • Generate multiple paths to knowledge
Responsibility for managing and monitoring student learning	• Call on multiple methods to meet instructional goals • Support student learning in varied settings and groups • Value student engagement • Regularly assess student progress • Engage students in learning
Systematic thinking about practice and learning from experience	• Make difficult choices that test their professional judgment • Use feedback and research to improve their practice and positively impact student learning
Member of learning communities	• Collaborate with other professionals to improve school effectiveness • Work collaboratively with families • Work collaboratively with community

framework distinguishes five professional domains, namely, knowledge and understanding, skills, values and attributions, partnerships, and leadership (African Union, 2019). These standards address traditional issues such as mastery of the teaching area, teaching design, and learner feedback as well as emerging issues such as inclusivity, climate change, and gender equity.

These standards for professional teacher/teaching from various regions around the world reveal that over the last decade, well-structured comprehensive frameworks for teacher qualification have been developed. Because one pillar inspiring their development and iterative improvement originated in the UNESCO framework *International Standard Classification of Education* (UNESCO Institute for Statistics, 2012), the standards are rather similar in their overall structure of superordinate domains. More specifically, all of them emphasize that teachers' major professional goal is to help all students learn. Accordingly, they consider teachers' knowledge and understanding of the learners, as well as their knowledge and understanding of the subject matter and how to teach it, as essential professional competences for the successful application of their further professional skills and practices. Furthermore, there is general agreement that teachers' professional values, attitudes, and beliefs as well as their continued professional growth constitute core competencies for successful teaching.

Table 5 Summarizing overview on *InTASC Model Core Teaching Standards* (CCSSO, 2013; pp. 8–9)

Category	*Standards* – descriptions
Learner and Learning	1. *Learner development* – Understanding of how learners grow and develop – Recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas – Designing and implementing developmentally appropriate and challenging learning experiences 2. *Learning differences* – Understanding of individual differences and diverse cultures and communities – Ensuring inclusive learning environments that enable each learner to meet high standards 3. *Learning environments* – Working with others to create environments that (a) Support individual and collaborative learning (b) Encourage positive social interaction, active engagement in learning, and self-motivation
Content	4. *Content knowledge* – Understanding the central concepts, tools of inquiry, and structures of the discipline(s) that are taught – Creating learning experiences that make the discipline accessible and meaningful for learners to assure mastery of the content 5. *Application of content* – Understanding of how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem-solving related to authentic local and global issues
Instructional practice	6. *Assessment* – Understanding and using multiples methods of assessment to (a) Engage learners in their own growth, to monitor learner progress (b) Guide the teacher's and learner's decision-making 7. *Planning for instruction* – Planning instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context 8. *Instructional strategies* – Understanding and using a variety of instructional strategies to (a) Encourage learners to develop deep understanding of content areas and their connections (b) Build skills to apply knowledge in meaningful ways
Professional responsibility	9. *Professional learning and ethical practice* – Engaging in ongoing professional learning – Using evidence to continually evaluate practice – Adapting practice to meet the needs of each learner 10. *Leadership and collaboration* – Seeking appropriate leadership roles and opportunities to take responsibility for student learning – Collaborating with learners, families, colleagues, other school professionals, and community members to ensure learner growth and to advance profession

Table 6 Overview of the domains and descriptors of expected competences of initial teacher education of the African Framework of Standards and Competences for the Teaching Profession (African Union, 2019)

Domain	Descriptors of standards and competences
Professional knowledge and understanding	1. Knowledge and understanding of human development and the learner 2. Knowledge and understanding of the curriculum 3. Knowledge and understanding of the subject matter 4. Knowledge and understanding of interdisciplinary learning 5. Knowledge and understanding of education theory, pedagogy, and teaching practice 6. Knowledge and understanding of learner assessment, feedback, monitoring, and evaluation of the learner 7. Knowledge and understanding of education-related policies and legislation 8. Knowledge and understanding of digital technologies for teaching and learning
Professional skills and practices	9. Effective teaching and learning 10. Effective classroom organization and management 11. Effective learner assessment 12. Effective administration of learning 13. Effective use of technologies for teaching and learning 14. Guidance and counseling, support, school health, and safety
Professional values, attributes, and commitment	15. Awareness and respect for learners' diversity 16. Respect for learners' rights and dignity 17. Respect for school systems and colleagues 18. Role model for learners 19. Commitment to continued professional development
Professional partnerships	20. Partnerships with learners, parents, carers, guardians, communities, and stakeholders
Professional leadership	21. Leadership and management through commitment to the school's vision, high-impact teaching and learning, transparency, accountability, and respect for colleagues and learners

Despite similarities in their overall structure, the frameworks differ to some extent in how much detail and elaboration is devoted to the competences related to (a) diversity, cultural understanding, and inclusion, as well as (b) adoption of technology for learning and instruction. The Australian, African, European, and US frameworks include these competences, while they are not explicitly mentioned in the Southeast Asian framework.

The Role of Psychology in Teacher Education: Core Teaching and Learning Objectives

The summarizing overview of the international frameworks of professional teacher standards reveals that prospective teachers must acquire a wide array of knowledge,

understanding, and skills and, thus, competences related to issues of learning and teaching in diverse social and cultural contexts.

To further specify core goals for teaching and learning psychology in pre-service teacher education, we will use as starting points the European Qualification Framework for Higher Education (European Commission 2018; see Table 7) as well as the revised version of the *InTASC Model Core Teaching Standards* published by the US Council of Chief State School Officers (2013; see Table 5).

The EQF objectives reveal that knowledge and critical understanding provide the foundation of thinking and acting reflectively in complex professional fields that not only require the ability to apply routinely learned strategies but also competences to integrate information and knowledge to make decisions in highly complex situations, to communicate and collaborate, and to deal with changes in professional requirements.

As mentioned above, teaching is a complex field in which a routine application of practical strategies has limitations in many situations. There is empirical evidence that teachers' beliefs and their knowledge of psychological concepts and principles related to the understanding of students' learning and instructional practices are associated with their interpretations and judgments of classroom events (e.g., Fives & Buehl, 2012) as well as with students' perceptions of instructional quality (Koenig

Table 7 Summarizing overview on EQF-objectives for Higher Education (first and second HE cycle)

Cycle	Objective	Description
1	Knowledge and understanding	• Comprehensive, specialized, factual, and theoretical knowledge • Awareness of the boundaries of that knowledge • Critical understanding of theories and principles
2	Applying knowledge and understanding	• Application of knowledge and understanding in a manner that indicates a professional approach to work or vocation • Competences for identifying, analyzing, and solving problems • Ability to devise and sustain arguments within field of study
3	Making informed judgments	• Ability to gather and interpret relevant data • Ability to evaluate and present information and concepts from relevant data • Ability to arrive at informed judgments that include reflection on relevant social, scientific, or ethical issues • Ability to integrate knowledge in order to handle complexity
4	Communication and collaboration	• Competences for communicating information, ideas, problems, and solutions to both specialist and nonspecialist audiences
5	Professional awareness and lifelong learning	• Identify and address learning needs for further knowledge • Ability for lifelong self-regulated learning

& Pflanzl, 2016). Psychological research provides concepts, findings, and principles that can challenge naïve beliefs and thinking about learning and instructional practices. Accordingly, researchers have repeatedly emphasized the importance of providing future teachers with a strong foundation of psychological knowledge to help them to understand the rationale and boundary conditions of instructional practices and current assumptions about complex learning (e.g., Anderson et al., 1995; Darling-Hammond, 2006; Good & Levin, 2001; Patrick, Anderman, Bruening, & Duffin, 2011; Willingham, 2017; Woolfolk Hoy, 2000).

Aligned with the Framework for Teacher Education Standards, the core purpose of psychology modules and courses within teacher education programs is to help future teachers learn how they can use psychological knowledge and evidence to promote all students' learning and to deal with the complexity of tailoring evidence-based instructional practices to their students' needs.

Inspired by the generic EQF-objectives for Higher Education and Frameworks for Teacher Education Standards, we identified the following overarching learning goals for psychology courses in initial teacher education programs (HE levels 1 and 2):

- Knowing and critically understanding psychological findings in the core areas that are necessary to understand students' learning, thinking, motivation, development, and social and emotional behavior, as well as their development, individual differences, and diverse backgrounds
- Knowing and critically understanding psychological concepts, approaches, findings, and principles undergirding instructional practices and strategies (e.g., assessment, instructional design, and classroom management)
- Applying basic knowledge and understanding to analyze and identify patterns of learners' conditions and contexts
- Applying basic knowledge and understanding to examine if and how instructional strategies or learning environments can be rooted in psychological principles and findings
- Making informed judgments by integrating the basic knowledge and understanding of psychological findings to select, gather, and interpret relevant learner attributes as well as instructional context data in order to draw implications for improving instructional practices
- Being able to communicate psychological findings related to factors influencing students' learning, as well as psychologically founded principles and implications for instructional practices and strategies

Core Contents and Topics of Psychology Programs in Teacher Education

While there has long been general agreement on the important role of educational psychology for teachers (e.g., Anderson et al., 1995; Patrick et al., 2011; Woolfolk Hoy, 2000), teacher education programs vary considerably in how much time they devote to psychology courses. Consequently, the kinds of psychological

knowledge and skills that can be included in these programs also vary considerably. It is challenging to design curricula for psychology programs with limited time frames that address in a meaningful way the core purposes and overarching objectives described above. To identify psychological contents and topics of high relevance for teacher education, researchers and policy makers have taken several approaches.

For example, Snowman (1997) reviewed 10 educational psychology textbooks published after 1990 in the USA and asked 20 expert educational psychology teachers to rank order the psychological topics of those textbooks in terms of their relevancy for teaching. His review revealed that the textbooks cover a wide variety of topics and provide numerous classroom applications to illustrate how the findings and principles related to these topics can be used to support students' learning. It also revealed that the educational psychology instructors rated most topics as relevant and gave the highest ratings to areas such as motivation, learning processes, cognitive and social-emotional development, the role of educational psychology in teaching, classroom measurement, affective and social processes, and cultural differences.

Another explored what educational psychology topics are considered highly relevant by 48 German experts from 3 fields of teacher education (e.g., Lohse-Bossenz, Kunina-Habenicht, & Kunter, 2013). To create a clustered list of topics for this study, the authors inspected official documents of educational foundation courses of the federal state of Hessen (Germany). This list included 17 topics for the content area of *learning*, 13 for the content area of *development*, and 13 for the content area of *assessment*. Results of this study confirmed that the three content areas are considered to be key areas that should be included in educational psychology programs for teacher education.

The Coalition for Psychology in Schools and Education of the American Psychological Association has synthesized psychological research to identify the top 20 psychological principles that enhance teaching and learning in school contexts. These principles are categorized into five areas of psychological functioning (see American Psychological Association, Coalition for Psychology in Schools and Education [APA-CPSE], 2015), namely:

1. Thinking and learning: How do students think and learn (principles 1–8)?
2. Motivation: What motivates students (principles 9–12)?
3. Social-emotional learning: Why are social context, interpersonal relations, and emotional well-being important for student learning (principles 13–15)?
4. Classroom management: How can classroom behavior be best managed (principles 16–17)?
5. Assessment: How can teachers effectively assess student progress (principles 18–20)?

Finally, national or international qualification frameworks or models of teaching as a profession have served as valuable sources for identifying core content areas (e.g., Anderson et al., 1995; Darling-Hammond & Bransford, 2005; Woolfolk Hoy, 2000).

Psychological Topics, Concepts, and Research Areas Relevant for Teacher Education

Adopting an international perspective on the issue of how to identify highly relevant psychological topics for teacher education, we analyzed the tables of contents of comprehensive recent textbooks from the USA, Europe (Germany), Australia, China, and South Africa (see Table 8).

Our initial analysis of the tables of contents indicated that all the selected comprehensive textbooks cover a wide variety of psychological topics relevant for promoting teaching and learning but that they have organized the topics in different ways. In order to identify similarities and differences in the order and the depth of topic coverage, we assigned the chapters of the selected textbooks to ten major content areas, namely, *Introduction; Learning and Behavioral Management; Information Processing, Memory, and Cognition; Motivation and Emotion; Student Differences and Diversity; Developmental Theories and Differences; Social Factors, Interaction, and Communication; Creating Environments for Learning and Teaching; Assessment, Evaluation, and Feedback;* and *Teacher Characteristics, Beliefs, and Attitudes.*

Table 8 reveals that though there are variations in the order and the depth of coverage among the textbooks, mostly all textbooks addressed the ten major content areas at least to some extent. The variations in the order and depth of covering the different content areas can be partly explained by the differences in professional teacher standard and competency frameworks. For example, the Snowman and McCown textbook has been developed in line with the InTASC Standards (see Table 5), whereas the Chinese textbook reflects the Southeast Asian framework of teacher competences (see Table 3). Additionally, the variations in organizing the content might be due to the large number of relevant psychological topic areas and their interconnectedness when it comes to their application in instructional contexts.

Selecting and Organizing Topics, Content-Material, and Activities for a Psychology Course

The issue of selecting and organizing relevant content areas and topics and material and activities that are aligned with the learning objectives of courses are of high relevance for developing well-organized courses on a specific topic or content area. Addressing this issue can be done in various ways. First, textbooks or textbook chapters that provide a meaningful structure of the content area together with resources for learning activities can serve as a starting point. Second, instructional design approaches or frameworks such as elaboration theory (Reigeluth, 2018), the 4C/ID model (Frerejean et al., 2019), and Merrill's First Principles of Instructions (Merrill, 2002; see also ▶ Chap. 49, "First Principles of Instruction Revisited," by Merrill, this volume) can provide a basis for developing meaningful course structures and organizing instructional content and material. Third, teacher competency frameworks such as the Technological, Pedagogical and Content Knowledge model

Table 8 Summarizing overview on topics of selected comprehensive psychology textbooks for teacher education

Psychological topics and findings	USA Snowman and McCown (2014)	Germany Urhahne, Dresel, and Fischer (2019)	Australia McInerney (2014)	China Qi and Rude (2019)	South Africa Irma and Ebersöhn (2004)
Introduction	Applying Psychology to Teaching (pp. 2–22) Educational psychology Potential and limits of research in educational psychology Teaching – art or/ and science?	Preface	My education lab	Introduction (Part I) Educational psychology Research methods in educational psychology History of educational psychology	Relevance of the book Aims Assumptions Children
Learning and behavioral management	Operant conditioning (pp. 237–261) Basic concepts Educational applications Social cognitive theory (pp. 294–342) Model, basic concepts Self-regulated learning	Learning and behavior (pp. 3–16) Classical conditioning Operant conditioning Self-regulated learning (pp. 68–86) Brain and learning (pp. 87–107) Informal learning (pp. 126–144)	Stimulating effective learning (Part I; Chap. 6, pp. 170–207) Learning theory Social cognitive theory Self-regulation and learning Theory and research into practice	Theories of learning (Part III) Behavioral Cognitive Constructive Humanistic	The learner (pp. 13–145) Cognition and learning Health and well-being Behavior Learning styles
Social factors, interaction and communication	Role of social interaction on cognitive development (pp.	Social processes in school (pp. 421–465) Social interaction and communication	Addressed in subchapters of Part II, Chap. 6; Part III; Chap. 13 Teacher expectations	Classroom social factors (Part of Chap. 15: Classroom management) Behavioral management	Social context (pp. 167–289) Families Group work

(continued)

Table 8 (continued)

Psychological topics and findings	USA Snowman and McCown (2014)	Germany Urhahne, Dresel, and Fischer (2019)	Australia McInerney (2014)	China Qi and Rude (2019)	South Africa Irma and Ebersöhn (2004)
	45–46) Social approach to teaching (pp. 488–494)	Social structures and processes Social attitudes in school context	and student motivation (pp. 235–237) Social, emotional, and moral development	(Part of Chap. 15: Classroom management)	Community development Inclusive education Culture
Information processing, cognition, memory	Information processing theory (pp. 262–293) Information processing view Human memory models Why we forget Metacognition Technology – information processing tool	Memory and knowledge acquisition (pp. 23–52) Memory definition – models Recall, retrieval, and forgetting Knowledge acquisition Science learning (pp. 145–161)	Information processing (Part I; Chap. 4, pp. 108–147) Information processing and constructivism Perception and effective learning Prior knowledge, epistemic beliefs Learning strategies Remembering	Information processing (Chaps. 9–12 included in Part IV – Psychology of learning) Knowledge acquisition Problem-solving – creativity Self-regulated learning Moral cognition	Information processing theories Cognition and learning (pp. 13–28) Memory (pp. 125)
Developmental theories and differences	Theories of development (pp. 25–74) Psychosocial development Cognitive development Moral development Age level differences (pp. 75–114)	Development in childhood and adolescence (pp. 231–258) Models and Conditions of Development Psychosexual and social development Cognitive and speech development	Developmental theories (Part I; Chap. 2, pp. 38–74) Piaget/Vygotsky Theories of mind Developmental needs of children (Part III; Chaps. 11, 12, 13) Learning and physical/motor development Personal development	Development of the learners (Chap. 2 included in Part II – Psychology of the learner) Cognitive development Development of personality Development of moral cognition (Chap. 12 included in Part IV – Psychology of learning)	Theory of human development (included in chapter "Culture"; pp. 258–271)

	Preschool – kindergarten Primary grades Elementary school Middle school High school	Motivational and emotional development	Social, emotional, and moral development		
Motivation and emotion	Motivation and perceptions of self (pp. 383–420) Behavioral view Social cognitive view Other cognitive views Humanistic view Role of self-perceptions Motivating (. . ..) with technology	Emotion (pp. 185–199) Definition – basic emotions Individual emotional experiences Emotions in schools Motivation (pp. 207–221) Basic concepts – frameworks Expectancies and values Course of action	Managing effective learning (Part II; Chap. 7, pp. 208–247) Motivation: cognitive perspectives Self-motivated learning Expectancy-value-approach Attribution theory Peer influence Teacher expectations and motivators	Learning motivation (Chap. 8 included in Part IV – Psychology of Learning) Motivation theories Individual factors Situational factors	Emotions and emotional intelligence for educators (pp. 31–43)
Student differences and diversity	Understanding student differences (pp. 115–149) Intelligence Learning styles Gender differences, bias Addressing cultural and socioeconomic diversity (pp. 150–190) Multiculturalism	Intercultural learning (pp. 107–114) Basic concepts Intercultural psychology Intercultural openness in schools: challenges and prospects Intelligence, creativity, and giftedness (pp. 166–184) Students with special	Cultural dimensions (Part II; Chap. 9, pp. 288–312) Social constructivism and multiculturalism School achievements of minority groups Multicultural education Indigenous minority education	Individual differences (Chap. 3 included in Part II – psychology of the learners) Intelligence Learning styles Children with special needs	Inclusive education (pp. 230–246) Culture (pp. 258–271)

(continued)

Table 8 (continued)

Psychological topics and findings	USA Snowman and McCown (2014)	Germany Urhahne, Dresel, and Fischer (2019)	Australia McInerney (2014)	China Qi and Rude (2019)	South Africa Irma and Ebersöhn (2004)
	Ethnicity and social class Accommodating student variability (pp. 191–236) Historical developments Ability grouping Inclusion – legislation (IDEA) Students with special needs	needs (pp. 565–617) Dyslexia, dyscalculia, ADHD Mental and social disorders Prevention and intervention			
Assessment, evaluation, and feedback	Assessing students' capabilities (pp. 503–593) Assessment of classroom learning Understanding standardized assessment Learning from teaching	Assessment, evaluation, and research in learning and instruction (pp. 471–506) Assessment and testing – basics Assessment of learning Evaluation and quality assurance Research methods Feedback techniques (p. 347)	Measurement and evaluation for effective learning (Part II; Chap. 10, pp. 314–350) Principles – validity, reliability Learning objectives – taxonomies Measurement strategies Educational outcome evaluations	Assessment in the classroom (Chap. 14 included in Part V - Psychology of Instruction) Classroom evaluation Traditional methods Non-traditional methods Use of classroom review	Assessment and intervention (pp. 317–331) Educational psychological assessment Educational psychological intervention and therapy
Creating environments for learning and teaching	Classroom management (pp. 421–457) Approaches to	Teaching and instruction (pp. 333–407) Learning and instruction – input-	Addressed in Parts I; III e. g., Effective teaching and learning (Part I; Chap. 1,	Effective instruction (Chap. 13 included in Part V – Psychology of Instruction) Effective instruction and	Adaptation of learning environments to meet

	classroom management Preventing problems Dealing with problems Violence, bullying Approaches to instruction (pp. 458–502) Behavioral – direct instruction Cognitive and constructivist Humanistic Social approach to teaching	process-product-frameworks Effective teaching and instruction Teaching and learning with multimedia	pp. 2–37) Instructional design and theories (Part I; Chap. 6, p. 197) Classroom implications of humanistic perspectives (pp. 399–405) Information and communication technologies (Part III; Chap. 14, pp. 1–20)	instructional design Teaching aims and standards Classroom management (Chap. 15 included in Part V) Physical environment Social environment Approaches and methods	the needs of the learner
Teacher characteristics, beliefs, attitudes	Learning from teaching (pp. 578–647) Skill improvement Inquiry skills improvement Technology for reflective inquiry	Teacher competences and professional development (pp. 395–407) Teaching requirements Competence models Teacher professional development	Effective teaching and learning (Part I; Chap. 1, pp. 2–32) Teaching requirements Teacher professional standards Teacher effectiveness and learning Teaching skills/teacher motivation	Psychology of the teacher (Part VI – Chap. 16) The ideal teacher Professional qualities Psychological health Growth and development	Missing

(TPACK; Koehler & Mishra, 2009) can ground decisions about how to select and organize topics, material, and activities. Finally, a combination of several of these approaches can inform course design.

Regardless of what approach is used for selecting and organizing topics and developing course structure, instructors have to align their course goals with specific learning objectives as well as with course outcomes and the content, material, and learning activities related to these outcomes. Table 9 illustrates how we used the core competences of the European Qualifications Framework to align the course goals and learning objectives to learning outcomes, content, and activities, for the topic area of formative assessment and feedback. Notice that, to help student teachers to build a contemporary psychological and pedagogical perspective on psychological concepts, the course includes both theories and empirical findings related to the topics of formative assessment and feedback, as well as opportunities for reflecting and discussing (individually and collaboratively) evidence-based formative assessment and feedback practices and strategies, as well as instruments and case vignettes.

Teaching, Learning, and Assessment of Psychology in Teacher Education: Approaches and Strategies

Psychology instruction (in all fields and areas) requires a planning, implementation, and evaluation process that should follow professional guidelines and is based on scientific rules and theories of memory and learning (Sweller, Ayres, & Kalyuga, 2011; Zumbach, 2021). Following instructional design (ID; not to be confused with instructional design theories), this process includes needs assessment, analysis of learning, assessment of learner characteristics, choice of learning content, choice of didactical approach, design and use of instructional media, design of learning assessment procedures, etc. (Van Merriënboer & Kirschner, 2013). Another crucial aspect when planning and conducting teaching is a continuous evaluation (formative and summative) of the whole procedure and its individual components (Deibl, Zumbach, Geiger, & Neuner, 2018). Here, the concept of constructive alignment (CA) might be a helpful tool to synchronize different parts of the process of planning and implementing learning environments (Biggs, 2012). CA distinguishes between the learning outcomes that students are expected to achieve, teaching methods, and assessment methods. Teaching and assessment methods should be aligned according to the intended learning outcomes (Wang, Su, Cheung, Wong, & Kwong, 2013).

Consequently, the first step in designing a course based on the idea of CA is to define learning objectives. Decisions about teaching and evaluating assessment methods in an aligned system of instruction follow (Biggs, 2014). As described by Deibl et al. (2018, p. 296), "This should ideally be a fully criterion-referenced system where the objectives define what to teach, how to teach, and how to assess performance. Thus, there have to be precise learning objectives with the teaching methods supporting the students effectively in order to accomplish these objectives." In order to align these three basic and mutually dependent components, learning assessments have to represent the objectives (Biggs, 2014). Taken together, these considerations

Table 9 Alignment of a course goal, content and activities, and learning objectives by the European Qualification Framework – Higher Education

Major course goal Develop student knowledge, understanding, competences in the field of formative assessment and feedback		European Qualification Framework – Higher Education				
Course outcomes – content – material	Learning objectives	Knowledge and understanding	Application skills	Informed judgment	Communication	Learning skills
Explain key terms related to formative assessment and feedback	Define what formative assessment is in contrast to summative assessment	☐				
	Define quality criteria for assessment (objectivity, reliability, and validity)	☐				
	Define feedback – formative feedback					
	Define competence – competence-based assessment	☐				
Describe key models related to formative assessment and feedback	Describe Reinhold's formative assessment cycle (Reinholz, 2016)	☐				
	Describe interactive tutoring feedback model (Narciss, 2008, 2017)	☐				
	Describe 3 core-questions feedback model (Hattie & Timperley, 2007)	☐				
Summarize key research findings on formative assessment and feedback	Describe major findings from seminal meta-analyses and reviews on formative assessment and feedback (e.g., Bennett, 2011; Kluger & DeNisi, 1996; Shute, 2008; Black & Wiliam, 2009; Evans, 2013)	☐				
Describe design principles for formative assessment and feedback strategies	Describe core steps of designing a formative assessment strategy	☐	☐			
	Describe core principles of designing a formative feedback strategy	☐	☐		☐	☐

(continued)

Table 9 (continued)

Major course goal Develop student knowledge, understanding, competences in the field of formative assessment and feedback		European Qualification Framework – Higher Education				
	Identify feedback components and sources that can be used to design a formative feedback strategy	☐	☐			
Analyze typical instruments for formative assessment and feedback	Analyze and discuss on quality features of formative assessment instruments		☐	☐	☐	☐
	Analyze and discuss on quality features of formative feedback instruments		☐	☐	☐	☐
	Analyze and discuss on quality features of competency evaluation forms		☐	☐	☐	☐
Analyze feedback scenarios with a focus on feedback strategies using external feedback sources: teacher, peer	Analyze and discuss the structure of the scenario based on the findings from the formative assessment cycle		☐	☐	☐	
	Analyze and discuss to what extent the scenario meets the principles derived from the interactive tutoring feedback model		☐	☐	☐	
	Analyze and discuss the scenario based on Hattie's feedback model		☐	☐	☐	
Analyze feedback scenarios with a focus on the feedback receiver (self-assessment – internal feedback; feedback perception)	Analyze, reflect, and discuss features of the scenario with regard to the issue of how to promote accurate self-assessment		☐	☐	☐	☐
	Analyze, reflect, and discuss features of the scenario with regard to the issue of how different learners might differ in their perceptions of the feedback		☐	☐	☐	☐
	Analyze, reflect, and discuss features of the scenario with regard to the issue of how to support learners in using feedback for their further learning		☐	☐	☐	☐

imply that different objectives, needs, methods, assessments, and the like have to be planned correspondingly and carefully.

Several instructional design (ID) approaches have been developed for effective teaching and learning. They range from transmission-focused to problem-based and to socio-constructive (for overviews see Reigeluth, 1999, 2018). Space limits do not allow us to summarize all of them here, but let us consider some examples of approaches that are most appropriate for particular teaching goals and for teaching situations that range from large classes to small-group learning and to supervised and reflective learning by doing.

Approaches for Promoting the Acquisition of Basic Psychological Knowledge

Courses at an introductory level are frequently provided for the whole cohort of students. For such courses with sometimes up to 1000 students, teacher-centered approaches such as lectures might be applicable and appropriate. Modern information technologies allow to provide them to be taught online (e.g., using massive open online courses, MOOCs) or in a blended format. One prominent approach to designing courses for larger classes is direct instruction, which is commonly used worldwide and provides a rationale for systematically planning and implementing courses based on a sequence of activities that are both teacher- and student-centered (Stockard, Wood, Coughlin, & Rasplica Khoury, 2018). The core design of direct instruction consists of four elements. First comes a teacher-led introduction, where students' prior knowledge is activated through a summarizing repetition of the content from preceding lessons. In a second step, the teacher presents new learning objectives and then explains new content in a clear and detailed way. This step can include oral presentations, demonstrations, illustrations, and the like. The third stage includes practicing and applying the new knowledge in the classroom. In an introductory psychology lecture, guided practice with classroom cases, or working on application questions and discussing their answers individually (e.g., by using clickers), in pairs, in small groups, or class-wide can provide opportunities for practice with formative feedback. For very large groups of students, such practice activities can also be provided in accompanying tutorial groups. The fourth stage of direct instruction involves individual practice combined with (individualized) feedback. To this end students can, for example, be provided with practice tasks and worked-out solutions of these tasks.

Analyses such as that provided by Klahr and Nigam (2004) or the meta-analysis by Stockard et al. (2018) reveal that direct instruction is a highly effective approach to teaching and learning in schools and universities. Yet, there are further ways to design rather teacher-centered instruction, and direct instruction does not address how to organize or (re)arrange content (e.g., following elaboration theory; Reigeluth, 1999). It is rather a basic framework of how to design classroom instruction in an organized manner.

Approaches for Promoting a Deeper Understanding of Applying Psychology into Teaching

In order to deepen students' understanding and transfer of psychological knowledge into teaching contexts, instructional approaches targeting the acquisition of complex skills are needed. One prominent example is the four-component instructional design model (4C/ID; see Van Merriënboer & Kester, 2014). The approach has been designed for the training and acquisition of complex skills. The four components compromise learning tasks, part-task practice, supportive information, and procedural information and are based on the four learning processes of induction, elaboration, knowledge compilation, and strengthening. In order to design and conduct instruction following the 4C/ID approach, teachers have to first decompose the skills and abilities that form the overall learning objectives into sub-skills. In a next step, the skills and knowledge required to apply these (part) skills must be analyzed. Subsequently, appropriate instructional strategies for task parts, as well as the whole task, must be selected. Finally, all these elements are combined in the design of the learning environment. For the design of learnings tasks, Van Merriënboer (2012) suggests providing learning experiences that are authentic and based on real-life tasks. These should be sequenced from easy to difficult with adaptive learner support (i.e., scaffolding) for each stage of the sequence. The part-task practice should contribute to the proceduralization of knowledge by means of additional practice. Part tasks should be embedded within the context of the whole task and, thus, provide meaningful learning environments. Learners are supported by additional information. A core rationale here is to support learning and performance in problem-solving and reasoning with regard to the given tasks. This supportive information should be specified and adapted to the learning tasks and should be continuously accessible to the learners. Finally, procedural information must be designed and provided as a basis for learning and to allow acquisition of routine. This procedural information must also be linked to each (part) learning task and presented just in time when needed by learners.

The 4C/ID is one example of a generic model that allows teachers to plan, implement, and evaluate learning environments for complex learning domains such as teacher education. It also gives instructional designers considerable freedom in their choice of instructional (or didactical) strategies that will support the accomplishment of learning objectives.

Problem-based learning and inquiry-based learning are instructional approaches useful for targeting deep understanding and transfer of psychological knowledge in teacher education. They are widespread and effectively implemented in many disciplines (including psychology) and universities worldwide. Both approaches use prepared cases or problems that require problem-solving as well as self-regulated learning (for further details see ▶ Chaps. 50, "Problem-Based Learning and Case-Based Learning," by Zumbach and Prescher and ▶ 51, "Inquiry-Based Learning in Psychology," by Lippmann in this volume).

Modern information technology also allows the use of digitally simulated learning environments, with different classroom scenarios for teacher training.

Bradley (2020) differentiates among virtual puppetry simulations, multiuser virtual environments, and single-user simulations. In virtual puppetry simulations, actors (e.g., other students) take the role of learners in virtual online classes and simulate the classroom for pre-service teachers to deal with. In multiuser virtual environments, multiple users can interact synchronously and, thus, train together. Finally, single-user simulations are closed system and system responses to learners' action are predetermined, but they also provide possibilities for interactions among pre-service teachers and the simulated students (Albright, 2020; Bradley, 2020). Such approaches are similar to what has been referred to as "microteaching." "Microteaching" is a collective term for approaches, techniques, and arrangements that include the real-time simulation or practice with real students and allows training teachers in specific situations in controlled settings with video recording and feedback based on these recordings (e.g., Ostrosky et al., 2013).

Further approaches to reflective, practice-based learning from experience include practica, internships (e.g., Hoveid & Hoveid, 2019; Janssen, Westbroek, & Doyle, 2014), and service learning (see ▶ Chap. 53, "Service Learning," by Bringle et al., this volume). The cognitive apprenticeship approach (Collins, Brown, & Newman, 1989) provides a solid instructional framework to support reflective practice-based learning. The basic idea behind this approach is that a learner is successively guided toward expertise by expert mentors. This is usually done by having the apprentice participate in the activities of the mentor. The instructional design is based on a repertoire of methods which can be applied in parallel or in sequence (cf. Collins et al., 1989):

- (Cognitive) Modeling: Here the experts show how they solve sample problems or perform sample tasks. It is important that the expert describes all relevant aspects and "thinks aloud" during the modeling process so that the learner can understand what is going on.
- Coaching: Learners take over some parts or tasks as experts provide (verbal) support and help.
- Scaffolding: Experts provide scaffolds for the learners, including, for example, hints about how to proceed or how to overcome difficulties.
- Fading: As the learner develops more expertise, the expert gradually provides less guidance.
- Articulation: Learners and teachers describe their thoughts. When teachers do so, students can better understand what might otherwise be hidden knowledge and can use that knowledge to build their own expertise. When learners articulate their thoughts, mentors are better able to detect gaps in students' knowledge, the presence of misunderstandings, or incorrect assumptions and then intervene accordingly.
- Reflection: Reflecting on one's behavior and thinking is a metacognitive strategy that helps learners to appreciate important aspects of their skill development, to evaluate their progress, and to take corrective action if necessary.
- Exploration: Learners are encouraged to engage in self-directed explorations, experiences, and problem-solving. This phase is crucial to promote knowledge transfer.

There are many studies that emphasize the effectiveness of the cognitive apprenticeship approach, especially the importance of scaffolding (Torp & Sage, 2002), and reflection (e.g., Barron et al., 1998).

Approaches for Promoting an Epistemic Understanding of How Psychological Findings Are Generated

Cognitive apprenticeship also plays an important role in another aspect of psychology in teacher education: the role of epistemology of psychology itself. While most teacher training programs worldwide include the content domains that future teachers will teach, psychology and especially educational psychology is often considered only a supplementary discipline and is thus given very limited time and space in the curriculum. Thus, it is hard for pre-service teachers to understand the different methodologies within their subjects and also to understand how psychology works as an academic discipline and how psychological science knowledge is generated, validated, and revised or extended (Moser, Zumbach, Deibl, Geiger, & Martinek, 2021). However, it is crucial that future teachers understand how psychological research is conducted and what implications can and cannot be drawn from it. So it is important to introduce students to psychological research methods, for example, through research-based courses or inquiry-based learning. This does not mean that trainee teachers should be able to conduct their own psychological research, but they should at least understand how this field and its research works (i.e., to understand the epistemology of psychology). This understanding enables them, first, to identify, understand, and apply psychological research results to their field. At the same time, it can provide a valuable basis for reflecting on their teaching practices and conducting their own research on its effectiveness, e.g., in terms of action research and the scholarship of teaching and learning (SoTL).

The scholarship of teaching and learning is an approach of evidence-based self-driven research that aims at analyzing, understanding, reflecting on, and improving one's own teaching (e.g., Felten, 2013). To be more specific, Potter and Kustra (2011, p. 2) define SoTL as "the systematic study of teaching and learning, using established or validated criteria of scholarship, to understand how teaching (beliefs, behaviors, attitudes, and values) can maximize learning, and/or develop a more accurate understanding of learning, resulting in products that are publicly shared for critique and use by an appropriate community."

Action research is also dedicated to analyzing one's own teaching in order to gain insights and understanding about what happens in one's own classes and how to improve instruction. Clark, Porath, Thiele, and Jobe (2020, p. 8f.) describe action research as "a process for improving educational practice. Its methods involve action, evaluation, and reflection. It is a process to gather evidence to implement change in practices. (. . .) Action research develops reflection practices based on the interpretations made by participants. (. . .) Action research is iterative; plans are created, implemented, revised, then implemented, lending itself to an ongoing process of reflection and revision. (. . .) In action research, findings emerge as action

develops and takes place; however, they are not conclusive or absolute, but ongoing."

A minor difference between SoTL and action research can be found in the implications of each strategy: While SoTL focuses mainly on analyzing what happens, action research is rather a formative evaluation approach that contributes to quality management and, thus, improvement of teaching and learning (see also Stringer, 2008). Nevertheless, the two approaches overlap and are important not only for educating pre-service teachers but also to for encouraging those teachers to implement them in their own teaching careers.

Assessment Approaches

As is the case in any other field of psychology teaching and learning, the constructive alignment of learning objectives, instructional approach, and assessment is crucial to obtain reliable and valid information on teaching and learning processes and outcomes. In teacher education programs, this alignment is of even greater significance because the number of students is much bigger than in the psychology programs (at the first author's university, there are 1000 education students vs. 120 BA-psychology students each year). Further, education students' own assessment experiences during their studies help to shape the beliefs, standards, and strategies that will guide how they will later assess their teaching processes and outcomes. Providing high-quality assessment experiences should therefore be an important goal in teacher education programs. Ideally, teachers of psychology in those programs are aware that their teaching and assessment activities serve as models for their education students, and so they will want to offer a variety of examples of high-quality assessment strategies and procedures.

It is important to differentiate two target domains of assessment. The first is assessment of learners' products and process of knowledge, skill, and competence acquisition. The second is assessment of the quality or effectiveness of the learning environment or core factors of it.

Irrespective of the target of assessment, both formative and summative assessment must be considered. Summative assessment is mostly used at the end of a teaching or learning phase and aims at capturing the current state of learning or of teaching quality in terms of a score such as a grade. Formative assessment is used several times during the teaching or learning phase and serves to identify the strengths, but also the areas in need of improvement, and provides information on how to improve the quality of learning or teaching.

Assessment of Students' Learning, Knowledge, and Competences

Many kinds of educational measurement and testing can be used to assess students' learning progress and success (for an overview see Brookhart & McMillan, 2019), and both formative and summative approaches can be used in combination.

Approaches to summative assessment can include, for example, tests consisting of multiple-choice items, constructed response items, (short) essays, oral examinations,

case-based applied problem-solving assignments, adaptive testing, and others (see also Table 9 above or ▶ Chap. 54, "Assessment of Learning in Psychology," by Blalock, Rainey, and Halonen, this volume). In alignment with the core standards and competences summarized in section "Frameworks for Professional Standards and Competences for Teacher Education Worldwide," summative assessment should address at least student teachers' knowledge and understanding of psychological concepts, approaches, and findings as well as their competences in reflecting and evidence-based judgment and argumentation with this knowledge (see EQF framework, section "Frameworks for Professional Standards and Competences for Teacher Education Worldwide"). For big cohorts of students, these competences can be economically and reliably assessed using, for example, case vignettes that serve as the stem for several multiple-choice test questions. There is empirical evidence that such vignette assessment tasks can be as effectively implemented for training and assessing student teachers' competences as reflective essay writing in combination with classroom observations (e.g., Jeffries & Maeder, 2011).

Formative assessment strategies have been found to contribute significantly to students' learning at all levels of education (e.g., Hattie, 2009). Thus, student teachers should be provided with numerous opportunities to experience formative assessment strategies and practices. Approaches to formative assessment include (vignette-based) assignments with instructors' feedback, peer feedback, and/or self-generated feedback supported by feedback scripts and clear rubrics or competency evaluation sheets. Furthermore, if applied not only at the end of a teaching or learning phase, most summative assessment approaches can be implemented in a formative way as well, as long as they are complemented by formative feedback strategies (Bennett, 2011).

Assessment of Courses

Summative and formative assessment approaches should also be applied for improving instructional design of psychology courses and curricula in teacher education. Such approaches are commonly used under the aegis of student evaluation of teaching (SET), but can also include feedback from peers and others. To offer reliable and valid assessment data, the previously mentioned principles of alignment of course goals, learning objectives, and assessment criteria are crucial as well. This requires developing and using different assessment instruments for different course formats. Results from summative or formative evaluations following the alignment principles can be used for course development and improvement, but also for action research and research within the context of SoTL (see above).

Challenges and Lessons Learned

Curriculum design and implementation are challenging tasks that require addressing several alignment issues, including the alignment of the goals and affordances of (a) the academic discipline with those of the diverse professional fields in which the graduates of this discipline will work, (b) the curriculum with the goals and resources

of the local settings, and (c) the curriculum with the goals and capabilities of the target students. Furthermore, the current state of the art in an academic domain is constantly progressing, professional domains are constantly changing in accordance with societal affordances and/or technical developments, and students' diverse goals and capabilities are always changing as well (cf. Narciss, 2019).

Recent research has contributed to major developments within the areas of teacher education and psychology. Especially relevant are the meta-meta-analysis by Hattie (2009) and several large-scale studies (e.g., PISA, PERLS, and others), and the implications of that research have contributed significantly to the field in the form of competence-based teaching and assessment, among other things. One core outcome of all of these studies has been to make more prominent the importance of psychology for teachers and teacher education. Nevertheless, as already mentioned, there are still some constraints that limit the teaching of psychology in teacher education. These include limits on the position and amount of psychology in teacher education curricula in many programs. When the number of courses designated for psychology in teacher education is too small, they will not meet the requirements for psychological knowledge that is required of today's teachers. The result can appear as problems such as failure to address the common and stable psychological misconceptions (cf. De Bruyckere, Kirschner, & Hulshof, 2019; Dekker, Lee, Howard-Jones, & Jolles, 2012; Rato, Abreu, & Castro-Caldas, 2013) that are not only prevalent among pre-service teachers but also among expert teachers.

Teachers should be empowered to act as deliberate professionals, i.e., guiding their actions in an adaptive way to the affordances of educational situations by carefully choosing purposes and goals, by ethical and cultural considerations, as well as by conceptual and technical knowledge. The core goal of teaching psychology in teacher education and vocational programs is to contribute to the education of expert teachers who will be able to retrieve psychological knowledge and apply it to the complex situational demands they are faced with in instructional contexts. In other words, we need to teach and train psychologically literate and competent teachers, in order to empower them as efficient problem-solvers and lifelong learners for their future professional work and life.

In order to accomplish this goal, student teachers should be provided with opportunities for learning, understanding, and applying a broad range of psychological concepts, methods, and empirical evidence and to link that knowledge and understanding to evidence-based professional applications in school contexts (see Table 8). Hence, educational psychologists teaching in teacher education programs are faced with the challenging question of how to offer teacher students access to scientific psychological concepts, methods, and empirical evidence that they can use to develop their professional knowledge and competences. This question is also relevant in other domains of psychology learning and teaching, but the previously mentioned limits on psychology content within teacher education programs create unique challenges. Moreover, psychology scholars do not always have practical experience in teaching at schools and therefore need to learn how teachers can use psychological knowledge. Thus, psychology teachers in teacher education programs are faced with several challenges when selecting curriculum content as well as when

organizing and implementing the teaching and learning of this content. A first challenge relates to the trade-off between breadth and depth of covering the potential range of topics. Deciding for covering broadly the whole range of topics may lead to a superficial memorization of content as opposed to reaching a deep understanding of psychological insights and their applicability in school situations. When this happens, superficially memorized knowledge is unlikely to be transferred to professional practice. However, although covering psychological topics in greater depth will likely help students attain deeper knowledge and better understanding of its practical implications, doing so inevitably places limits on how many such topics can be addressed in a given amount of time. A mix of breadth and depth can be created by providing introductory lectures (accompanied by tutorials) and at least one or two in-depth courses, in which at least one topic can be worked on intensively.

A second challenge relates to the issue of how to identify and select those psychological topics and findings that are most reliable and of highest relevance for classroom teaching and learning. Some topics might seem relevant and prominent from a practical perspective (e.g., learning styles), yet there are no reliable empirical findings supporting them (e.g., De Bruyckere et al., 2019). Others are highly interesting from a psychological science perspective but either have little or no relevance for teaching or may not yet be extensive enough or stable enough to be of full value. Fortunately, over the last decade, several comprehensive textbooks and online resources have been developed that can scaffold dealing with this challenge (see 6.2).

A third challenge relates to the issue of how to provide students with opportunities to link foundational psychological knowledge to professional teacher tasks through evidence-based reflection and deliberate action within a one-semester time frame at a university (i.e., psychology teaching is rarely integrated in school contexts). The approaches presented in section "Approaches for Promoting a Deeper Understanding of Applying Psychology into Teaching" can serve as a basis for dealing with this challenge (see also Table 9; or Narciss, Hammer, Damnik, Kisielski, & Körndle, 2021).

Teacher education programs face at least three additional challenges (Patrick et al., 2011, p. 71) that have to be addressed more or less constantly: (a) communicating the relevance of educational psychology research to the wider education community, (b) developing collaborative relationships with colleagues in teacher education programs that support a common discourse and shared vision of effective teacher preparation, and (c) documenting the ways that educational psychology courses make a difference to the practice of graduating teachers and to the educational experiences of their K–12 students.

Finally, (future) teachers need to be made aware that educational psychology cannot provide recipes or prescriptions. They need to understand instead that psychology can provide concepts, models, and theoretical and empirical findings that teachers can use to better understand the rationale and boundary conditions of (their) teaching practices and behaviors, as well as to explore ways how to improve them. And because research in psychological science is constantly progressing, these teachers must be helped to understand that there will always be new psychological knowledge to learn and apply. This means that they should be encouraged to engage

in the kind of lifelong learning that can keep them updated about the latest developments in psychological research that is relevant to educational practice.

Teaching, Learning, and Assessment Resources

Tips for Teaching

The issue of identifying core instructional principles for teaching psychology in higher education has been addressed by various groups of researchers (e.g., Elvira, Imants, Dankbaar, & Segers, 2017; Mohamed, Valcke, & De Wever, 2017). Elvira and colleagues used a literature review to extract ten instructional principles that we consider very thoughtful, and thus we offer it here in Table 10.

Recommended (Text)Books for Teaching Psychology in Teacher Education Programs

The five comprehensive textbooks outlined in Table 8 are all valuable resources for teaching educational psychology to student teachers. We consider the two following textbooks as very inspiring because they provide both a research-based coverage of the subject and implications of research findings for educational practice in various school settings. The books offer also access to valuable online study and teaching resources:

- Snowman, J., & McCown, R. (2015). *Psychology applied to teaching*. Boston, MA: Cengage Learning.
- McInerney, D. M. (2013). *Educational psychology: Constructing learning*. New York, NY: Pearson.

The following three books can serve as resources for combatting misconceptions about learning and education:

- Holmes, J. D. (2016). *Great myths of education and learning.* New York: John Wiley & Sons.
- De Bruyckere, P., Kirschner, P. A., & Hulshof, C. D. (2015). *Urban myths about learning and education.* Amsterdam: Academic Press.
- De Bruyckere, P., Kirschner, P. A., & Hulshof, C. (2019). *More urban myths about learning and education: Challenging eduquacks, extraordinary claims, and alternative facts*. London: Routledge.

Online Resources

https://www.battelleforkids.org/networks/p21/frameworks-resources

Table 10 Instructional principles for psychology teaching (summarized from Elvira et al., 2017)

Principle	Instructional activities
Transforming theoretical/conceptual knowledge into experiential/practical knowledge	
1. Support epistemological understanding	– Introduce concepts early to prevent development of naïve theories and oversimplification – Emphasize the complexity, uncertainty, and dynamic development of knowledge – Engage students in critical thinking
2. Provide opportunities to differentiate between and among concepts	– Provide repeated encounters with concepts in several different contexts – Make students compare and contrast concepts in different contexts – Expose the knowledge and reasoning embodied in professional context(s)
3. Practice with a variety of problems to enable students to experience complexity and ambiguity	– Provide both typical and atypical problems – Gradually increase complexity of problems until they resemble situations that arise in practice
4. Enable students to understand how particular concepts are connected	– Make the connections explicit between concepts – Focus on higher-order concepts to provide guidance for novices – Provide opportunities to identify or isolate specific subcomponents of a concept
5. Target for relevance	– Apply repeatedly knowledge to real cases – Provide opportunities for exploring professional activities – Provide tasks requiring similar cognitive activities as required in the workplace
Explicating procedural/experiential knowledge into conceptual/theoretical knowledge	
6. Share inexpressible knowledge	– Initiate small-group discussions – Use cognitive modeling by thinking aloud
7. Pay explicit attention to prior knowledge	– Instruction should target (naïve) misconceptions – Take into account prior knowledge from adjacent domains
Reflecting on both practical and conceptual knowledge by using self-regulative knowledge	
8. Supporting students in strengthening their problem-solving strategies	– Communicate the great value of qualitative processes during problem-solving – Guided practice or coaching
9. Evoke reflection	– Encourage generation of solution processes, and make students compare their solutions to expert solutions – Encourage the discussion of differences among solutions in comparison to expert solution – Provide formative feedback

(continued)

Table 10 (continued)

Principle	Instructional activities
	– Encourage peer feedback – Encourage self-feedback strategies
10. Facilitating the development of metacognitive knowledge (learning strategies) and skills (self-monitoring, planning, and evaluation)	– Explicitly teach metacognitive strategies – Witness the value of self-monitoring – Provide possibilities to plan, monitor, and evaluate work – Highlight similarities across domains to encourage students to use metacognitive skills across the curriculum

The website of the Partnership for twenty-first Century Learning Group provides informative resources describing the framework of twenty-first-century skills and learning, as well as twenty-first-century support systems required for effective learning in the twenty-first century. These include twenty-first Century Standards, Assessments of twenty-first Century Skills, twenty-first Century Curriculum and Instruction, twenty-first Century Professional Development, and twenty-first Century Learning Environments. The P21 frameworks were compiled by teachers, education experts, and leaders in business and are in use both in the USA and abroad.

https://www.apa.org/ed/schools/teaching-learning

Accessible, easy-to-use, and evidence-based resources that are considered supportive to teachers and school professionals including counsellors and administrators. The Center for Psychology in Schools and Education creates these resources so as to enhance the application of psychological science in school programs and policies for schools and pre-K to 12 education.

https://www.apa.org/ed/schools/teaching-learning/top-twenty/principles

These top 20 principles have been derived from psychological research to support evidence-based teaching and learning in pre-K to 12. The principles are student-focused, learning-focused, and assessment- and feedback-focused.

https://www.esplat.org/

ESPLAT is the European Society for Psychology Learning and Teaching. It provides resources and information about different teaching topics, including psychology in teacher education.

https://journals.sagepub.com/home/plj

The *Psychology Learning and Teaching* (PLAT) journal is specifically dedicated to publishing research and practice in psychology learning and teaching, including research in the area of psychology in teacher education.

http://teachpsych.org/

The Society for the Teaching of Psychology offers a wide variety of resources for psychology teachers including resources for teacher education.

http://www.efpta.org/home/

The European Federation of Psychology Teachers' Associations provides many different resources for teaching psychology in secondary education.

Cross-References

- ▶ Assessment of Learning in Psychology
- ▶ First Principles of Instruction Revisited
- ▶ Formative Assessment and Feedback Strategies
- ▶ Inquiry-Based Learning in Psychology
- ▶ Service Learning
- ▶ Problem-Based Learning and Case-Based Learning

References

African Union. (2019). *African framework of standards and competences for the teaching profession*. Addis Ababa, Ethiopia: African Union Commission.

Albright, G. (2020). Introduction to PK12 professional development role-play simulation technology. In E. Bradley (Ed.), *Games and simulations in teacher education* (pp. 7–17). Cham, Switzerland: Springer.

American Psychological Association, Coalition for Psychology in Schools and Education. (2015). *Top 20 principles from psychology for preK–12 teaching and learning.* Retrieved from http://www.apa.org/ed/schools/cpse/top-twenty-principles.pdf

Anderson, L. M., Blumenfeld, P., Pintrich, P. R., Clark, C. M., Marx, R. W., & Peterson, P. (1995). Educational psychology for teachers: Reforming our courses, rethinking our roles. *Educational Psychologist, 30*(3), 143–157.

Barron, B. J., Schwartz, D. L., Vye, N. J., Moore, A., Petrosino, A., Zech, L., & Bransford, J. D. (1998). Doing with understanding: Lessons from research on problem- and project-based learning. *Journal of the Learning Sciences, 7*, 271–311.

Bennett, R. E. (2011). Formative assessment: A critical review. *Assessment in Education: Principles, Policy & Practice, 18*(1), 5–25.

Biggs, J. (2012). What the student does: Teaching for enhanced learning. *Higher Education Research & Development, 31*(1), 39–55.

Biggs, J. (2014). Constructive alignment in university teaching. *Review of Higher Education, 1*, 5–22.

Black, P., & Wiliam, D. (2009). Developing the theory of formative assessment. Educational Assessment, Evaluation and Accountability (formerly: Journal of Personnel Evaluation in Education), 21(1), 5–31.

Bologna Working Group. (2005). *A framework for qualifications of the European higher education area* (Bologna Working Group Report on Qualifications Frameworks). Copenhagen: Danish Ministry of Science, Technology and Innovation. Retrieved from http://ecahe.eu/w/index.php/Framework_for_Qualifications_of_the_European_Higher_Education_Area

Bradley, E. (2020). Introduction. In E. Bradley (Ed.), *Games and simulations in teacher education* (pp. 1–6). Cham, Switzerland: Springer.

Brookhart, S. M., & McMillan, J. H. (Eds.). (2019). *Classroom assessment and educational measurement*. London, UK: Routledge.

Centre of Study for Policies and Practices in Education. (2013). *Learning standards, teaching standards and standards for school principals: A comparative study.* Chile: Organisation for Economic Cooperation and Development. https://doi.org/10.1787/5k3tsjqtp90v-en

Clark, S., Porath, S., Thiele, J., & Jobe, M. (2020). *Action Research*. Manhattan, KS: New Prairie Press. https://newprairiepress.org/ebooks/34

Collins, A., Brown, J. S., & Newman, S. E. (1989). Cognitive apprenticeship: Teaching the crafts of reading, writing, and mathematics. In L. B. Resnick (Ed.), *Knowing, learning, and instruction* (pp. 453–494). Hillsdale, NJ: Erlbaum.

Council of Chief State School Officers. (2013, April). Interstate teacher assessment and support consortium. In *TASC model core teaching standards and learning progressions for teachers 1.0: A resource for ongoing teacher development*. Washington, DC: Author.

Darling-Hammond, L. (2006). Constructing 21st-century teacher education. *Journal of Teacher Education, 57*(3), 300–314.

Darling-Hammond, L., & Bransford, J. (2005). *Preparing teachers for a changing world: What teachers should learn and be able to do*. San Francisco, CA: Jossey-Bass.

De Bruyckere, P., Kirschner, P. A., & Hulshof, C. (2019). *More urban myths about learning and Education: Challenging eduquacks, extraordinary claims, and alternative facts*. London, UK: Routledge.

Deibl, I., Zumbach, J., Geiger, V., & Neuner, C. (2018). Constructive alignment in the field of educational psychology: Development and application of a questionnaire for assessing constructive alignment. *Psychology Learning and Teaching, 17*(3), 293–307. https://doi.org/10.1177/1475725718791050

Dekker, S., Lee, N. C., Howard-Jones, P., & Jolles, J. (2012). Neuromyths in education: Prevalence and predictors of misconceptions among teachers. *Frontiers in Psychology, 3*, 429. https://doi.org/10.3389/fpsyg.2012.00429

Elvira, Q., Imants, J., Dankbaar, B., & Segers, M. (2017). Designing education for professional expertise development. *Scandinavian Journal of Educational Research, 61*(2), 187–204. https://doi.org/10.1080/00313831.2015.1119729

European Commission. (2013). *Supporting teacher competence development for better learning outcomes*. Luxembourg, Luxembourg: European Commission.

European Commission. (2018). *European qualifications framework: Supporting learning, work and cross-border mobility.* Luxembourg, Luxembourg: European Commission.

Evans, C. (2013). Making sense of assessment feedback in higher education. *Review of Educational Research, 83*(1), 70–120.

Felten, P. (2013). Principles of good practice in SoTL. *Teaching and Learning Inquiry, 1*(1), 121–125.

Fives, H., & Buehl, M. M. (2012). Spring cleaning for the "messy" construct of teachers' beliefs: What are they? Which have been examined? What can they tell us? In K. R. Harris, S. Graham, T. Urdan, S. Graham, J. M. Royer, & M. Zeidner (Eds.), *APA educational psychology handbook* (*Individual differences and cultural and contextual factors*) (Vol. 2, pp. 471–499). Washington, D.C.: American Psychological Association. https://doi.org/10.1037/13274-019

Flores, M. A., & Swennen, A. (2020). The COVID-19 pandemic and its effects on teacher education. *European Journal of Teacher Education, 43*(4), 453–456. https://doi.org/10.1080/02619768.2020.1824253

Frerejean, J., Van Merriënboer, J. J., Kirschner, P. A., Roex, A., Aertgeerts, B., & Marcellis, M. (2019). Designing instruction for complex learning: 4C/ID in higher education. *European Journal of Education, 54*(4), 513–524.

Good, T. L., & Levin, J. R. (2001). Educational psychology yesterday, today, and tomorrow: Debate and direction in an evolving field. *Educational Psychologist, 36*(2), 69–72.

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. New York, NY: Routledge, Taylor & Francis.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81–112.

Hoveid, H., & Hoveid, M. (2019). *Making education educational: A reflexive approach to teaching*. Cham, Switzerland: Springer.

Irma, E., & Ebersöhn, L. (2004). *Keys to educational psychology*. Capetown, South Africa: UCT Press.

Janssen, F., Westbroek, H. B., & Doyle, W. (2014). The practical turn in teacher education: Designing a preparation sequence for core practice frames. *Journal of Teacher Education, 65*(3), 195–206.

Jeffries, C., & Maeder, D. W. (2011). Comparing vignette instruction and assessment tasks to classroom observations and reflections. *The Teacher Educator, 46*(2), 161–175. https://doi.org/10.1080/08878730.2011.552667

Klahr, D., & Nigam, M. (2004). The equivalence of learning paths in early science instruction: Effects of direct instruction and discovery learning. *Psychological Science, 15*(10), 661–667. https://doi.org/10.1111/j.0956-7976.2004.00737.x

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin, 119*(2), 254–284.

Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)? *Contemporary Issues in Technology and Teacher Education, 9*(1), 60–70.

Koenig, J., & Pflanzl, B. (2016). Is teacher knowledge associated with performance? On the relationship between teachers' general pedagogical knowledge and instructional quality. *European Journal of Teacher Education, 39*(4), 419–436.

Lohse-Bossenz, H., Kunina-Habenicht, O., & Kunter, M. (2013). The role of educational psychology in teacher education: Expert opinions on what teachers should know about learning, development, and assessment. *European Journal of Psychology of Education, 28*(4), 1543–1565.

Mayer, D., & Oancea, A. (2021). Teacher education research, policy and practice: Finding future research directions. *Oxford Review of Education, 47*(1), 1–7.

McInerney, D. M. (2014). *Education psychology constructing learning* (6th ed.). Frenchs Forest, NSW, Australia: Pearson.

Menter, I., & Flores, M. A. (2021). Connecting research and professionalism in teacher education. *European Journal of Teacher Education, 44*(1), 115–127.

Merrill, M. D. (2002). First principles of instruction. *Educational Technology Research and Development, 50*(3), 43–59.

Mohamed, Z., Valcke, M., & De Wever, B. (2017). Are they ready to teach? Student teachers' readiness for the job with reference to teacher competence frameworks. *Journal of Education for Teaching, 43*(2), 151–170.

Moser, S., Zumbach, J., Deibl, I., Geiger, V., & Martinek, D. (2021). Development and application of a scale for assessing pre-service teachers' beliefs about the nature of educational psychology. *Psychology Learning & Teaching, 20*(2), 189–213. https://doi.org/10.1177/1475725720974575

Narciss, S. (2008). Feedback strategies for interactive learning tasks. In J. M. Spector, M. D. Merrill, J. J. G. Van Merrienboer, & M. P. Driscoll (Eds.), *Handbook of research on educational communications and technology* (3rd ed., pp. 125–144). Mahaw, NJ: Lawrence Erlbaum.

Narciss, S. (2017). Conditions and effects of feedback viewed through the lens of the interactive tutoring feedback model. In D. Carless, S. M. Bridges, C. K. Y. Chan, & R. Glofcheski (Eds.), *Scaling up assessment for learning in higher education* (pp. 173–189). Singapore, Singapore: Springer.

Narciss, S. (2019). Curriculum design for (non-) psychology programs–a reflection on general and specific issues, and approaches on how to address them: Comment on Dutke et al., 2019. *Psychology Learning & Teaching, 18*(2), 144–147.

Narciss, S., Hammer, E., Damnik, G., Kisielski, K., & Körndle, H. (2021). Promoting prospective teacher competences for designing, implementing, evaluating, and adapting interactive formative feedback strategies. *Psychology Learning & Teaching, 20*(2), 261–278.

National Board for Professional Teaching Standards. (2016). *What teachers should know and be able to do*. Retrieved March 08, 2020, from https://www.nbpts.org/standards-five-core-propositions/

NSW Education Standards Authority. (2014). *Australian professional standards for teachers*. Sydney, NSW, Australia: Author.

Ostrosky, M. M., Mouzourou, C., Danner, N., & Zaghlawan, H. Y. (2013). Improving teacher practices using microteaching: Planful video recording and constructive feedback. *Young Exceptional Children, 16*(1), 16–29.

Partnership for 21st Century Skills. (2015). *Framework for 21st century learning*. Washington, DC. Retrieved from http://www.p21.org/storage/documents/docs/P21_framework_0816.pdf.

Patrick, H., Anderman, L. H., Bruening, P. S., & Duffin, L. C. (2011). The role of educational psychology in teacher education: Three challenges for educational psychologists. *Educational Psychologist, 46*(2), 71–83. https://doi.org/10.1080/00461520.2011.538648

Potter, M. K., & Kustra, E. (2011). The relationship between scholarly teaching and SoTL: Models, distinctions, and clarifications. *International Journal for the Scholarship of Teaching and Learning, 5*(1). Online: http://www.georgiasouthern.edu/ijsotl.

Qi, C., & Rude, L. (2019). Educational Psychology (3rd. Edition). Beijing, China: Higher Education Press.

Rato, J. R., Abreu, A. M., & Castro-Caldas, A. (2013). Neuromyths in education: What is fact and what is fiction for Portuguese teachers? *Educational Research, 55*(4), 441–453.

Reigeluth, C. M. (1999). The elaboration theory: Guidance for scope and sequence decisions. In C. M. Reigeluth (Ed.), *Instructional-design theories and models* (pp. 425–453). Mahwah, NJ: Lawrence Erlbaum.

Reigeluth, C. M. (2018). Lesson blueprints based on the elaboration theory of instruction. In C. M. Reigeluth (Ed.), *Instructional theories in action* (pp. 245–288). New York, NY: Routledge.

Reinholz, D. (2016). The assessment cycle: A model for learning through peer assessment. *Assessment & Evaluation in Higher Education, 41*(2), 301–315.

Shute, V. J. (2008). Focus on formative feedback. *Review of Educational Research, 78*(1), 153–189.

Snowman, J. (1997). Educational psychology: What do we teach, what should we teach? *Educational Psychology Review, 9*, 151–170. https://doi.org/10.1023/A:1024740512959

Snowman, J., & McCown, R. (2014). *Psychology applied to teaching*. Stamford, CT: Cengage Learning.

Stockard, J., Wood, T. W., Coughlin, C., & Rasplica Khoury, C. (2018). The effectiveness of direct instruction curricula: A meta-analysis of a half century of research. *Review of Educational Research, 88*(4), 479–507.

Stringer, E. T. (2008). *Action research in education*. Upper Saddle River, NJ: Pearson Prentice Hall.

Sweller, J., Ayres, P., & Kalyuga, S. (2011). *Cognitive Load Theory*. Amsterdam, The Netherlands: Springer.

Teachers' Council of Thailand. (2018). *South East Asia Teachers Competence Framework (SEA-TCF)*. Bangkok, Thailand: Teachers' Council of Thailand.

Thorpe, R. (2014). Sustaining the teaching profession. *New England Journal of Public Policy, 26*(1), 1–16.

Torp, L., & Sage, S. (2002). *Problems as possibilities: Problem-based learning for K-16 education* (2nd ed.). Alexandria, Egypt: Association for Supervision and Curriculum Development.

UNESCO Institute for Statistics. (2012). *International standard classification of education: ISCED 2011* (Comparative Social Research, 30). https://hdl.voced.edu.au/10707/240136.

Urhahne, D., Dresel M., & Fischer, F. (2019). *Psychologie für den Lehrberuf* [Psychology for the teaching profession]. Berlin, Germany: Springer.

Van Merriënboer, J. J. G. (2012). Four-component instructional design. In N. M. Seel (Ed.), *Encyclopedia of the sciences of learning*. Boston, MA: Springer. https://doi.org/10.1007/978-1-4419-1428-6_414

Van Merriënboer, J. J. G., & Kester, L. (2014). The four-component instructional design model: Multimedia principles in environments for complex learning. In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (pp. 104–148). Cambridge, UK: Cambridge University Press. https://doi.org/10.1017/CBO9781139547369.007

Van Merriënboer, J. J. G., & Kirschner, P. A. (2013). *Ten steps to complex learning: A systematic approach to four-component instructional design* (2nd ed.). New York, NY: Routledge.

Voogt, J., & Roblin, N. P. (2012). A comparative analysis of international frameworks for 21st century competences: Implications for national curriculum policies. *Journal of Curriculum Studies, 44*(3), 299–321. https://doi.org/10.1080/00220272.2012.668938

Wang, X., Su, Y., Cheung, S., Wong, E., & Kwong, T. (2013). An exploration of Biggs' constructive alignment in course design and its impact on students' learning approaches. *Assessment & Evaluation in Higher Education, 38*(4), 477–491.

Willingham, D. T. (2017). A mental model of the learner: Teaching the basic science of educational psychology to future teachers. *Mind, Brain, and Education, 11*(4), 166–175.

Woolfolk Hoy, A. (2000). Educational psychology in teacher education. *Educational Psychologist, 35*(4), 257–270.

Zumbach, J. (2021). *Digitales Lehren und Lernen* [Digital teaching and learning]. Stuttgart: Kohlhammer.

Teaching Psychology in Secondary Education

34

High School Psychology in the United States

Rob McEntarffer and Kristin Whitlock

Contents

Abstract

This chapter focuses on the teaching of introductory psychology in secondary education (high schools) in the United States and recommendations that may be useful for university-level psychology teachers based on the US high school psychology experience. The chapter summarizes the historical origins of US high school psychology, discusses national organizations and curriculum guidance documents relevant to high school psychology curriculum/instruction, and describes what is typically taught in high school psychology courses. The end of the chapter focuses on potential implications for international college psychology teachers and hopes for the future of US high school psychology.

R. McEntarffer (✉)
Lincoln Public Schools, Lincoln, NE, USA
e-mail: rmcenta@lps.org

K. Whitlock
Davis High School, Kaysville, UT, USA

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Keywords

High school psychology · Secondary school psychology · Introductory psychology · Teaching psychology · International psychology

Introduction

In the United States, millions of secondary education (high school) students take an introductory psychology course every year. Psychology has been a part of the American high school experience for over a hundred years and is taught in all 50 US states (Keith, Hammer, Blair-Broeker, & Ernst, 2013). This widespread exposure to psychology in high school may be a uniquely American phenomenon: it is difficult to find reliable information about how prevalent psychology courses are in high schools worldwide, but statistics from the College Board may be an indication. The College Board Advanced Placement (AP) program is a series of course curricula and end-of-course tests that students can choose to participate in for the purpose of earning university credit during their high school career. In the United States, the College Board lists 9,692 high schools as offering an Advanced Placement psychology course (College Board, 2020). Across the 10 most populous non-US countries (see Fig. 1), only 191 high schools total are listed in the same College Board database. The International Baccalaureate (IB) program reports that there were 22,789 students who took an IB Psychology course in 2020 (International Baccalaureate Organization, 2020). About half of IB students attend school in the United States, so it is safe to assume that about 11,000 of these high school students who took the IB course are in the United States (the IB organization does not report this information specifically). If these dramatic differences between the numbers of AP and IB Psychology courses in the United States and other countries are an indication of the trend in the international prevalence of high school psychology courses, then the US high school psychology course experience may be at least somewhat unique. Examining the history, curriculum, and outcomes of this course may be useful for psychology instructors in order to add to the international perspective on psychology teaching.

In this chapter, we seek to "tell the story" of US high school psychology courses for international readers because parts of this story may be useful for teachers of psychology outside the United States. The authors of this chapter have been teaching high school psychology in the United States for 44 years combined, and we have been involved in efforts at the national level to help US psychology teachers improve curriculum and instruction. In many ways, our teaching careers are intertwined with the story of US high school psychology. We begin the chapter with a brief summary of the historical origins of US high school psychology and discuss US national organizations and position statements that currently influence US high school psychology curriculum and instruction. Then we describe the range of learning goals most common in high school psychology courses and identify potential implications for university psychology teachers. We end the chapter with discussions

Rank	Country	Number of AP Psychology courses
1	China	155
2	India	6
3	United States	9,692
4	Indonesia	6
5	Pakistan	3
6	Nigeria	4
7	Brazil	2
8	Bangladesh	1
9	Russia	1
10	Mexico	13

Fig. 1 Advanced placement psychology courses in the top 10 most populous countries. (Source: https://apcourseaudit.inflexion.org/ledger)

of implications for non-US psychology teachers and hopes for the future of US high school psychology.

History: How Did We Get Here?

Several histories of high school psychology courses document how this class began and evolved in the United States (Benjamin Jr., 2001; Coffield & Engle, 1960; Engle, 1967; Griggs, Jackson, & Meyer, 1989; Keith et al., 2013; Ragland, 1992; White, Marcuella, & Oresick, 1979). For the purposes of this chapter, it may be useful to focus on how the US high school psychology course evolved from its origins to a course based on the science of psychology.

Psychology may have been offered in some US high schools since at least 1895, and a nationwide survey in 1960 reported that the course was offered in 39 states

(Coffield & Engle, 1960). This same report indicated that the number of psychology courses was increasing nationwide. The authors explained that "the trend of today is toward a more intense development of science, psychology cannot be offered" and this trend may have been preventing the course from expanding further (Coffield & Engle, 1960, pg. 352). The "competition" between high school psychology courses and "real" or "hard" science courses has apparently existed for the entire history of the high school psychology course.

Engle (1967) noted that high school textbooks with the word "psychology" in the title first appeared in 1889 and noted that one of the factors limiting the number of high school psychology courses was the lack of trained teachers. It is likely that the training these teachers were missing was training in teaching a science course. The relative lack of previous instruction in science emerged in another survey (White et al., 1979), which indicated that high school psychology courses were more likely to include topics such as personal problems and family living rather than topics like biological bases of behavior and statistics. One decade later, a similar survey (Griggs et al., 1989) found that most high school psychology courses focused on developmental and personality concepts rather than addressing a full survey of typical university introductory psychology courses and that this specific focus for high school psychology courses likely was caused by "limited training of the instructors" (pg. 120). In this survey, teachers reported that their university courses and teaching methodology courses focused on history content and instruction with very few courses in social sciences.

Ragland (1992) found that the psychology course was still not the main focus for most teachers assigned to teach high school psychology. These teachers' "teaching identities" were not solely or mainly centered on psychology. Most teachers reported that the majority of their teaching day was devoted to a variety of courses other than psychology. By 2009, researchers documented an increase in the quality of US high school psychology courses as indicated by increasing numbers of high school teachers with a psychology background in their undergraduate careers and some evidence that experiences in high school psychology courses were associated with higher achievement in university psychology courses (Hedges & Thomas, 2009). A more recent summary describing the history and state of the US high school psychology course (Keith et al., 2013) acknowledged the historical lack of science preparation of high school psychology teachers, but documented a change due to the "golden era" of training for high school psychology teachers between 1992 and 1999. They referred to this period as a golden era because of the wealth of training opportunities available specifically for high school psychology teachers. These training opportunities and resources included a new AP Psychology course and curriculum, National Science Foundation (NSF)-supported training workshops for teachers, and support from the American Psychological Association (APA) for the development of national standards. The authors of this chapter enter the story during this "golden age." Both authors attended an NSF-funded workshop at Texas A&M University in the summer of 1994. This month-long training experience changed who we were as teachers and launched us toward lifelong careers dedicated to high school psychology.

This brief review of the history of the US high school psychology course highlights a theme that will recur several times during this chapter: in the past, high school psychology courses focused on a narrow band of what some psychologists might call "applied" topics rather than the breadth of topics included in an undergraduate psychology survey course. This specificity may have been due to a lack of science training for high school psychology teachers and few resources devoted specifically to high school psychology teachers. As training opportunities increased, so did the variety and scope of high school psychology courses. Current US high school psychology courses are more focused than they have been in the past on the science of psychology.

US High School Psychology Course Curriculum and Instruction

The US high school psychology course emphasized different aspects of psychology throughout its history. The learning objectives and curriculum for the course have evolved toward a focus on the science of psychology and making sure students are exposed to a survey of the breadth of psychological research areas. In this section of the chapter, we will describe the most common goals of current US high school psychology courses and some of the continuing challenges relevant to the content of this course.

A well-taught introductory psychology course provides instructors, at all educational levels, an opportunity to introduce students to the concepts that explain our cognition and behaviors. In that journey, students learn the principles that guide scientific discovery and begin to discriminate between empirical findings and the psychological misconceptions prevalent in the media. students learn the vocabulary that helps them connect personal experience to the world around them. Students learn the difference between correlation and causation, the importance of sampling and random assignment to research, and how to analyze data using statistics and practice reading graphs. Students are consumers of psychological information, and this class, in high school or university, provides students with tools to think critically about these sources and discern fact from unsubstantiated claims.

In addition, students learn the vocabulary that helps them connect personal experience to the world around them. Students begin to realize how psychology can help solve many troubling problems facing the world. They may become increasingly sensitive to the influence of bias on their perceptions and recognize the cognitive fallacies that hinder good decision-making. Experiences in this course may transform a student's perception of themselves and their relationships with others. They learn effective ways of coping with stress and research-based ways of increasing their personal well-being. Students also learn the basic principles of learning and the fragile nature of memory. These concepts have the potential to transform their lives. For many high school students, this class may be their only formal exposure to these principles.

Other students may continue their education at the university level where they may major in psychology and possibly choose to pursue a graduate degree; thus, this

class serves as an important starting point in the educational pipeline. A high-quality high school course may serve as the beginning of the pipeline for committed, excited undergraduate psychology majors. High school psychology courses can give students enough information and experiences with psychology to convince them that this is the area they want to focus on in university, and they may start their university experience committed to studying psychology because they already made an informed decision in high school. These students will be familiar with some of the vocabulary and skills they will need to be successful in university psychology classes. Research findings are mixed regarding whether high school students with psychology experience perform better in university-level psychology classes. Studies do not find strong relationships between past experience in high school psychology and success as measured by course grades, but high school psychology courses seem to be associated with increased familiarity with important terms that help undergraduates be more confident in their university-level courses (Carstens & Beck, 1986; Hedges & Thomas, 1980). College Board-sponsored research indicates that students who are successful on the AP Psychology test are more likely to succeed in psychology university courses (Wyatt, Jagesic, & Godfrey, 2018), but it is not clear that the specialized training students experience in AP Psychology courses is similar enough to non-AP courses to confer the same benefit in university courses.

Even though some research studies do not find clear evidence of increased academic success that can be attributed to high school psychology courses, one benefit is clear: all former high school psychology students who enter university already convinced that they are interested in psychology will inevitably increase the chances they will major in psychology and commit to courses in the department. These students may experience many of the same academic struggles all new university students experience, but they at least know they are interested in the science of psychology, and this increased interest may benefit those students and the university. These students may be more likely to seek out research and leadership opportunities in psychology departments and commit to psychology as their area during their undergraduate experience.

The benefits of taking a psychology course in high school may differ widely based on the students, their experiences, and future goals. Diversity is also reflected in the widely different contexts in which the course is taught. Some teachers are working in large urban or suburban high schools with thousands of adolescent students, while others may be working in small rural schools that serve students from kindergarten to high school. Some instructors teach in private religious schools, in public schools, or in publicly funded charter schools. Many teach this course in a semester, while others complete this course in a year. Some classes are taught primarily through lecture, while others use a more active learning approach. Many teachers incorporate class demonstrations of basic principles as a primary means to illustrate core concepts, where others incorporate lab experiences into the curriculum. In many schools, students can enroll in university-level psychology courses while still in high school, such as the AP or IB programs. Increasingly, students may enroll in Concurrent Enrollment (CE), also called Dual Enrollment, courses at their

local high schools that allow them to earn university credit from participating schools of higher education.

In addition to the varied contexts in which this course is taught, the students themselves are incredibly diverse. Their different cultural, ethnic, and racial backgrounds shape their perception of concepts presented in class and how they apply these principles to their everyday lives. Students' academic interest and abilities differ widely. In one class, some students may be reading at a university level, while others struggle to read. Teachers provide academic accommodations for students with 504 or Individual Educational Plan (IEP) designations as required by law. These designations require an official diagnosis of a disability that may interfere with learning or a pattern of past academic challenges for specific students. Students with 504 or IEP designations have documentation for teachers regarding what accommodations or modifications should be available to them during instruction and for assessments.

Students also vary widely in their expectations of the course. Because many are exposed to media portrayals of psychologists as therapists, they assume that the course will focus primarily on mental health topics. Students' motivations for enrolling in the course vary widely. Some students, because of trauma in their own lives, seek out this class to help them understand their experiences. Some are curious based on psychological information they read online, fiction they have read, or media portrayals of psychological illness. Some students may know psychologists from their family or through other social contacts, and these relationships sparked their interest. Others have no interest in the course material at all, but are hoping for an "easy" class that will fill an elective credit toward graduation.

Amidst this diversity, teachers of psychology must decide what should be emphasized during the short period they have their students in their class. This is not an easy task as historically there has been little guidance in this area. In the United States, psychology is an elective course, meaning that students are not required to take this course to graduate from high school. Because of this, little attention has been given to setting standards to guide important curriculum decisions. Instructors are also divided in their beliefs of what the overall learning goals of the course should be. In other words, should the focus of the course be on teaching the specific content of psychology or should the emphasis be on helping students acquire scientific reasoning, critical thinking skills, and/or the skills that make them more marketable in the world of work?

For most of the history of the high school psychology course, curriculum standards for what should be taught were not sufficiently addressed by either social studies or science curriculum standards. In 1999, the APA formally addressed this omission with their approval of the *National Standards for High School Psychology Curricula* (hereafter referred as "the Standards"). This standards document provides needed guidance about the overall content and skills that should be included in the course. The Standards divide the content of psychology into seven broad domains with "scientific inquiry" emphasized because of its importance in conveying the scientific nature of the field.

While the Standards are revolutionary, useful, and easily available, APA still faces challenges in making teachers aware of their existence and in widespread adoption of these standards by individual states. To date, 34 states have no curriculum standards for this course. Three states (Alabama, Florida, and Tennessee) have standards based on APA's, one state (Utah) refers its teachers directly to the Standards, six states (Indiana, Kansas, Oklahoma, Texas, North Dakota, and Wisconsin) have standards that roughly align or overlap with APA's Standards, and North Dakota and Wisconsin reference APA's Standards in theirs. Georgia has psychology standards that may align to APA's but not as clear as the states above. Four states (Arkansas, Maryland, Vermont, and Illinois) have standards aligned in various ways to the College, Career, and Civic Life (C3) Framework for Social Studies State Standards from the National Council for the Social Studies (NCSS). Three states (Iowa, Mississippi, and North Carolina) have standards, but they are not aligned with APA. One state, New Hampshire, briefly mentions psychology in their "minimum standards for public school approval," but psychology doesn't seem to be in their curriculum standards (E. Leary, personal communication, November 10, 2020). Thus, even with the Standards, it is unclear what is actually being taught in high school psychology courses in the United States. It is unclear as to why it is so difficult to bring cohesiveness to the teaching of this course with this valuable resource in place. It may partly be due to the broad and sometimes overwhelming amount of content. It may be due to the lack of training or the turnover in those teaching the course. In addition, there is still confusion over where this course belongs; in other words, is this a science or a social studies class? Lingering misconceptions about the nature of psychology influence the treatment this course receives at the state and local levels where curricular decisions are often made.

Challenges

Part of the challenge of teaching the science of psychology at the high school level is reflected in an inaccurate perception of the discipline as a whole. Many within the general public, as well as those in other scientific disciplines, do not view psychology as science. Psychology is often omitted, or inconsistently recognized, as a STEM (science, technology, engineering, and mathematics) discipline or viewed as a "soft science." This basic misunderstanding of the scientific nature of the field is recognized by the APA as one of its strategic goals: to "Elevate the public's understanding of, regard for, and use of psychology" (American Psychological Association, 2021).

While there are those who question psychology's place within science, others have recognized the vital interdisciplinary role that it plays. Psychology is a "hub" science (Cacioppo, 2007), along with physics, chemistry, earth sciences, mathematics, medicine, and the social sciences, as a discipline whose empirical research findings are often cited by researchers in other fields. Psychological science provides unique insights into a range of cognitive and behavioral phenomena that informs and leads to developments in other disciplines.

While it is difficult to judge just how widespread the misperception of psychology is in the context of kindergarten through 12th grade (K12) schools, it has shaped psychology's status as an elective course, its placement primarily within the Social Studies department, the relative lack of attention paid by state boards of education and national organizations regarding curriculum standards, and the insufficient training many teachers receive to teach a science course. While scholarship on the history of the high school psychology course does not often address which department high school psychology is assigned to, some teacher education programs direct teachers who want to teach psychology to obtain a "broad-field" social studies certification rather than a specific certification in teaching science (University of Nebraska, Lincoln, n.d.). This certification requirement means that high school psychology teachers are far more likely to have more undergraduate coursework in other "social studies" courses, like history, than they are to have extensive coursework in other sciences.

The American Psychological Association (2017) has found that credentialing (academic qualifications required to teach specific courses in US schools) of high school psychology teachers is highly variable. Twenty-four states do not require a psychology credential, meaning that any qualified teacher can teach this course. This may mean that the teacher has little or no academic preparation in psychology. Fourteen states do offer a psychology teaching credential; however, teachers do not have to have this credential in order to teach the course. Only 13 states currently require a credential in psychology (American Psychological Association, 2018). Without sufficient training in science, essential understandings of the nature of this discipline may be lost as teachers struggle with concepts they are not well trained to teach.

Also, placing psychology in high school social studies departments may lead to less obvious changes in the curriculum of the course. Some K12 schools and districts develop curricula within discipline areas. A social studies curriculum director is likely to include different content and skills in a high school psychology curriculum than is a science curriculum director. High school psychology teachers rarely only teach psychology as part of their teaching load, and content/skills from the other courses they teach during the day may influence the pedagogies and examples these teachers use in their psychology classrooms. It may be impossible to determine why the majority of high school psychology courses "live" in high school social studies departments rather than science departments, but this reality influences the nature of the high school psychology courses, who gets to teach these courses, and how the courses are perceived by others.

National K12 curriculum organizations also reflect conflicting visions of where the high school psychology course belongs. The National Council for the Social Studies (NCSS) is the largest social studies curriculum organization in the United States. NCSS mentions psychology in its definition of social studies (National Council for the Social Studies, n.d.-a), but psychology is NOT listed in the "disciplinary tools and concepts" along with Civics, Economics, Geography, and History (National Council for the Social Studies, n.d.-b). The College Board lists AP Psychology in the "History and Social Sciences" section rather than in the general

"Sciences" section of their curriculum page (CollegeBoard, n.d.). A search for the term "psychology" in the Next Generation Science Standards (National Science Teachers Association, n.d.) reveals no mention of psychology in the hundreds of pages of that curriculum. Documents from these major national teaching and curriculum organizations represent the underlying reality that in high school curriculum and practice, psychology "lives" in the world of social studies, not science, and this placement may influence the scope and potential of the high school psychology course.

Hope for the Future

Even in the context of these challenges, there is hope for the future of this course. The APA and College Board continue to move forward with policies and curricula that advance the teaching of this discipline as science. The APA's National High School Psychology Standards (American Psychology Association, August, 2011), due to expire in December 2021, are currently under revision with a projected release date of February, 2022. These revised standards will continue to emphasize the central importance of scientific inquiry and will describe connections between psychological themes and content and the Next Generation Science Standards. As these connections are clarified, state departments of education may be more likely to formally adopt the APA's Standards and move toward approving psychology as a science course. This change would allow students to earn science credit toward graduation. In addition, the College Board is already taking steps to move the AP Psychology exam from its current designation as a "History and Social Science" Exam to a "Science" exam (A. Fineburg, personal communication, January 12, 2021). Such steps would ameliorate the "non-science" status of this high school psychology course and help it find its true home among the other sciences. As the number of students taking psychology continues to increase, this is a necessary step in changing entrenched misconceptions. It will take time for these practical and attitude shifts to occur. Even among psychology teachers, these changes may bring some potential discomfort. Psychology teachers primarily see themselves as social studies teachers. With a shift in course designation to a science class, many may be concerned about whether they have the appropriate credentials, knowledge, and skills to teach the course.

Realizing the transformative potential of high school psychology, the APA sponsored the first ever National Summit on High School Psychology Education in July 2017 at Weber State University in Ogden, Utah (American Psychological Association, 2017). The purpose of the summit was to examine the state of high school psychology and create initiatives, programs, and other resources to advance its teaching. Seventy instructors representing all educational levels from across the United States were involved. Participants were divided into eight working groups (Psychology as a Science, Skills that Promote Flourishing, National Standards for High School Psychology Curricula, Assessing Student Knowledge and Skills in Psychology, Credentialing and Identifying the High School Psychology Teacher,

Ongoing Professional Development, Diversity and Access, and Technology and Online Learning). Each group was tasked with identifying areas of need and developing necessary resources. As a result of the landmark event, over 40 products ("deliverables") were created. These ranged from Advocacy Toolkits to assist teachers in approaching policymakers about credentialing and course designation; Assessment Guides assisting teachers in developing appropriate and effective assessments; lesson plans focusing on metacognitive, transferable, and well-being skills; compilations of professional development opportunities; a video on the value of high school psychology for students of all backgrounds; and vetted technology tools to help teachers address the needs of their classrooms. At the conclusion of the Summit, the Teachers of Psychology in Secondary Schools (TOPSS), the voice of high school teachers within the APA, became responsible for making these resources widely available.

One of the deliverables is tied directly to the issue of addressing the misperception of the discipline of psychology. The first working group, Psychology as a Science, provided a report called *High School Psychology is Science* (American Psychological Association, 2017). This report first provides a general overview of the connection between psychology and the other sciences. It also provides a brief history of the high school psychology course along with a discussion of the challenges facing the course and the positive outcomes for teaching psychology as science. The document also tackles several common misperceptions that lead people to believe psychology is not a science. With the goal of increasing the recognition of psychology as science, the report ends with specific recommendations, including credentialing issues. For example, the report suggests that if an instructor is determined to be qualified to teach psychology, what academic department they are employed in is not a key issue. This assurance should allay the fears of many instructors that if the course moves to the science department, they will not be able to teach the course. Another suggestion included in the report is that TOPSS create effective laboratory exercises that parallel the Next Generation Science Standards to increase student's awareness of the scientific nature of the discipline. Psychology students, like students in other scientific disciplines, need to learn the techniques of hypothesis testing and analyzing data to draw valid conclusions. Another Summit deliverable was designed to help reach this goal: the Society for the Teaching of Psychology (Division Two of the APA) published *Promoting Psychological Science: A Compendium of Laboratory Exercises for Teachers of High School Psychology* (Miller, 2018). This set of lab exercises addresses most of the content domains in introductory psychology giving students the opportunity to plan and carry out psychological investigations.

Soon after the National Summit on High School Psychology, the APA's Board of Educational Affairs (BEA) formed the Introductory Psychology Initiative (IPI) (American Psychology Association, 2018). The purpose of this initiative is to make recommendations for all major aspects of introductory psychology across all instructional levels. Members were divided into four working groups: Student Learning Outcomes (SLOs) and Assessment, Course Models and Design, Teacher Training and Development, and Student Success and Transformation. The first phase

of the project, beginning in 2018, was to review existing research, conduct a national survey of instructors, and gather data, including feedback from listening sessions conducted at regional conferences. Phase 2, beginning in 2019, included the recruitment of faculty across diverse educational settings, to pilot test the recommendations of the working groups and develop case studies that illustrate the influence the implementation of these recommendations had at the different institutions. Phase 3 included presentations of the research findings and recommendations at the APA Convention in August of 2020.

The SLOs developed by the IPI working group are available to preview online (American Psychological Association, 2020) and will be discussed in more detail in an upcoming APA publication (Halonen, Thompson, Whitlock, Landrum, & Frantz, in press). Rather than prescribe specific content that must be taught in this course, the SLOs focus on three broad skills that students should develop as a result of taking this class. These skills include being able to identify basic concepts and research findings (define and explain basic psychological concepts, interpret research findings, and apply psychological principles to personal growth and everyday life) and to solve problems using psychological methods (draw logical and objective conclusions; describe the advantages and limitations of various research strategies; design, conduct, or evaluate psychological research; and counter unsubstantiated statements, opinions, or beliefs using psychological science). The third skill involves the ability to provide examples of psychology's integrative themes. This thematic approach departs from more traditional methods, but allows instructors maximum flexibility in selecting content. Instead of asking students to memorize isolated concepts, the focus is on connecting specific content to broader ideas with the hope that these ideas will linger with students long after the course concludes.

The IPI project provides instructors with some preliminary resources (American Psychological Association, 2019) of how to design a course around themes. Instructors are encouraged to select specific content based on student interest or instructor expertise that connect to these broader ideas. For example, to illustrate the integrative theme "Psychology explains general principles that govern behavior while recognizing individual differences," instructors may wish to discuss the factors that influence intelligence, resilience, personality testing, supertasters, or synesthesia. The hope is that long after students forget most or all of the definitions, experiments, or theories they learned in the course, these themes will still resonate and help them successfully navigate the psychological information they are exposed to everyday.

Implications for Non-US Psychology Teachers

The history and current status of high school psychology courses in the United States leads us to conclude that this course may be a valuable experience for secondary education students outside the United States, and psychology teachers in other countries can learn from challenges and successes in the United States to build or expand similar programs internationally. Specifically, evidence presented in this

chapter indicates that the high school psychology course benefits from ongoing, strong central/national resources, teacher training programs, and continued involvement from high school psychology teachers.

The history of the high school psychology course demonstrates the need for high-quality, state, or national resources for high school teachers. For much of our history, high school psychology courses varied widely in scope and learning objectives. High school students were as likely to encounter a course based on personality or personal adjustment as they were to experience a survey of the science of psychology. The examples of national resources mentioned earlier in the chapter (from organizations such APA/TOPSS and the College Board) strengthen the high school psychology course. Since many high school psychology teachers do not have extensive course work in the science of psychology, these high-quality, research-based national documents give high school psychology teachers a solid ground to stand on. Teachers can count on these resources to be based on current research and reflect the consensus of the field. Many high school psychology teachers are the only staff member assigned to a psychology class in their school, so these national documents help communicate to these isolated teachers what the scope of an introductory psychology class should be, as well as provide references and other support as teachers plan their lessons. Specifically, the national standards from APA/TOPSS (American Psychology Association, August, 2011) and College Board AP Psychology course description (College Board, 2020) provide detailed curriculum information for high school psychology and Advanced Placement psychology teachers. Teachers from outside the United States who are interested in establishing or strengthening high school psychology programs could begin by finding or developing these "bedrock," central resources teachers can use as the bases of their high school courses.

In addition to resources, the US high school psychology course benefitted from continuing high-quality training opportunities. During the "golden age" of the development of the course (Keith et al., 2013), university psychology faculty were able to obtain grants from the National Science Foundation for summer workshops on university campuses. These multiple week-long experiences provided high school psychology teachers with an "immersion" experience. Teachers lived on campus and attended courses that represented the full range of the science of psychology. For many teachers, this workshop was their first opportunity to focus solely on university-level psychology content and instruction. These NSF-funded workshops trained a generation of high school psychology teachers who went on to seek out leadership and other service opportunities in national high school psychology organizations (this generation includes the co-authors of this chapter). The legacy of these training opportunities continues with week-long APA-funded experiences at other university campuses. Other training opportunities also exist for high school psychology teachers: APA/TOPSS sponsors shorter workshops and continually provides high-quality instructional materials (Clark University, n.d.; Oregon State University, 2019). The College Board continually updates the AP Psychology Course Exam Description (College Board, 2020) and organizes day- and week-long workshops for AP Psychology teachers. Less formal opportunities now exist for high

school psychology teachers seeking support and information: the AP Psychology Teachers Facebook page (Facebook, 2020) includes more than 6,000 teachers and features multiple questions and answers hourly. Teachers from outside the United States who are interested in supporting high school psychology programs should consider establishing ongoing training opportunities grounded in university-level science-based psychology content so that high school teachers can compensate for a lack of background in psychology coursework and stay current in their field.

Another lesson to be learned from the story of the high school psychology course is that the strength of high school psychology depends on the continued involvement of high school psychology teachers. At every stage in the journey from the beginning of the high school psychology course until now, national organizations and resources emerged from the involvement and effort of high school psychology teachers, supported by university psychology researchers and teachers. The APA recognized the importance of involving high school psychology teachers in their efforts as long ago as the 1970s: the APA established the Clearinghouse for Precollege Psychology and began publishing a newsletter in order to share materials created by and for high school psychology teachers (Keith et al., 2013). The emergence and continued efforts of TOPSS depend on the involvement of high school psychology teachers: the TOPSS board is made up of high school psychology teachers and includes one university psychology instructor as an advisor. The College Board institutionalized high school teacher involvement in the structure of the scoring system for the AP Psychology exam: half the leadership and other roles for the scoring process for the written portion of the AP exam are reserved for high school psychology teachers. Teachers from outside the United States who are interested in supporting high school psychology programs should remember to enlist, empower, and enable high school psychology teachers to develop and lead efforts to strengthen high school psychology programs.

Conclusion

High school students in the United States have been experiencing some version of a psychology course for over a hundred years. The prevalence and content of this course has changed over time. The current high school psychology teacher community is a strong group of teachers dedicated to helping young people understand the breadth of the science of psychology and how these ideas can help them understand human thinking and behavior. High school psychology teachers are committed to a philosophy of "giving psychology away" (Miller, 1969). Formal and informal teacher communities share materials nationwide through social networks and offer advice, guidance, and support daily. Some high school psychology teachers are beginning to work with university faculty to take a possible next step in our discipline: help non-psychology teachers understand how principles of cognitive psychology can help students learn and teachers teach (Chew, 2020).

It may be useful for psychology teachers outside the United States to investigate local high school psychology courses and seek out high school teachers. A strong

high school psychology program can benefit higher education institutions by increasing student interest in the science of psychology and helping to better prepare undergraduate students who may take university psychology courses. In addition, forming relationships with high school psychology teachers can benefit university psychology faculty. We are a fun bunch of people, and we are always excited to establish professional relationships with university psychology teachers.

Cross-References

- ▶ Basic Principles and Procedures for Effective Teaching in Psychology
- ▶ Educational Psychology: Learning and Instruction
- ▶ First Principles of Instruction Revisited
- ▶ Psychology in Social Science and Education
- ▶ Psychology in Teacher Education
- ▶ Teaching Introductory Psychology
- ▶ Teaching of General Psychology: Problem Solving
- ▶ Teaching Psychology in Secondary Education
- ▶ Teaching the Foundations of Psychological Science

References

American Psychological Association. (2017, July). *APA summit on high school psychology education*. APA Summit on High School Psychology Education. Retrieved January 4, 2021, from https://www.apa.org/ed/precollege/topss/high-school-summit?tab=1

American Psychological Association. (2018, August). *Advocacy toolkit for the psychology teaching credential*. Advocacy Toolkit for the Psychology Teaching Credential. Retrieved January 4, 2021, from https://www.apa.org/advocacy/education/psychology-teaching-credential

American Psychological Association. (2019, July). *The APA introductory psychology initiative*. The APA Introductory Psychology Initiative. Retrieved January 5, 2021, from https://www.apa.org/ed/precollege/undergrad/introductory-psychology-initiative/pilot

American Psychological Association. (2020, July). *APA Introductory Psychology Initiative (IPI) student learning outcomes for introductory psychology (Draft, July 2020)*. APA Introductory Psychology Initiative (IPI). Retrieved January 5, 2021, from https://www.google.com/url?q=https://www.apa.org/ed/precollege/undergrad/introductory-psychology-initiative/student-learning-outcomes.pdf&sa=D&ust=1609795481504000&usg=AOvVaw1H0BtZr6_9_2SpZzYWRaz_

American Psychological Association. (2021). *IMPACT APA American Psychological Association strategic plan*. IMPACT APA American Psychological Association Strategic Plan. Retrieved January 4, 2021, from https://www.apa.org/about/apa/strategic-plan

American Psychology Association. (2011, August). *National standards for high school psychology curricula*. National Standards for High School Psychology Curricula. Retrieved November 10, 2020, from https://www.apa.org/education/k12/national-standards

American Psychology Association. (2018, January). *The APA introductory psychology initiative*. The APA Introductory Psychology Initiative. Retrieved January 4, 2021, from https://www.apa.org/ed/precollege/undergrad/introductory-psychology-initiative

Benjamin, L. T., Jr. (2001). A brief history of the psychology course in American high schools. *American Psychologist, 56*(11), 951–960. https://doi.org/10.1037/0003-066X.56.11.951.

Cacioppo, J. T. (2007) The Structure of Psychology, Association for Psychological Science Presidential Column, December 2007

Carstens, C. B., & Beck, H. P. (1986). The relationship of high school psychology and natural science courses to performance in a college introductory psychology class. *Teaching of Psychology, 13*(3), 116–118. https://doi.org/10.1207/s15328023top1303_3.

Chew, S. (2020, May 27). *Teaching study skills (not just study tips) in introductory psychology*. American Psychology Association. Retrieved November 17, 2020, from https://www.apa.org/ed/precollege/psychology-teacher-network/introductory-psychology/study-skills

Clark University. (n.d.). *American Psychological Association-Clark University workshop for high school teachers*. American Psychological Association-Clark University Workshop for High School Teachers. Retrieved January 15, 2021, from https://www.clarku.edu/departments/psychology/events/american-psychological-association-clark-university-workshop-for-high-school-teachers/

Coffield, K. E., & Engle, T. L. (1960). High school psychology: A history and some observations. *American Psychologist, 15*(6), 350–352. https://psycnet.apa.org/doi/10.1037/h0049317.

College Board. (2020). *AP psychology course and exam description*. AP Psychology The Course. Retrieved November 10, 2020, from https://apcentral.collegeboard.org/courses/ap-psychology/course

CollegeBoard. (n.d.). *AP course and exam pages*. AP Course and Exam Pages. Retrieved December 21, 2020, from https://apcentral.collegeboard.org/courses

Engle, T. L. (1967). Teaching psychology at the secondary school level: Past, present, possible future. *Journal of School Psychology, 5*(3), 168–176. https://doi.org/10.1016/0022-4405(67)90037-4.

Facebook. (2020). *AP psychology teachers*. AP Psychology Teachers Private Group. Retrieved November 17, 2020, from https://www.facebook.com/groups/556665311050841

Griggs, R. A., Jackson, S. L., & Meyer, M. E. (1989). High school and college psychology: Two different worlds. *Teaching of Psychology, 16*(3), 118–120. https://doi.org/10.1207/s15328023top1603_3.

Halonen, J. S., Thompson, J. L., Whitlock, K. H., Landrum, E. R., & Frantz, S. (in press). In R. R. Gurung & G. Neufeld (Eds.), *Measuring Meaningful learning in introductory psychology: The IPI student learning outcomes* (Transforming introductory psychology: Expert advice on teaching, training, and assessing the course). American Psychological Association.

Hedges, B. W., & Thomas, J. H. (1980). The effect of high school psychology on pre-course knowledge, midterm grades, and final grades in introductory psychology. *Teaching of Psychology, 7*(4), 221–223. https://doi.org/10.1207/s15328023top0704_6.

Hedges, W., & Thomas, J. H. (2009). The effect of high school psychology on pre-course knowledge, midterm grades, and final grades in introductory psychology. *Teaching of Psychology, 7*(4), 221–223. https://doi.org/10.1207/s15328023top0704_6.

International Baccalaureate Organization. (2020). *The IB diploma programme final statistical bulletin*. The IB Diploma Programme Final Statistical Bulletin. Retrieved January 4, 2021, from https://www.google.com/url?q=https://www.ibo.org/contentassets/bc850970f4e54b87828f83c7976a4db6/dp-statistical-bulletin-may-2020-final-en.pdf&sa=D&ust=1609795481477000&usg=AOvVaw13M9kvaDveJnEzvFgO9MXf

Keith, K. D., Hammer, E. Y., Blair-Broeker, C. T., & Ernst, R. M. (2013). High school psychology: A coming of age story. *Teaching of Psychology, 40*(4), 311–317. First Published October 7, 2013 Research Article. https://doi.org/10.1177/0098628313501044.

Miller, G. (1969). Psychology as a means of promoting human welfare. *American Psychologist, 24*, 1063–1075.

Miller, R. L. (2018). *Promoting psychological science: A compendium of laboratory exercises for teachers of high school psychology*. Promoting Psychological Science: A Compendium of Laboratory Exercises for Teachers of High School Psychology. Retrieved January 15, 2021, from https://teachpsych.org/ebooks/promotingpsychscience

National Council for the Social Studies. (n.d.-a). *College, Career, and Civic Life (C3) framework for social studies state standards*. About C3. Retrieved December 21, 2020, from https://www.socialstudies.org/standards/c3

National Council for the Social Studies. (n.d.-b). *National curriculum standards for social studies: Executive summary*. National Curriculum Standards for Social Studies: Executive Summary. Retrieved December 21, 2020, from National Curriculum Standards for Social Studies: Executive Summary

National Science Teachers Association. (n.d.). *Next generation science standards*. Next Generation Science Standards. Retrieved December 21, 2020, from https://www.nextgenscience.org/

Oregon State University. (2019, April 1). *SPS to host APA/APF/Oregon State university psychological science workshop for high school psychology teachers*. SPS to host APA/APF/Oregon State University Psychological Science Workshop for High School Psychology Teachers. Retrieved January 15, 2021, from https://liberalarts.oregonstate.edu/news/sps-host-apaapforegon-state-university-psychological-science-workshop-high-school-psychology-teachers

Ragland, R. G. (1992). Teachers and teacher education in high school psychology: A national survey. *Teaching of Psychology, 19*(2), 73–78. https://doi.org/10.1207/s15328023top1902_2.

University of Nebraska, Lincoln. (n.d.). *Secondary social sciences*. Secondary Social Sciences. Retrieved January 15, 2021, from https://cehs.unl.edu/tlte/secondary-social-sciences/

White, K. M., Marcuella, H., & Oresick, R. (1979). Psychology in the high schools. *Teaching of Psychology, 6*(1), 39–42. https://doi.org/10.1207/s15328023top0601_12.

Wyatt, J., Jagesic, S., & Godfrey, K. (2018). *Postsecondary Course Performance of AP® exam takers in subsequent coursework*. College Board – Current Research. Retrieved December 17, 2020, from https://aphighered.collegeboard.org/research-reports

Psychology in Work and Organizational Education

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Pedro F. Bendassolli, Sonia Gondim, and Fellipe Coelho-Lima

Contents

Abstract

The purpose of this chapter is to provide guidelines for the teaching practice of disciplines related to Work and Organizational Psychology (WOP), applied to different fields of knowledge other than psychology. We begin by sensitizing teachers to the permeability of human work as an object of study, and a field of problematization of the psychological phenomenon in any context where it occurs. Work is a phenomenon that crosses human life and is present in any professional practice. As such, the main mission of a professor in charge of teaching the contents of this area is to understand work as a central axis whose effects are noticeable in the diverse facets of human life's contextual expressions. Our starting point is work characterization: what is this phenomenon, and which elements allow us to handle it in a cross-sectional perspective of human life. In the proposed model, we conceptualize work as an intentional action, with several ramifications in key psychological dimensions, such as those involving performance, development, health, and affectivity. By theorizing the 'work'

P. F. Bendassolli (✉) · F. Coelho-Lima
Universidade Federal do Rio Grande do Norte, Natal, Brazil

S. Gondim
Universidade Federal da Bahia, Salvador, Brazil

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phenomenon, instead of the concepts used by the WOP area, the chapter stimulates a debate on the very nature and dissemination of knowledge. This is because, in this psychology sub-area, what we usually find are theories of medium or low reach, unable to encompass the wider phenomenon of connection between work and other psychological phenomena. In addition, without a central driver, it is up to the teacher to navigate in the ocean of concepts and techniques so widespread in the field, which makes professional qualification unstable and floating. However, in order to allow the teacher to interact with WOP scientific narratives, we present some matches between concepts used by this area and the central dimensions of the work phenomenon. Next, we develop a guide to orient the teacher in making decisions on which strategies to use to stimulate teaching and debate around this proposal, which conceives work and its connection with key psychological phenomena.

Keywords

Work · Meaning of work · Organizational psychology · Competences

Introduction

Human work represents a challenge for teaching and learning processes. Working is not just an isolated activity, but takes part in a set of actions that, coordinated, result in some reality transformation, either in the form of a new product, or changes in other people. The human being, although endowed with physical and cognitive resources that enable him/her to use complex procedures, is not born with the necessary skills to exercise them. Unlike other animals, many of whom are great "workers," the human being enjoys a wide plasticity, with reflections in complex learning systems, throughout life.

Therefore, when we consider teaching topics related to work and organizations, we are talking about a process that crosses the species itself, since the human agent, when becoming a qualified worker, participates in building his/her own humanity and our civilization's. The very concept of "organization," as an objectified form (a material instance and a set of institutionalized rules and procedures), brings the work implicitly. In fact, a brief historical dive can bring to light the different forms of work organization experienced by the human being. From slavery, with its radical dependence on manual labor, to the intensely intellectual work of scientists and writers, in autonomous and creative arrangements, going through industrial work (and its machine-dependence), we see a great diversity of ways to institutionalize work, that is, to materialize it, with remarkable implications for (formal) teaching and learning processes.

Our proposal, in this chapter, goes in a different direction from several manuals that address topics on Work and Organizational Psychology, from now on called WOP. In those manuals, what we find is a more or less institutionalized set of concepts for apprehending a wide range of phenomena, whose integration they

rarely discuss or demonstrate. This is because they do not always take into account a substantive view of work. For example, we can discuss "motivation," or "leadership," but it is rare to show to what extent, on a more general level, both relate to the same phenomenon: the act of working. This chapter proposes an alternative path. First, it presents a cross-sectional definition of work, by describing it as a phenomenon that crosses the human experience itself, which has agents capable of building their own "environment," their own culture, their own tools, their own future. Second, starting from this transversal notion of work, it proposes a generic roadmap in order to think about a series of topics of interest for teaching and developing competencies related to the act of working.

Essentially, our proposal is to consider *human action* as intentional, a point of articulation between psychology, organizations, and work. The latter consists precisely of a type of activity oriented to generating results in reality. Around this type of action, a series of devices converge – personal, interpersonal, social, institutional –, which function as mediation points for the referred action. Then, their results are appropriated by the subject himself and by third parties. This action is permeated by affections, by cognitive constructions, and by facilitating or hindering contextual elements.

Therefore, from the idea of work as an intentional action, we can think of topics such as psychological development, understood as the increasing capacity of the agent to manage his/her context and organize regulatory mental schemes, both internal and external. We can think of performance, as the meeting between a planned action and an action executed in specific circumstances. The performance consists, at the same time, of the descriptive (what happened or did not happen) and evaluation elements of the action (we reached or not a target previously set as necessary/intended). We can think that health is also at the action's origin, here considered as the subject's ability to be active and exercise its agency. In addition, we can also think about the ethical and moral aspects involved in generating work results.

In the next section, the chapter strengthens this definition of work initially outlined. Then, it presents itself as a counterpoint to a concrete and specific context, calling attention to the importance of thinking of work in a universal (or cross-sectional) way, but also local. Next, it suggests topics or subjects articulated with the suggested work dimensions, including those related to the ethics of teaching, and progresses with more specific and practical considerations for the preparation of a WOP teaching plan, its challenges and perspectives.

A Cross-Sectional Definition of Work

We find the definition of work – as an intentional action that requires mediation to promote personal, material, and social changes – in the writings of several intellectuals and thinkers (e.g., Friedman & Naville, 1962; Hesiod, 2018; Marx & Engels, 2012; Vygotsky, 1997). This definition is opposed to views aligned with the etymological origin of the word "work" and Greek mythology (Leal, 1997), which

associate work with a form of divine punishment, emptying its character of central value in society, which would distance us qualitatively from other animals (Blanch, 2006). One reason for this devaluation has to do with the differences in social status of the types of work that prevail in our society, since there is a small number of jobs capable of promoting human development and social justice, in opposition to the vast majority of jobs without social value and personal meaning.

However, regardless of how work is done under objective conditions, many of which deprive it from intrinsic meaning, we can assume that working consists of engaging in a conscious and intentional activity, to achieve valuable personal and social goals. Work is at the base of the economy (production and consumption of goods and services), of the world materiality (use and reuse of resources, with effects on the ways of doing), of the legal order (rights and duties of work and at work), and of shared social norms (moral conduct in social relationships). In addition, it is essential for the development of human potentials (psychological needs), and a milestone in the insertion of the human being in a universe of symbols and meanings that characterizes culture (Bendassolli & Gondim, 2019).

Figure 1 is a graphical representation of what we consider a promising approach for disciplines oriented to WOP, with an expanded definition of work at the center. We start from the principle that the human being is an active agent in the process of changing the reality. He makes use of material, affective, cognitive, and volitional resources to make a mediation capable of generating a partial or total transformation (personal, interactional, material, or social). However, social and cultural variability can hinder, to some degree, the intentional action in its purpose of change. Moreover, macroeconomic, social, technological, political, legal, and moral conditions have favored or hampered the full achievement of work.

This expanded understanding of work, considering its function and economic, social, historical, political and, therefore, psychological repercussions, is what

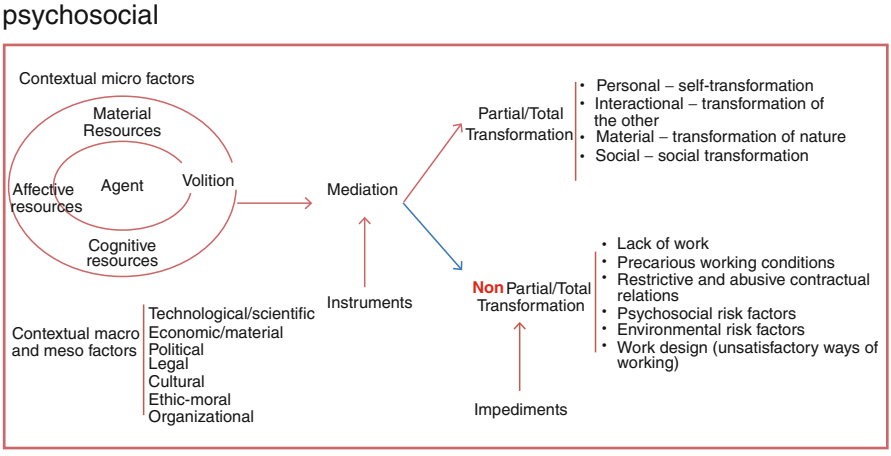

Fig. 1 Work as a mediated transforming human action

generally supports the way by which the various subfields that make up WOP address this phenomenon. Hence, this is the main landmark for understanding the importance of WOP for training professionals from other areas, who work directly with the issue of Work and Organizations, as we next explore in more detail.

Work in Context

In the previous section, we highlighted the definition of work as a cross-sectional category of human existence (Fig. 1). However, work is also a situated, contextual phenomenon. The way this main activity of human transformation is valued and socially organized varies greatly. Therefore, besides considering work transversality, which in itself is a form of idealization for organizing our reflection, there is another important element in a teaching-learning proposal in this field. It needs to take into account not only a unified definition of work, but also the local specificities of each country, which determine how work is institutionalized, thus creating demands for teaching and learning.

Therefore, in training courses where topics of WOP are relevant, we must acknowledge that work contexts vary a lot. On the other hand, this proposal, which conceives work as a cross-sectional activity (Fig. 1) shows that, despite the different contexts, the key dimensions of the phenomenon remain. For example, although countries differ in the way of structuring work, either due to different levels of technological maturity, or to different forms of social organization, the agent still has to engage in the actions needed for transformation, and his/her work is the means to enable it. If, in one context, mediation instruments use robots, and in others they still depend on "live" work (visible physical effort), the common factor is the need to use mediation instruments (natural or built), thus having to learn how to operate them efficiently.

Similarly, if we consider the way organizations are structured, we will find significant variations between different realities, internal to countries and, above all, when comparing them. For example, the organization may consist merely of a digital platform for work intermediation (crowdwork, people's mobile applications, and delivery). Back to Fig. 1, we can choose some possible impacts on teaching and learning processes. First, new skills are needed, and by skills, we understand the set of cognitive knowledge and the subjective mobilizations necessary to operate effectively in the material reality, like using new tools for virtual work mediation. Equally, as we observe in Latin American countries, such work organization through virtual networks may end up by penalizing workers' social organization, by interfering in their sociability processes, organization in union classes, and workers' rights and protection (Fig. 1, macro factors).

Finally, let us consider one more example. There was an increase in workers' mobility among countries, which increased the chances of working in a country other than the one where the basic vocational training took place. The recognition of this new reality raised efforts in an attempt to unify standards of scientific and practical qualification in some parts of the world. A more visible example is the

European Union's Erasmus Program (https://ec.europa.eu/programmes/erasmus-plus/about_en), which became effective in 1980. The training and education support program proposed a standardization for people qualification as a response to globalization, and facilitated their movement among European countries.

These examples make evident the challenge imposed on teaching topics related to the field of work, especially that of seeking greater balance between macro trends in phenomena related to work and organizations, and local specificities, combining the "ideal" transversality (intended abstract and comprehensive category) of work and its institutionalization in specific contexts.

A Portfolio of Topics for WOP Teaching

As we suggest, the choice of which subjects to teach in higher education courses on WOP must take into account the cross-sectional definition of work provided previously. It also needs to consider the contextual influences for the materialization of such a work. In other words, our proposal is that the central teaching axis be work itself as a psychological and social *phenomenon*, carried out by agents and using mediation instruments, with the aim of transforming themselves and the social elements of which they are part. We show the synthesis of this proposal as questions (Fig. 2).

Our starting point (first question) regards why human beings work. A professional, regardless of his/her area of expertise, must know how to theorize and understand what leads the human agent to invest in an act of reality transformation by benefiting from self-transformation. Economic, material, motivational, social, political, religious, and psychological aspects unleash movements toward goals that we intend to achieve in social life. There is a set of motivational theories to include in the teaching program. The choice of theories to address is based on epistemological, theoretical, and methodological fundamentals of the discipline's professor and on the analysis of the local reality where she works.

There are two possible ways for choosing the phenomena to discuss, which should guide the development of competencies. The first concerns the cognitive, affective, motivational, and behavioral processes that lead the person to start and keep a transformational action. Concepts such as the meaning and sense of work, work engagement, and work value are some examples that seek to explain the quality

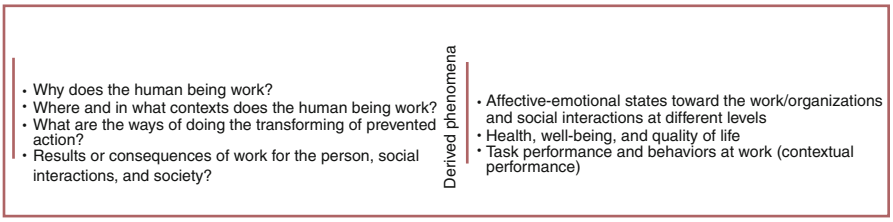

Fig. 2 Key elements for decision-making on including WOP phenomena in a teaching program

of human action engagement. The second refers to the contextual meso and macro factors that favor or hinder this action (Fig. 1). This implies that the teacher must be able, at least, to move through different fields of knowledge. For example, wider economic systems, labor legislation, and social and cultural norms can help the student understand the influence of factors where human action takes place.

The second question brings to the discussion the different work contexts in global and local reality, as mentioned previously. The range of options here is even more challenging for choosing what to include in the program. Depending on the reality, the teacher needs to characterize the types of formal and prevailing work in his/her local reality, for instance, the higher or lower prevalence of informal work; or the different social pressures to favor certain categories or work arrangements, with their respective impacts on the type and quality of the necessary skills. The objective is not to provide an exhaustive analysis, but to make the student incorporate to his/his repertoire theoretical and empirical elements of work contexts, in his/her immediate reality, and assume a critical attitude, by being able to envision interconnections between the local context and global issues, since work is, in itself, a twofold local and global phenomenon.

Therefore, in this case, the choice of phenomena consists in the characterization of modalities, arrangements, and contexts where the work (potential human action for transformation) takes place in a given society. It requires the teacher to consider the global work scenario, assessing the relevance, adequacy, and applicability of some theoretical models for the context of his/her local reality. Theories that address the organization as phenomena and other organizational forms of work are available in the scientific literature of the area, but it is necessary to evaluate how well they serve as a lens to analyze the concrete reality.

The third question strongly relates to the second, since it asks about ways of doing or hindering work. There are multiple forms of work organization, work designs, methods, and resources that can contribute to the success or failure of its full execution. Work is a social act, but also reflective and productive. It is reflective to the extent that every human being thinks to some degree about his/her work, with more or less freedom to make changes to achieve his/her initially planned objectives. This is because some works withdraw from the individual his/her power to plan what and how to do, and the quality of what will be produced. Contextual variables at the macro level (labor legislation, economy, technology) and at the meso level (organizations and institutional forms of work organization) can become an impediment to performing the work as a transformation action.

The fourth and final question that supports the criteria for choosing phenomena to include in the discipline program regards the consequences and results of work for the person, for social interactions, and for society in general. What we want to highlight here is that the teacher needs to choose phenomena and topics that address the facet of work as a social action, and the consequences of such action. Task performance and the distinct behaviors that favor it must be addressed. Here, we emphasize work as a productive act that should have a social impact, in order to really achieve its purpose of transformation. We return to this topic in the next section.

Furthermore, among the results of the work on the agent, those on his/her health, both physical and mental, stand out. The act of working implies the possibility of transformation, of yourself and the other, and of the surrounding material and social reality; but there is also the possibility of failure, of error, permeated by different levels and types of impediment. A hampered work affects health directly. Such impediment may arise from the circumstances of work organization, and also from disease-causing social processes, when we prioritize results to the detriment of human well-being. The topic of stress at work, burnout, and several other ways of restricting the quality of life are essential aspects to discuss in a training activity in this field.

The Ethical Dimension of WOP Teaching

In the previous section, we presented some guiding questions for choosing topics to develop with students, with a transversal definition of work as a central element. However, there is an additional dimension to place on the scene, and it refers to the ethical-moral aspects of the very act of teaching the topics previously mentioned. According to our definition (Fig. 1), the human agent is the central point, but not as a worker who simply generates profit, but as a major player of his/her own activity, being the first beneficiary of its results, if there were not processes of intense work exploitation and expropriation over time and still today, widely documented. Abstract work is not what sets the world in motion, but real (concrete) work, performed by natural persons.

Thus, the teacher must take into account that, when engaging in processes for competence development in this field, he/she deals at all times with important ethical-moral implications. Especially with the human radicality of live work, and not only with instrumental aspects, of performance, productivity, and process optimization, as if they were simply mechanical devices to adjust, seeing knowledge only through its practical, operational dimension. Thus, meeting management demands of any kind – from changes in the organization of work to modifications in its technical and technological basis – has effects on the people who carry out these activities. Hence, the debates listed by WOP contribute not only to recognizing the humanity of this work, in general, but of the people who work in their uniqueness.

In our view, teaching and developing competencies in WOP should rely on the unity between instrumental dimension, focused on results, and ethical-moral dimension, focused on the recognition of the agent's centrality and his/her intentional (implied) action in the world. For example, when an engineer proposes a new work organization, new technological arrangements, or when new managerial routines are developed, the motivation that seems to come to the forefront regards the direct effects of such changes on performance, on the result seen only in its economic dimension, as the gain for shareholders and controllers. Often, teaching focuses primarily on such aspects of work activity, without apparently involving the people directly affected by the changes – but only or mainly considering machines,

equipment, instruments, standards, and systems. However, to achieve the expected effect, it is essential to take into account the persons who carry out the activity.

In other words, any change in the work process should assume the active involvement of workers in a given organization. Otherwise, as many studies on organizational change show (Beer & Walton, 1987; Burke, 2017; Stouten, Rousseau, & Cremer, 2018), the trend is a resistance to such changes, or even their failure. The teaching process should sensitize the students, future professionals/managers, for these aspects of the work experience. The teacher can, for example, address the classical separation between those who think about work and those who do it, an issue inherited from Taylor's scientific administration, in the distant nineteenth century, which created a gap between professionals (often those dedicated to intellectual work) and workers (a synonym for manual workers) (Bravermann, 1998). If, from the standpoint of working conditions, we observe differences between them, they disappear when we consider the position they assume within the production process – both are workers selling their workforce.

In short, the contents developed for WOP need to go beyond the optimization of work results (for the others, the owners of the means of production), and address the development of human agents, including their critical and reflective potential, with each student seeing himself/hersef as a worker. Finally, to make them notice and question the effects of phenomena such as job precarization, moral harassment, conflicts at work, and exploitation.

Decision-Making: Designing a Teaching Plan

In this final section, we focus on some more practical and instrumental considerations regarding the development of a teaching plan for WOP, aimed at professional qualification.

The starting point of a plan, whatever the topic, is the explanation of the instructional objectives that express competencies to achieve at the end of the learning process (Bloom, 1956; Krathwohl, 2002; Vaughan, 1980). Instructional objectives are formulations that clearly state the learning goal at the end of a planned educational process, which also serve as a basis for the evaluation processes. Competence can be defined as an articulated set of knowledge, skills, and attitudes (values) that favor a qualified performance, which reveals the effective capacity to deal with the diverse challenging and problematic situations of daily life (Fleury & Fleury, 2001). For instructional purposes, it is necessary to take into account that, in higher education, the focus is mainly on knowledge acquisition, particularly in the cognitive domain. This domain has four dimensions of knowledge and six levels of increasing complexity.

In its revised version (Krathwohl, 2002), the first dimension of knowledge is the factual, in which the learner gets familiarity with essential terms and concepts. The second dimension regards conceptual knowledge, which refers to the ability of using concepts in schemes, structures, and models. The third is procedural knowledge, which concerns the ability to use methods and techniques and apply them in practice.

The fourth and final dimension is metacognitive knowledge, which refers to the capacity for reflective, critical, and in-depth elaboration on the various levels of knowledge, by using previous repertoires to give opinions on the best models and methods, or to create new ones. There are six levels of increasing complexity that can be targets of the teaching-learning process: memorization (recognizing and remembering), understanding (interpreting, comparing, exemplifying), application (using concepts in different situations), analysis (differentiating, decomposing, organizing), evaluation (judging and assigning value), and creation (generalizing and producing new theoretical perspectives).

We already mentioned the key aspects that support knowledge on work as a cross-sectional phenomenon of human life – why; how; in what contexts the human being works; and what would be the consequences of this work for him, for human interactions, and for society. When considering these aspects, the teacher must define the knowledge dimensions that are relevant to his/her context (considering the course he/she teaches), and the levels of complexity that students should achieve.

In higher education, the student is expected to go far beyond the levels of complexity related to memorization and understanding. The expectation is that they will be able to analyze, apply, evaluate, and even try new theoretical elaborations on phenomena related to WOP, in their various manifestations. However, considering the complexity of the topics suggested in this chapter, especially in terms of integrating knowledge around a transversal view of work (Fig. 1), the teacher could focus on the first two dimensions of skill development: the factual and the conceptual. Thus, complexity can be attached to the first four levels: memorization, understanding, analysis, and application. Building a learning diagram can help the teacher choose the content to address in the discipline, and the educational strategies (Fig. 3).

Let us resume Fig. 2 to help the teacher in his/her process of building the teaching-learning plan. This figure contains four guiding questions and three sets of related phenomena. At the end, students should be able to answer, at least in part, the four questions in Fig. 2: why does the human being work? Where and in what contexts does this work take place in their immediate reality, and how does it differ from other countries' reality? Which are the main factors that hinder or facilitate human transforming action? What are the results and consequences of work for the person, for human interactions, and for society?

When considering that the intended levels of learning complexity would be the factual and the conceptual, the first step we suggest to the teacher, for each of the questions in Fig. 2, is to identify the relevant conceptual topics. For example, regarding the question "why does the human being work," he/she can discuss the "meaning of work" concept (Bendassolli & Tadeo, 2017), debating its historical aspects; he/she can also promote a conceptual discussion on work centrality, although it is relative, according to the culture and countries. Alternatively, he/she can promote a reflection on the material and social bases that explain each person's need for work (in the form of selling his/her workforce), or the philosophical bases of work, as an activity for transforming the reality based on culture (Bendassolli, 2016).

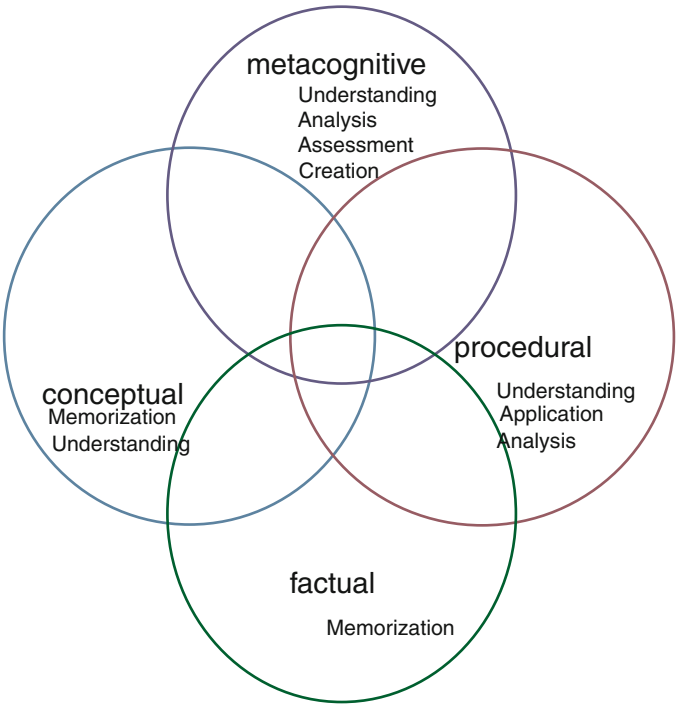

Fig. 3 Knowledge dimensions and levels of complexity of the cognitive domain of learning in the revised Bloom's Taxonomy

The second step, after examining in detail the concept of the chosen topic, regarding the respective question in Fig. 2, is to move on to the corresponding factual aspects. Here it is important that the teacher help the student understand that the conceptual facets of the topic of discussion are rooted in objective aspects of his/her own life reality, regardless of the country and the conditions in which he/she lives. When discussing the meaning of work, the teacher can use resources extracted from daily newspapers, internet news, examples culturally shared between teacher and students, or present data and statistics, when available and relevant – for example, studies inspired by the Meaning of Work Research Team (MOW, 1987) bring data that compare different countries with respect to the meaning of work.

Furthermore, as shown in Fig. 3, the factual level of skills development takes place through memorization, understanding, analysis, and application. Therefore, still considering our example on the meaning of work as a conceptual topic for discussion, the teacher would debate data or facts related to the practical repercussions of the concept. Then, in his/her available time with the students, he/she could suggest a case analysis, and explore with them how problems or setbacks in the processes of attributing meaning could affect some key dimensions of the work management process. Some studies show that, by having difficulty to find meaning at work, a person can become discouraged, or do it in a purely instrumental,

superficial way, with potential impacts on mental health and even on task performance

Therefore, a third step would be for the teacher to use some active teaching methodology, such as the case study, or to promote a panel with the students, dividing them in small groups, with the task of thinking on the implications for the worker for being prevented or removed from a meaningful work. Activities that invert the teacher's place, as the holder of knowledge, to the student, as a leading player in the creation of strategies for application and action, based on the conceptual inputs presented, also contribute to the processes of knowledge memorization and retaining.

The teacher should notice that the level of complexity of the themes associated with the questions in Fig. 2 is not homogeneous. Let us consider a second topic – factors that hinder work activity. First, there is the task of conceptualizing a hindering factor. As we suggested in the correspondent section, we will consider the issue of work design. This is an investigation path in the literature, and, essentially, its objective is to point out which organizational elements of the work can enhance the action and which prevent it. A line of reflection regards working conditions (EurWork, 2011). Working conditions refer to material elements (physical working environment, machinery, equipment, etc.), social (how management organizes the work, task division, etc.), psychological (level of work motivation, well-being, meaning of work, etc.), economic (wage compensation), among several others that affect work results. After defining working conditions and their content, the next step, following the previous example on work meaning, is to discuss with the students ways to apply this concept. Here it is possible to use some measurement instrument consistent with the model of working conditions (for example, EurWork, 2011).

However, there are ways of addressing the issue of impediments other than just using the concept of working conditions. The teacher can choose a more qualitative discussion, and share with the students reflections from authors linked to what in France is known as "work clinics" (Lhuilier, 2016). In some perspectives, as in "activity clinics" (Clot, 2009), impediment does not refer only to external aspects of work activity (such as stimuli from the physical or material environment), but also to its intrinsic aspects. For instance, an activity or work can be prevented when there are conflicts regarding what is understood as the most appropriate way to do the work, especially in the context of a collective activity, where the interdependence of different agents is essential.

The choice of which concept to discuss in a particular facet of the transversal work phenomenon (Fig. 2) thus depends on the teacher's analysis of the level of complexity he/she wants to adopt in his/her approach and teaching process. By "complexity," in this case, we refer to the fact that the teacher wishes, by his/her experience or even through his/her perception of the ability of a given group of students, regarding certain concepts, to choose approaches that are not "mainstream" within the field, as would be, for example, that of working conditions. By choosing perspectives that deviate from the typical manuals of the area, the teacher will have the challenge of "translating" these concepts, although they have a promising

Questions	Concepts	Suggestions of books and organizations to consult
Why does the human being work?	Sense and meaning of work Human motivation Work centrality Values Social and professional identity	Latham, G. P. (2012). *Work Motivation*: *History, theory, research and practice* (2nd ed). Sage Publications: Thousand Oaks, CA. Yeoman, R., Bailey, C., Madden, A., & Thompson, M. (2019). *The Oxford Handbook of Meaningful Work*
Where and in what contexts does the human being work?	Working conditions Organizational behavior Work organization New ways of working	International Labor Organization https://www.ilo.org/global/lang-en/index.htm European Foundation for the Improvement of Living and working Conditions https://www.eurofound.europa.eu/ European Statistical System https://ec.europa.eu/eurostat Scandhra, T.A. (2019) *Essentials of organizational behavior. An evidence-based approach* (2nd ed.). Sage Publications. D' Cruz, P., Noronha, E., Caponecchia, C., Escartin, J., Salin, D., & Tuckey, M.R. (2021). *Dignity and inclusion at work*. Springer.
What are the ways to do the transforming or prevented action?	Work design Work clinics	Ones, D. A., Anderson, N., Viswesvaran, V., & Sinangil, H.K. (2018) *The Sage Handbook of industrial, Work and Organizational Psychology* (2nd ed.). 3 v. Dejours, C., Deranty, J-P., Renault, E., & Smith, N.H. (2018). *The return of work in critical theory: Self, society and politics*. New York: Columbia University Press.
What are the results or consequences of work for the person, for social interactions, and for society?	Well-being at work Burnout	Schaufelli, W.B., Malasch, C., & Marek, T. (2018). *Professional burnout. Recent developments in theory and research*. Routledge.

Fig. 4 Suggestions of references for consultation to compose a teaching plan on WOP topics

application, allowing, in addition, an expansion of the student's focus of competence development.

Complexity also arises from the fact that, when choosing concepts that depend on a theoretical framework unfamiliar to the average student, the teacher will have to start by addressing the general bases of these concepts (for example, in the case mentioned above, he/she will have to define "work activity" first, and then "extrinsic" and "intrinsic" elements). As mentioned earlier, the institutionalization of work varies according to cultural contexts; likewise, concepts more or less familiar to the teacher also vary according to his/her country's context; after all, researchers who live there, and in theory are more likely to reflect the reality of that context, created such concepts. The teacher's choice for approaching the concepts, through which he/she will meet the aspects suggested in Fig. 2, depends on his/her own experience, beliefs, and on his/her assessment of the students' profile, to whose formation he/she is supposed to contribute.

For illustration purposes, we built Fig. 4, where the teacher can check some books to support his/her teaching plan, based on the questions in Fig. 2. We emphasize that the choice of texts for basic use in the disciplines should take into account the instructional goals, students' profile, the context of the course, and the teacher's level of mastery to deal with work-related themes, theories, methodologies, and phenomena.

Challenges and Perspectives

Throughout this chapter, we defended what a teacher of a discipline on labor and organizations would achieve, in quality of teaching and contribution, if instead of merely adopting a set of topics and concepts more or less "consecrated" in the WOP manuals, he/she organized or situated them within a wider and fundamental "map": the very definition of work. By assuming this map as the organizational unit for curricula choice and design, the concepts are organically presented and, ideally, make more sense to students. Moreover, we share the definition of competencies, as composed of conceptual and factual elements, the latter represented by the possibility of connection between the theory and episodes of reality that it explains.

Our proposal also highlighted, as far as possible, the importance of the teacher being aware of the ethical and moral dimension of the contents taught, especially when considering that working is not merely reproducing techniques and procedures to achieve a result, but to immerse in a set of social and cultural norms and values. The student himself sometimes does not realize that he/she is a worker, or that he/she is driven to the labor market as such. Therefore, all suggestions are also valid for making students create metacognitions related to their own condition as a worker: why they work, what hinders their work, where their work takes place, and the consequences of their work on others, on themselves (health, well-being, meaning), and on society (quality of work, division of work results, etc).

Teaching WOP subjects to students other than psychology students has the potential to provoke a reflection that, especially in more technical courses (engineering, medicine, technology etc.), may not have another space to occur. The student, due to social and cultural factors, often thinks of teaching only as the acquisition of conceptual, procedural, and practical knowledge. The teacher, on the other hand, must make a commitment to remind him/her of other important elements in skills development. These are the capacity for self-reflection, and the development of meta-skills that allow each student to critically assess the meaning of those concepts in his/her life, on one side, and their meaning on the phenomenon under discussion (work and organizations, in this case). In other words, it would be the ability to create from what you receive, which may be a great challenge of the education process, regardless of the subarea.

In addition, how to evaluate the education process? First, it is important to consider that the learning assessment process, based on the concept of competencies already suggested, can capture the level of mastery acquired by the students in order to answer satisfactorily to each of the questions in Fig. 2. We can proceed with an evaluation simply to assess the level or amount of information memorized by the student. Here, the focus would be on a type of summative assessment (Taras, 2005). If we consider the complexity of other levels of skills development, such as the ability to apply knowledge or to create new knowledge, the evaluation process should monitor transfer processes, that is, the autonomy and proficiency with which the student, faced with concrete problems of work contexts, is able to translate the acquired knowledge into creative and effective solutions. Evaluations based on case studies, as well as group evaluations, may be relevant strategies in this context.

Finally, it is important that the teacher, when addressing topics related to the world of labor from the perspective of psychology (in this case, WOP) always remembers that his/her preferences dictate the topics that he/she feels prepared or competent to teach. However, the WOP area (certainly, other areas of psychology have similar issues) is a multidisciplinary area, with influences from different fields, and, in general, has narrow concepts – in the sense given to this term by science sociologists, like concepts developed and oriented to deal only with certain aspects of the phenomenon. For example, the concept of "work commitment": it deals only with why and how people engage in the work, get involved or not, and what are the consequences of such engagement on their performance.

However, the phenomenon that this concept seeks to describe comprises only one facet of the reasons people work (Fig. 2). In other words, the choice of a facet of the phenomenon, reflected in its materialization in a concept ("commitment") is just *one* of a series of other possibilities. Although this may seem commonplace, ignoring this aspect is equivalent to presenting students with concepts, as if they could fully encompass the phenomena. This is a cognitive trick, since the student (or even the teacher) considers that the concept is the phenomenon, when, in fact, it is the reverse. In an area like WOP, the risk of falling for this trick cannot be ignored.

In conclusion, we sought to offer guidelines for the teaching practice of disciplines related to Work and Organizational Psychology (WOP), applied to different fields of knowledge other than psychology. Our intention was to sensitize teachers on the importance of human work as an object of study and a field of problematization of the psychological phenomenon, in any context where it takes place. We hope to have provided information of sufficient quality and quantity to enable the teacher to prepare his/her own teaching plan, taking into account the best balance between global and contextual aspects of work as a phenomenon, and the learning needs of the students under his/her responsibility.

It is relevant to warn that the choice of topics demands an ethical commitment from the teacher, and his/her ability to understand the relationship between concepts and phenomena. Failing to do this can, at best, lead to a partial development of skills by students; and, in the worst case, lead students to believe that there are "recipes" ready for each situation they experience at work and within organizations. It is a common anguish, in WOP teaching contexts: the belief in the existence of techniques and procedures capable of minimizing or simply erasing the complexity of the relationship between work, agent, and organizations. Starting from a cross-sectional definition of work can assist in this process, but it is also a construction, and it is up to the teacher to do the same as his/her students: innovate, creating his/her own resources for reflection and knowledge transmission.

References

Bendassolli, P. F. (2016). Work and culture: Approaching cultural and work psychology. *Culture & Psychology, 23*(3), 372–390.

Bendassolli, P., & Gondim, S. (2019). Work as a cultural phenomenon. In P. Bendassolli (Ed.), *Culture, work and psychology: invitations to dialogue* (pp. 3–19). Charlote: IAP.

Bendassolli, P. F., & Tateo, L. (2017). The meaning of work and cultural psychology: Ideas for new directions. *Culture & Psychology, 24*(2), 135–159.
Blanch, J. M. (2006). El trabajo como valor en las sociedades humanas. In A. Garrido-Luque (Coord.), *Sociopsicología del trabajo* (pp. 57–97). Barcelona: Editorial UOC.
Bloom, B. (1956). *Taxonomy of educational objectives: The classification of educational goals – Handbook 1: Cognitive Domain*. New York: David McKay.
Braverman, H. (1998). *Labor and monopoly capital: The degradation of work in the twentieth century*. New York: Monthly Review Press.
Burke, W. W. (2017). *Organization change: Theory and practice*. California: Sage publications.
Clot, Y. (2009). *Travail et pouvoir d'agir*. Paris: PUF.
D'Cruz, P., Noronha, E., Caponecchia, C., Escartín, J., Salin, D., & Tuckey, M. R. (2021). *Dignity and inclusion at work*. Singapore: Springer.
Dejours, C., Deranty, J.-P., Renault, E., & Smith, N. H. (2018). *The return of work in critical theory: Self, society and politics*. New York: Columbia University Press.
European Observatory of Working Life – EurWork. (2011, 04 May). Solidarity principle. *European Foundation for The Improvement of Living and Working Conditions*. Retrieved from https://www.eurofound.europa.eu/observatories/eurwork/industrial-relations-dictionary/solidarity-principle
Fleury, M. T. L., & Fleury, A. (2001). Construindo o conceito de competência. *Revista de administração contemporânea, 5*(SPE), 183–196.
Friedmann, G., & Naville, P. (1962). *Traité de sociologie du travail*. Paris: Armand Colin.
Hesiod. (2018). *Works and days*. London: Penguin Books.
Krathwohl, D. R. (2002). A revision of bloom's taxonomy: An overview. *Theory Into Practice, 41*(4), 212–218.
Latham, G. P. (2012). *Work motivation: History, theory, research and practice* (2nd ed.). Thousand Oaks: Sage Publications.
Leal, J. C. (1997). *Os deuses eram assim*. Duque de Caxias: Mil Folhas.
Lhuilier, D. (2016). Psychopathologie du travail contemporain: nouveaux défis cliniques. *Trabalho (En) Cena, 1*(1), 84–97.
Marx, K., & Engels, F. (2012). *The communist manifesto*. Connecticut: Yale University Press.
Meaning of Work International Research Team – MOW. (1987). *The Meaning of working*. London: Academic Press.
Ones, D. A., Anderson, N., Viswesvaran, V., & Sinangil, H. K. (2018). *The sage handbook of industrial, work and organizational psychology*. Thousand Oaks: Sage Publications.
Scandhra, T. A. (2019). *Essentials of organizational behavior. An evidence-based approach*. Thousand Oaks: Sage Publications.
Schaufelli, W. B., Malasch, C., & Marek, T. (2018). *Professional burnout. Recent developments in theory and research*. London: Routledge.
Stouten, J., Rousseau, D. M., & Cremer, D. (2018). Successful organizational change: Integrating the management practice and scholarly literatures. *Academy of Management Annals, 12*(2), 752–788.
Taras, M. (2005). Assessment–summative and formative–some theoretical reflections. *British Journal of Educational Studies, 53*(4), 466–478.
Vaughan, C. A. (1980). Identifying course goals: domains and levels of learning. *Teaching Sociology, 7*(3), 265–279.
Vygotsky, L. S. (1997). *The collected works of LS Vygotsky: The history of the development of higher mental functions* (Vol. 4). New York/London: Plenum Press.
Yeoman, R., Bailey, C., Madden, A., & Thompson, M. (Eds.). (2019). *The Oxford handbook of meaningful work*. London: Oxford University Press.

Psychological Literacy and Learning for Life 36

Julie A. Hulme and Jacquelyn Cranney

Contents

J. A. Hulme (✉)
School of Psychology, Keele University, Keele, Staffordshire, UK
e-mail: j.a.hulme@keele.ac.uk

J. Cranney
Psychology, University of New South Wales, Sydney, NSW, Australia
e-mail: j.cranney@unsw.edu.au

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Abstract

There is a growing motivation within the higher education sector to ensure that undergraduate programs produce graduates who are employable, and who contribute to society. Within psychology, the developing concept of psychological literacy has been utilized to meet this agenda, and psychology curricula are increasingly focused on teaching students to apply psychology to meet their personal, professional, and societal goals. In this chapter, we introduce the related concepts of psychological literacy and psychologically literate citizenship, and review some of the salient literature. We suggest that teaching for psychological literacy provides the opportunity to enhance students' scientific literacy, critical thinking, employability, and global citizenship, and we present some practical ways in which educators around the globe have taught their students to become psychologically literate, drawing on case studies as well as published literature. Finally, we explore the lessons we have learned from our review of the relevant literature and of these practices, and offer a critical perspective on the current state of the discipline, in terms of psychology education. In recognizing and valuing the opportunities presented by the framework of psychological literacy, we suggest that we need to reflect upon the nature of psychology and its position as a discipline, and to develop our own psychological literacy. In particular, we must grow our respect for diversity and inclusive practices, and be collegiate in further developing and disseminating our thinking and practices around psychological literacy. We hope that this chapter will provoke a continued discussion of the ways in which psychological literacy can promote students' "learning for life," and will serve as a call to action for the psychology education community to further develop our thinking and practices in this field.

Keywords

Psychological literacy · Personal development · Employability · Global citizenship · Curriculum

Introduction

According to Horan (2018), higher education serves three fundamental purposes: to preserve eternal truths (i.e., to disseminate important subject knowledge); to create new knowledge (through research and development activities); and to perform a service to humanity (i.e., to facilitate the application of both new and old knowledge for the public good). Likewise, Boyer (1990, pp. 77–78) suggests that:

> The aim of education is not only to prepare students for productive careers, but also to enable them to live lives of dignity and purpose; not only to generate new knowledge, but to channel that knowledge to humane ends; not merely to study government, but to help shape a citizenry that can promote the public good. Thus, higher education's vision must be widened if the nation is to be rescued from problems that threaten to diminish permanently the quality of life.

In this chapter, we will explore the ways in which psychology education, through the related lenses of psychological literacy and psychologically literate citizenship, can be utilized to deliver these aims and purposes to psychology students, with a particular focus on undergraduate education. First, we will provide some historical context, exploring the evolving focus of psychology education in recent years, and briefly introducing the theoretical concepts of psychological literacy and psychologically literate citizenship. We will then focus in more depth on what psychological literacy brings to students in terms of the purposes of higher education, before considering some practical strategies, challenges, and opportunities in the delivery of psychological literacy within psychology education.

Purposes and Rationale

Context

Traditional undergraduate psychology education, in many countries, is the foundation level of study that prepares students for subsequent professional training as a psychologist at postgraduate level. As such, it has focused primarily upon the delivery of core content, such as social, cognitive, biological, and developmental psychology, and upon the ability to conduct research and analyze data. It could be argued that, historically, psychology fulfilled the first two of Horan's fundamental purposes, leaving the application of psychology for the public good to be studied in specific professional contexts (such as clinical and educational psychology). However, in countries that follow this model of psychological education and training (e.g., the UK, Australia, the USA), it is apparent that a majority of psychology graduates follow alternative career paths beyond psychological research and registered practice as a psychologist, with only around 20% entering psychology professions. Psychology graduates outside of professional psychology pursue diverse careers, including health and social care, education, local government, management, and commerce. As such, undergraduate psychology needs to be broad-based, preparing graduates for varied and unknown career pathways.

At the same time, the world is changing, with the rapid development of new knowledge, technology, job roles and career paths, and new societal problems to solve (Maree, 2017). In this context, psychology educators must equip students with the skills, knowledge, and attributes to be prepared for career changes and transitions. That is, students need to be able to apply their psychological education to the challenges and opportunities in these changing situations, including being able to learn new knowledge and skills. Increasingly, there are calls for higher education to deliver "value" to graduates, which is often translated into economic value in terms of graduate earnings. Psychology graduates frequently seek careers that "make a difference" to society, including helping others (Bromnick & Horowitz, 2013). As a result, these graduates may not accrue large salaries, but may make a significant contribution to the "public good." This tension was recognized recently in the UK-government commissioned Augar review of post-18 education, which called for government to:

> consider the economic value for students and the economy of different higher educational routes, for different people. However, we are clear that successful outcomes for both students and society are about more than pay. Higher levels of education are associated with wider participation in politics and civic affairs, and better physical and mental health. We also understand the social value of some lower-earning professions such as nursing and social care, and the cultural value of studying the Arts and Humanities. (Augar, 2019, p. 87)

To some extent, this debate echoes long-standing arguments about the value of higher education and the nature of employability, which can be argued to be about much more than the ability of graduates to be employed. For example, Yorke (2006, p. 8) defined employability as: "... a set of achievements – skills, understandings and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy." This widely used definition of employability recognizes the social value of graduate employability skills, alongside those directly associated with gaining employment.

Nevertheless, there is a need for psychology educators to consider ways of enhancing their students' employability, alongside their ability to contribute to the public good. Following a brief discussion of employability in psychology, we will turn our attention to the concepts of psychological literacy and psychologically literate citizenship as useful frameworks to facilitate the delivery of the knowledge, skills, and attributes associated with both economic and social value.

Employability as an Outcome of Psychology Education

In light of the above-mentioned challenges, it is worth reflecting on the skills that employers desire in the graduates that they employ. Typically, these include self-management and emotional intelligence, business awareness, leadership, critical thinking, problem solving, communication, team work, literacy, numeracy, and technological competence (Oliver & de St Jorre, 2018).

Although psychology education, as described by the majority of international professional and subject-related bodies, should be well-placed to teach these skills (American Psychological Association [APA], 2013; Australian Psychology Accreditation Council [APAC], 2019; BPS, 2019; Quality Assurance Agency [QAA], 2016), we need to ensure that students learn them. Reddy, Lantz, and Hulme's (2013) guidelines for psychology educators cite Gaunt's (unpublished) framework for understanding graduate employability in terms of the "4 A's": that is, awareness (or acknowledgement), acquisition, application, and articulation. In this model, it is proposed that graduates need all "4 A's" in order to optimize their employability: to be *aware* of the existence of a skill, and to acknowledge its value; to *acquire* the skill, and to be able to put it into practice; to *apply* the skill in new contexts and to solve unfamiliar problems; and to be able to *articulate* their skills in a way that is relevant to an employer or other interested audience. Development of the "4 A's" is not proposed to be linear; students may acquire skills of which they are not fully aware, or they may be able to apply a skill but be unable

to articulate it. Traditional, more didactic methods of higher education may facilitate the development of skills awareness and acquisition, but may be less effective in supporting students' ability to apply and articulate their skills. This is evident from research in Australia, suggesting that recent graduates may lack "business awareness" and struggle to solve complex problems (Sarkar, Overton, Thompson, & Rayner, 2016), and from the UK, where employers report that transferability of skills to the workplace and graduates' ability to articulate at interview what they can contribute to a role are problematic (Pollard et al., 2015).

We know that "transfer of learning" to new contexts (e.g., applying psychological theory and research findings to new situations) is a challenging task and requires practice (Worrell et al., 2010). Given the changing nature of our world, including employment contexts, this kind of skill practice would seem to be important for all graduates, and particularly for psychology graduates, given their diverse and changing career destinations. This perspective also aligns with Barnett's (2011) notion of lifelong and lifewide learning: that is, students need to be given opportunities to learn how to integrate their learning across multiple formal and informal contexts, as well as within their everyday lives, throughout the lifespan. From a practical perspective, psychology educators should focus on scaffolding students' capacity to apply their growing knowledge of psychological topics, as well as their skills in research, critical thinking, and interpersonal skills, to increasingly complex human problems. Students then need to articulate these capacities in a way that potential employers understand. This requires the metacognitive capacities of employability, that is, aspects of the "4 A's."

Thinking Like a Psychologist

As noted above, psychology students are required to become scientifically literate and capable of evaluating information, taking an evidence-based approach to problem solving using psychology. However, based on research in the UK, Hulme and Kitching (2017) suggest that there are particular challenges around this for psychology students, who may study psychology to understand their personal life experiences, which may relate to mental ill health, addictions, previous psychological treatments, or relationship difficulties:

> Psychology is an unusual discipline, drawing on natural sciences, social sciences and philosophy (Quality Assurance Agency, 2016). It encompasses all aspects of what it is to be human, covering biology and neuropsychology, social interaction and cultural context, cognitive processing, development from pre-birth to death, all of the things that humans share in common, and all of the ways in which we are diverse. As such, it touches on the life experiences of each and every one of us, and at the same time requires us to study those experiences within an academic context. (Hulme & Kitching, 2017, p. 4)

Popular psychology and self-help techniques are easily accessible to students through social media and can encourage students to look for simple answers to complex questions. They may bring their "life to psychology"; to look for confirmation within their academic learning of the things that they believe to be true about

themselves, based on their personal experiences. This can create a barrier to scientific and critical thinking. As psychology educators, we must encourage students to learn first about the evidence base provided by psychology, and then take that into their everyday lives, to apply psychology to the personal, professional, and societal issues that they face – or to "bring psychology to life." It is important to recognize the personal relevance of students' lives to psychology and to facilitate their self-awareness of the ways in which this personal meaning can impact on their ability to evaluate evidence, and make informed decisions.

Thus, while traditional undergraduate psychology education has emphasized the learning outcomes of knowledge comprehension and a moderate level of research skill (including research-associated critical thinking, statistical analysis, and ethics), there is a growing emphasis internationally on shifting psychology-naive students from a pop-psychology orientation to a psychological scientist orientation, which continues to be a major challenge for both traditional and modern approaches to psychology education. This shift can be captured in terms of "thinking like a psychologist": students must, initially, recognize that psychology requires a different way of thinking that is more than "common sense," and subsequently acquire the skills to apply psychological knowledge to evaluate information, make decisions, and solve problems. Note that in many countries, "psychologist" is a legally protected term, but within the context of this educationally oriented chapter, we are referring to the mindset that should be uniquely associated with the acquisition of psychological knowledge, skills, and attitudes; similarly, educators in other disciplines are encouraging students' professional identification with their discipline by using terms like "thinking like an astronomer" (Hulme & De Wilde, 2014).

Thus psychology education can be viewed as a process that confers key employability skills upon successful students, some of which are captured within the ability to "think like a psychologist": to draw upon psychological knowledge, to think critically, and to apply knowledge in new contexts, based upon the psychological evidence base. Collectively, the knowledge, skills, and attributes associated with psychology education have been extensively described through the concepts of psychological literacy and psychologically literate citizenship, upon which we will now focus.

Psychological Literacy and Psychologically Literate Citizenship

The term psychological literacy was first coined by Boneau (1990), who collated the views of psychology text book authors to determine the most important concepts and terms within the discipline of psychology at that time. However, recognizing that subject content is fluid and constantly evolving, more recently, the concept has been redefined, in line with Cranney and Dunn's (2011) definition of literacy as "domain knowledge that is used adaptively" (p. 8); that is, people apply knowledge and skills from a discipline (e.g., psychology, information technology, health) to achieve desired goals in their everyday lives.

Table 1 The components of psychological literacy (McGovern et al., 2010, p. 11)

	Psychological literacy
1.	Having a well-defined vocabulary and basic knowledge of the critical subject matter of psychology
2.	Valuing the intellectual challenges required to use scientific thinking and the disciplined analysis of information to evaluate alternative courses of action
3.	Taking a creative and amiable skeptic approach to problem solving
4.	Applying psychological principles to personal, social, and organizational issues in work, relationships, and the broader community
5.	Acting ethically
6.	Being competent in using and evaluating information and technology
7.	Communicating effectively in different modes and with many different audiences
8.	Recognizing, understanding, and fostering respect for diversity
9.	Being insightful and reflective about one's own and others' behavior and mental processes

McGovern et al. (2010) were the first to define psychological literacy in this way, which encompasses components beyond Boneau's (1990) knowledge-centric definition. They outlined nine attributes that might be acquired by undergraduate students of psychology (see Table 1).

The knowledge, skills, and attributes contained within McGovern et al.'s list have been differently interpreted by different professional bodies around the globe, but there is some consensus that psychological literacy encompasses psychological subject knowledge, scientific literacy, information literacy, critical thinking, ethics, reflective skills, and an ability to apply psychology to issues in everyday life. This list has much in common with our previous list of desirable employability skills.

A broader definition that neatly captures this was proposed by Cranney and colleagues (e.g., Cranney & Dunn, 2011; Cranney & Morris, in press), who suggested that psychological literacy is the capacity to intentionally and adaptively use psychology to achieve personal, professional, and societal goals. Similarly, Murdoch (2016) discusses psychological literacy in terms of the "ethical application of psychological skills and behaviour" (p. 189), which is comprised of: the psychology-specific aspects of a set of "generic literacies" (e.g., critical thinking, statistical literacy, multicultural literacy); psychology-specific skills and knowledge; and the ability to apply all of these skills and knowledge to personal, occupational, and societal issues.

The importance of the application of psychology to "personal, occupational and societal goals" is thus a recurring theme within the psychological literacy literature. McGovern et al. (2010) suggested that this common interest in taking a psychologically informed approach to solving global problems in a pro-social and ethical way could be described within a separate, but related concept, of psychologically literate citizenship. Effectively, psychologically literate citizenship combines the basic concept of psychological literacy, with the more expansive concept of global citizenship. According to Oxfam (1997), global citizens are people who:

- Are aware of the wider world and have a sense of their own role as world citizens
- Respect and value diversity

- Have an understanding of how the world works economically, politically, socially, culturally, technologically, and environmentally
- Are outraged by social injustice
- Participate in and contribute to the community at a range of levels from the local to the global
- Are willing to act to make the world a more equitable and sustainable place
- Take responsibility for their actions

The above definition is imbued with value statements, and it could be argued that every individual needs to periodically examine their value system so that they know its origins and how it relates to their sense of morality and related ethics (see Morris, Cranney, Baldwin, Mellish, & Krochmalik, 2018, Chaps. 3 and 9). McGovern et al.'s (2010) definition of psychologically literate citizens as "critical scientific thinkers and ethical and socially responsible participants in their communities" (p. 10) is less heavily value-laden, but as critical thinkers, we should interrogate and then come to an understanding of the place of words such as "ethical and socially responsible" (see Miller, 1969).

Implications for Psychology Education

Our core argument here is that a moderate level of psychological literacy should be the general outcome of studying psychology. Such an achievement should meet all three of Horan's (2018) prescribed fundamental purposes of higher education: to preserve eternal truths; to create new knowledge; and to perform a service to humanity (through the application of psychological principles to achieving personal, professional, and societal goals, with an emphasis on solving societal problems). Most current societal problems, such as climate change, health inequalities, and global terrorism, can be argued to be caused by human behavior (Halpern, 2010; Miller, 1969), and so the more that community leaders – particularly our psychology graduates – know about ways to influence human behavior, the more capable they are of solving those problems (Banyard & Hulme, 2015). How well are we preparing our psychology graduates for this kind of role in our society?

In considering how we teach psychological literacy within a classroom, we must both (a) recognize the relevance of psychology to students' personal lives, and (b) facilitate their self-awareness of the ways in which this personal meaning can impact on their ability to evaluate evidence and to make informed decisions. In this regard, psychological literacy may be a threshold concept (Meyer, Land, & Baillie, 2010), transforming the ways in which students perceive psychology as a discipline and its applicability to everyday life, as well as offering a set of outcomes that can be attained through successful study of psychology (McGovern et al., 2010; see Table 1).

However, change at the level of the individual educator is unlikely to be sufficient in facilitating the development of psychologically literate students. As Halpern et al. (2010) argued, curriculum renewal is necessary to support psychology educators in

creating a coherent curriculum with psychological literacy as the primary outcome. Otherwise, we risk minimal impact upon students. There has been some success in the UK because psychological literacy is explicitly required in undergraduate psychology programs (BPS, 2019; QAA, 2016). Teaching strategies being implemented to meet this requirement range from the minimal (e.g., "I'll mention at the end of my lecture on attention how this is relevant to mobile phone use while driving") to the substantial (e.g., problem-based learning approaches with relevant problems to be solved, such as reducing car accidents resulting from driver mobile phone use). Nevertheless, it is clear that curriculum renewal is under way as a result of this "stick" approach. The BPS is also rewarding good practice, by awarding a prestigious annual prize to departments with the "most innovative programme" (a "carrot" approach).

Next, we outline some practical strategies to facilitate the delivery of psychological literacy and psychologically literate citizenship, on the part of individual educators and small teaching teams, and then at the level of the whole curriculum.

Approaches and Strategies

Thus far, we have discussed the importance of preparing students for learning, throughout life and across their different activities and interests (lifelong and lifewide learning; Barnett, 2011), through the delivery of psychological literacy, in the interests of developing their employability and their ability to contribute to societal good. Here, we consider effective ways to develop students' psychological literacy. We address this first by reflecting on the importance of becoming psychologically literate educators, and then by providing examples of teaching practices, and curriculum renewal.

Psychologically Literate Educators

Hulme (2014) argued that there are three main principles that must be considered in order to successfully deliver psychological literacy. Firstly, we must recognize for ourselves the relevance of psychology to everyday life, and the ways in which we can apply it in different contexts. In other words, we must become psychologically literate. This is consistent with Dunn, Cautin, and Gurung's (2011, p. 15) claim that: "Promoting psychological literacy entails reorienting what and how we teach students in a way that emphasizes psychology's relevance." Given that many psychology academics themselves experienced as students a curriculum that focused entirely on theory and research, this requires a shift in thinking and pedagogy (Hulme & Winstone, 2017).

Secondly, Hulme (2014) suggested, we need to ensure that psychological literacy is embedded throughout the curriculum, through a process of constructive alignment (Biggs, 1996). Thus, program learning outcomes signal the importance of

psychological literacy to students; program content and learning activities allow students to practice and develop their psychological literacy; and assessments effectively measure students' competence on the key aspects of psychological literacy that were signaled in the learning outcomes.

Finally, Hulme (2014) proposed that educators must also model psychological literacy to our students, to facilitate social learning. This requires reflection on applications of psychology within our own professional lives, such as providing an evidence base for our teaching practices, solving problems, informing our everyday interactions with students, and ensuring that inclusivity, respect for diversity, and ethics underpin our educational and research activities (Bernstein, 2011; Cranney & Dunn, 2011a; McGovern, 2011).

Let us briefly consider our own orientations as psychology educators, and the psychological evidence base from which we might draw, based on these suggestions. If we are psychologically literate educators, we are committed to being reflective practitioners, and to using evidence-based approaches in our practice (see Bernstein, 2011). We know that human behavior is determined by environment-person interactions, and as educators, we have significant influence on the curriculum environment. Thus, we could consider different evidence-based approaches to shaping the curriculum environment in a way that supports student learning. For example, we could implement learning, teaching, and assessment strategies consistent with the seven Higher Education Learning Framework evidence-based principles described by Carroll et al. (2018). One such principle is "Leverage the social dynamics of learning to enhance the learning experience" (p. 1); this could be implemented by incorporating peer-learning activities into tutorials. Alternatively, one could apply Self-Determination Theory (Ryan & Deci, 2000) to shape the curriculum environment in a way that supports students' needs for autonomy, competence, and relatedness, thus supporting student motivation and successful learning (e.g., see Enhancing Student Wellbeing, 2016). A slightly different approach is to focus on providing students with opportunities to develop their self-management skills. Self-management is the capacity to strive effectively toward meaningful goals, and to be flexible in the face of set-backs. For students, these skills include time-management, effective study strategies, and emotional regulation. These skills have relevance for students' personal and professional development, and can be delivered in ways that enable academic content and skills to be intertwined.

We will now explore some specific student-centered learning, teaching, and assessment strategies that facilitate the development of students' psychological literacy, which are informed by principles of psychological literacy. We suggest that a fundamental aspect of acquiring psychological literacy is developing and implementing a mindset that equips students to "think like a psychologist." Thus, we first describe a sample strategy for encouraging the development of this capacity. Then, we give examples of how to provide students with opportunities to practice application of psychological principles to personal, professional, and societal goals. Finally, we give examples of whole-program curriculum approaches.

Thinking Like a Psychologist

For students to successfully navigate the modern world, both in their personal and professional lives, the skills of critical thinking, information literacy, and evaluation of evidence are essential. Beyond graduation, these skills incorporate scientific literacy, but also broader skills such as analyzing language and other types of qualitative evidence; thus, the skills provide a toolkit which facilitates future learning, employment, and problem solving.

Example 1 An Introductory Exercise in Designing and Undertaking Psychological Research
This exercise has been run successfully within the tutorial program of a core first-term unit (Introduction to Psychological Applications) for Bachelor of Psychology students at the University of New South Wales (UNSW), Australia. The essential ingredients are well-designed support for team-work and research skill capability building, allowing for the satisfaction of the student needs for autonomy, competence, and relatedness (Ryan & Deci, 2000). Despite ethical constraints, teams of students can choose a research question within specified topics (= autonomy). There is a low-stakes assessment (e.g., teams undertake a deconstruction of a research article), as well as ample opportunities within tutorials (e.g., exercises in oral presentation) to practice their research-related skills and to check group dynamics prior to the final oral presentation of their completed research project (= competence). There are also many team-building exercises along the way (= relatedness), and we have found that these experiences promote peer friendships, which ease transition to university and support successful learning throughout students' entire program. Moreover, undertaking a research exercise, whereby students must distill a sensible hypothesis, operationalize variables, test human participants, and make sense of their data, is a fast and furious – but feasible – way for first-year students to successfully acquire a beginner's scientific mindset. This experience greatly advantages students as they progress through their degree, and could be delivered during the first year of any psychology program.

Application of Psychological Principles to Personal Goals

As discussed above, psychologically literate individuals are able to intentionally apply psychological knowledge to achieve their personal, professional, and societal goals. Personal goals include performing well in their studies and at their workplaces, creating and maintaining positive relationships, and pursuing their interests (Morris et al., 2018).

Example 2 Designing, Implementing and Evaluating a Self-Behavior-Change Program
This exercise is the major individual assignment for a flipped classroom unit on the Psychological Science of Resilience at UNSW. The unit covers the psychological science of topics such as stress and emotional regulation, general academic skills such

as time management and study strategies, and communication skills such as active listening. Learning is supported by an accessible "textbook" specifically written for this course, *The Rubber Brain* (Morris et al., 2018). For this assignment, students choose a behavior that they wish to change (= autonomy, competence); in the past, these behaviors have ranged from skill building, such as learning how to horse-ride or study more effectively, to health behaviors such as exercising more, to esoteric personal goals such as learning more about one's ancestral culture. Students (a) initially undertake and report on a motivational strategy (GROW model; Morris et al., 2018) regarding why they want to pursue the goal; (b) measure, report, and reflect upon their wellbeing and self-efficacy before and after the assignment; (c) identify and attempt to implement evidence-based strategies for achieving their goal, including a consideration of potential barriers and solutions; (d) complete weekly progress reports and a final report, which includes a measure of the intended behavioral change and the intervention strategy; and (e) partner with another student to discuss their progress in class each week. The exercise allows students to gain a personal experience of a program of attempted behavior change (under supervision of the instructor), including methods of evaluation of that program. We are aware that similar exercises are delivered elsewhere (e.g., Psychology of Happiness and Wellbeing, Keele University), and they could be widely implemented. Students acquire an appreciation of how psychological principles can be applied to their everyday lives, alongside a taste of science in terms of evidence-based strategies and outcome evaluation.

Application of Psychological Principles to Professional Goals

Cranney and Dunn (2011) also suggest that students will be able to apply psychology to help them to achieve their professional goals. Here, we explicitly consider the ways in which psychology is relevant to students' professional development, and how this can be delivered effectively through psychology education.

Example 3 Exercise in Evidence-Based Study Skills
Given the lifelong and lifewide nature of learning (Barnett, 2011) and the rapidly changing career landscape that often involves extended training, we suggest that study skills are a professional skill that can and should be further developed during university study. In interactive group work during the UNSW unit mentioned above (Example 2), students share with their peers their usual approaches to study. They then consider the findings of Dunlosky, Rawson, Marsh, Nathan, and Willingham's (2013) review of the effectiveness of ten learning strategies, whereby only two have received an acceptable level of support from methodologically rigorous studies. In their groups, students then choose a learning strategy that has not yet received adequate support, and design an experimental study to test the effectiveness of that strategy, which they share with the class. This exercise encourages students to reflect on the effectiveness of the learning approaches they currently utilize and to recognize that quality, not quantity, of study is important for success.

Example 4 Career Development Learning (CDL) in First and Final Years
Bachelor of Psychology students at UNSW are introduced to CDL, via the unit Introduction to Psychological Applications (see Example 1). A psychology careers expert lectures on pathways to professional psychology, as well as "career literacy" in terms of evidence-based systematic approaches to job search, constructing resumes and cover letters, and interviewing for positions (this knowledge is assessed in the final exam). Tutorials build on this material using engaging interactive activities. In addition, lectures are given by experts in forensic psychology, clinical psychology, and business psychology (examinable), and videos of professional psychologists in diverse fields are made available. In the final year, all psychology major students take a core capstone unit (Research and Psychological Applications) whereby a major focus is CDL, with three components: (1) advanced careers lectures and tutorials providing systematic approaches to constructing resumes and cover letters, informational interviews, and interviewing for positions; (2) lectures by experts in fields where psychology graduates could find a variety of careers positions; and (3) a CDL portfolio assignment whereby students first carry out an informational interview with a person in a role that they aspire to, and then undertake activities related to achieving that goal, such as recording their relevant knowledge, skills, and experience and identifying further relevant CDL activities. This personalized approach to CDL has been well received (Cranney & Morris, 2018).

A similar approach emphasizing personal development as an essential component of CDL was espoused by Lantz (2011), in her Psychology Student's Employability Guide. The guide draws upon the career psychology literature, scaffolding students' reflections about their own strengths and weaknesses, and matching their skills, attributes, and values to possible careers to which they aspire. Students are encouraged to formulate action plans throughout their undergraduate programs, to strengthen areas of weakness, check their understanding of particular career roles, and gain experience that is relevant to their preferred career route.

Overall, these activities fit with the "4 A's" framework by providing opportunities for students to: increase their awareness of and acquire further career-relevant knowledge, skills, and experience; apply that knowledge and skill in situations such as the informational interview; and acknowledge that knowledge and skill in the form of their CDL portfolio or their responses to the activities in Lantz's (2011) guide.

Example 5 Work-Integrated Learning (WIL)
The capstone course in Example 4 provides students with a metacognitive and integrative conceptualization of their skill acquisition during their psychology education. Another strategy is WIL, which could involve a local research laboratory or partnership with potential employers, either (a) "in-house," where employers have a project that can be worked on without students leaving the classroom, or (b) within a workplace (Cranney & Morris, in press).

(a) WIL in the classroom – Making a Difference with Psychology
Making a Difference with Psychology is an elective module in the final year of the undergraduate psychology program at Keele University, UK. The module was designed to facilitate students' understandings of the application of psychology to professional goals, particularly for students who wish to pursue careers outside professional psychology. The learning outcomes, teaching activities, and assessment encourage students to apply psychology to employment-relevant contexts. Early sessions on leadership are delivered via interactive lectures, and teaching then moves to group work and active learning strategies, considering issues such as science communication, or raising aspirations in deprived youth. Towards the end of the module, students use problem-based learning to explore issues relating to education and professional training, taking the perspective of teachers and trainers. Throughout, external speakers who are also employers contribute to the teaching (for example, a British Army Major talks about leadership in the military, while the lecturer supports students to connect the talk to their psychological knowledge). In this way, students are scaffolded to move from being consumers of information to becoming independent learners who can think critically, evaluate, and apply knowledge. The final session is dedicated to the psychology of recruitment, and focuses on interview and selection procedures, to equip students for their postgraduation job searches.

The assessment includes a formative presentation, in which students work in groups, based on their problem-based learning activities, to present a solution to an education or training provider. The students provide peer feedback on the persuasiveness of their suggested approach and the likelihood that they might be employed by the target company as consultants to deliver their proposed project. The summative assessment is authentic; students are presented with an invitation to tender for business, requiring them to provide a detailed written plan that meets the needs of the employer, and to write a psychologically informed rationale explaining the evidence that underpins their chosen approach. Recent examples of assessment have included: (a) a project from Shaftesbury Young People, who support looked-after young people to apply to university; and (b) a marketing project for Keele's postgraduate programs (leading to a successful campaign that was used by the university the following year). In the first years of its delivery, the module recruited poorly, but we have worked with our students to ensure its relevance to their professional goals; it now recruits well. Student evaluations are positive; they find the content stimulating and inspiring, despite finding the problem-based aspects challenging at first.

(b) WIL in the workplace: UK Placements
Many universities recognize the benefits of offering work-based activities during a program of undergraduate study. Some examples of different models of doing this are provided as case studies within Reddy et al.'s (2013) employability guide. At Huddersfield University, in the UK (case study 12), students study a module in which they reflect on the relevance of psychology to a (loosely) work-relevant context of their choice: this might be a part-time job that they undertake during their studies, a voluntary placement, or even caring for relatives. Students

are assessed via a reflective portfolio. This model ensures accessibility and inclusion, due to the broad definition of "work" that is adopted, which ensures that the majority of students are able to engage.

An increasing number of institutions, including Aston University in the UK (see case studies 17 and 18; Reddy & Moores, 2006; Reddy et al., 2013), offer full-year work placement opportunities. In this model, the usual 3-year English degree is increased to 4 years, with the year between second and third year being spent in a workplace. At Aston, the significance to students of adding an extra year to their degree program, in terms of extending their studies, delaying graduation, and increased expense, is recognized. Through a second-year module, students explore possible career choices, and ways of optimizing the benefits from their placement year, prior to deciding to go on placement. On return to university, students take a module in which they consolidate their learning from their placement, revising their career plans, and re-assessing their competencies relating to employability. Reddy and Moores (2006) report substantial benefits to students, including improved student grades, and students report improved confidence and preparedness for graduate-level employment as a result of the placement experience.

Both of these kinds of WIL experiences explicitly remind students of the need to intentionally apply – to a work context and their own professional goals – the psychological knowledge and skills that they have acquired throughout their degree program. However, there are resource issues for WIL, especially where students are required to gain experience in genuine workplaces, because the university must take responsibility for occupational health and safety. Close partnerships with employers are helpful in developing placements, and learning contracts and other procedures are usually necessary (e.g., in Example 5b); thus, dedicated staff are required to support delivery.

Application of Psychological Principles to Community, Societal, and Global Goals

A number of institutions have devised ways of incorporating psychological literacy at the level of the community, society, or even globally, within their programs. Hulme and Kitching (2016) reported that UK university psychology educators were being increasingly pushed by students, institutions, their professional body, and government, to incorporate more of this type of learning within the curriculum. However, they also suggested that developing these types of learning could be resource intensive and difficult with large student numbers. As one participating educator said: "Engagement with communities, organisations and business has to be a way forward. How psychology does that is an interesting one. . .in mainstream psychology, how do we develop what we are terming civic engagement. . .?" (p. 16). In this section, we describe some examples of strategies that have been used to deliver this aim successfully.

Example 6 Psychology in Education
At Keele University, the elective module Psychology in Education is taken by between 50 and 100 third-year (final year) undergraduate students each year. The module covers a range of topics related to the application of psychology to different educational issues, from early years through to higher education. During the module, students have an opportunity to volunteer with local education providers. For example, in the nearby community of Stoke-on-Trent, there is a known challenge around raising literacy levels, and students can choose to participate in the *Stoke Reads* project, to raise literacy levels and enjoyment of reading among young children.

Other projects have included initiatives to reduce bullying in local schools, and to destigmatize mental health and encourage help-seeking behaviors among students at Keele (leading to a very successful "Look After Your Mate" campaign by the Keele Students' Union). Each project was associated with an assessment (students chose one from a selection) reviewing the psychological literature relating to the topic, and developing psychologically informed interventions to address these community issues. Students report finding the project-based approaches challenging at first, but they gradually gain confidence, and recognize that their ability to apply psychology to their local community, as well as to their possible subsequent training and employment, is enhanced by these activities. The projects benefit the local community, and strengthen links between the psychology department, the university, and the surrounding area, which is recognized as a region of social and economic deprivation.

Example 7 International Community Psychology Projects
Akhurst and Mitchell (2012; and Case Study 29 of Reddy et al., 2013) designed a community psychology project in partnership between York St John University, UK, and a number of international universities on three continents, to give students global perspectives and experiences which were also work-relevant. Students worked on overseas community-based projects, accompanied by a tutor, alongside local academics and community partners. Examples included working with children with communicative and developmental disorders in the USA, educational projects with children in South Africa, and developing community skills in India. Akhurst and Mitchell reported multiple benefits: students developed cross-cultural awareness, engaged deeply and emotionally with the psychological elements of the learning experience, and became more committed to future "helping" roles and activities relating to social justice.

Example 8 Development of Cultural Responsivity
Cultural responsivity is the capacity and motivation to learn about another culture, so that one can interact in a more respectful way with people of that culture. This capacity is foundational to working with/for diverse groups. The dispossession and oppression of First Nations peoples (e.g., in North America and Australia) and the migration of people away from war zones and genocide (e.g., Syrian people fleeing to Europe) have had disastrous consequences for those peoples, exacerbated by the prejudice displayed by the invading or "receiving" cultures (respectively). The application of evidence-based skills derived from psychological sciences could

help to negotiate more positive cultural contact. Indeed, "cultural competency" has been identified by employers and psychology educators as a desirable skill set (e.g., Reddy et al., 2013).

Dudgeon, Darlaston-Jones, and Clark (2011) describe a unit which meets these purposes. It includes a 4-week immersion in a remote Australian Aboriginal community as part of a respectful working partnership with the Gelganyem Youth and Community Wellbeing Programme. The students "travel with a staff member and are engaged in a range of activities from the delivery of out-of-school programs, helping with breakfast club, developing grant applications, and other community needs *identified by the community*" (p. 85, italics added). This immersion experience is bracketed by thorough preparation activities and debrief activities and assessments. As a result of these and other learning experiences, graduates attain a high level of cultural responsivity and are "in demand" for human services positions in the public service and not-for-profit sectors (L. Darlaston-Jones, 15 June 2016, personal communication).

Curriculum Renewal

The example approaches and strategies discussed above illustrate good practices in delivering elements of psychological literacy within the psychology curriculum at module/unit level, or within the practice of individual educators. However, while such innovations support the delivery of psychological literacy, it is desirable to renew the entire curriculum, at program level, to ensure that students have optimal opportunities to develop their knowledge, skills, and attributes. According to Halpern et al. (2010), curricula designed for psychological literacy should:

- Reinforce the scientific underpinnings of psychology
- Include content for the core domains of psychology (we note that these are similar but differently named by professional bodies from different countries)
- Provide opportunities for applied learning, including WIL and problem-solving experiences
- Include assessments that promote critical thinking and different methods of communication
- Be structured so that students' development of higher-level thinking skills is progressive throughout the course
- Have clearly articulated program-level learning outcomes, that are aligned to teaching and assessment
- Be delivered by pedagogically trained teachers
- Include knowledge and skills delivery that are relevant to students' lives, to facilitate a contribution to public good

These principles are closely aligned to those we have already discussed. Broadly speaking, Halpern et al.'s (2010) proposals relate to our conceptualizations of:

thinking like a psychologist; applying psychology to personal, professional, and societal goals; and psychologically literate educators. Dunn et al. (2011) propose similar principles for curriculum design, but include an additional level of review, recommending that the departmental teaching team needs to refresh its understanding of their mission, and align the curriculum renewal to this. Operationalizing program-level, rather than module-/unit-level learning outcomes, requires a collegiate approach, with strong leadership that emphasizes the value of psychological literacy as a core principle at the heart of the curriculum.

The Psychology Department at Stirling University have provided a useful example of curriculum review with a view to developing psychologically-literate citizens (Hulme et al., 2015; Watt, 2013). Watt (2013), as program lead, reflects on this process in some detail, remarking on the importance of motivating both staff and students to engage with the renewal process, and of working collaboratively with students to ensure that the curriculum both meets their needs, and allows them to progressively develop as independent learners, with increasing skills to apply psychology to their goals. The program facilitates learning by trial and error; students are able to make mistakes, and are encouraged to work hard to play to their strengths and to develop their areas of weakness. By their final year, students are able to: take responsibility for their own learning, effectively supporting and being supported by their peers; lead their own research projects in teams; in some cases, deliver teaching to students in earlier years of the program; and even help to develop their own modules. Watt describes a need to build students' confidence through scaffolding, and also to build staff confidence in the ability of students to apply psychology competently and reliably. The project has been a resounding success: the program received the BPS Innovative Programmes Award in 2014, and students report that they develop leadership capabilities, employability, and psychologically literate citizenship, which facilitate their learning, development, and societal contribution well beyond graduation (Hulme et al., 2015).

A slightly different approach was taken when reviewing the psychology curriculum at Keele University (unpublished). The leadership team at Keele convened a curriculum review group to update the curriculum and ensure that it delivered the requirements for BPS accreditation, while also integrating psychological literacy and employability throughout. Curriculum "theme leads" for each of the core areas of psychology (QAA, 2016) reviewed coverage of each element that covered their topic, across all levels of the program. Curriculum structure was checked to ensure that students were able to demonstrate broad coverage of psychological knowledge in the first year, and then across the subsequent 2 years, display progressive development of knowledge and skills and the ability to apply psychology. A key feature of the revised curriculum focused on the final-year elective modules (including *Making a Difference in Psychology* and *Psychology in Education*, described previously). Single Honours and Major students could choose up to three electives, and other students (studying another subject alongside psychology) could choose one. Each elective focused on applications of different areas of psychological content knowledge. This allowed students to choose areas of psychology that interested them, thus increasing student engagement and relevance to future

aspirations. However, all of these modules were designed in similar ways, so that each has learning outcomes, teaching activities, and assessments that facilitate students' abilities to apply psychological knowledge to problem solving. Thus, all students learn the same core knowledge early in the program and are scaffolded, through second year, to develop their skills in applying psychology. In final year, they can choose to specialize in particular areas, and to develop their psychological literacy more fully in those areas that are relevant to them. Single Honours students thus gain more practice in the skills of psychological literacy than those doing less psychology, but every student has the opportunity to develop psychological literacy to some extent. This is consistent with Halonen, Dunn, Baker, and McCarthy's (2011) suggestion that departments should plan for differential exposure to psychological literacy within the program, depending on whether students are studying psychology as their main specialism or alongside other subjects. The curriculum review was facilitated by teaching team discussions and "away" days, to ensure some consensus of opinion amongst teaching staff, and consistent with Dunn et al.'s (2011) recommendations discussed above.

Based on these experiences, we endorse the principles proposed by Halpern et al. (2010) and Dunn et al. (2011), and suggest that program leaders should adopt collegiate approaches to working with teaching teams and students to agree on important principles relating to the design of the curriculum. Scaffolding is required to move students towards independent learning approaches, gradually and progressively, throughout the program. Likewise, constructive alignment of learning outcomes, activities and assessments is essential. Program-level learning outcomes must align to unit/module learning outcomes, and all must refer explicitly to key aspects of psychological literacy. Teaching and learning activities must allow students to practice the relevant skills of psychological literacy, and to learn from mistakes. Finally, assessments must allow students to demonstrate their psychological literacy, by measuring their ability to apply psychological knowledge and skills to their personal, professional, and societal goals. As psychologically literate educators (Bernstein, 2011), we recognize that regular evaluations, analysis of student performance, and revisions of teaching help to ensure that the curriculum delivers the program learning outcomes and ensures that graduates are able to acquire attributes that are consistent with psychological literacy.

Challenges and Lessons Learned

In delivering psychological literacy as "learning for life," we have learned much about what helps students (and educators) to learn effectively. In this section, we share some of those lessons, and consider some challenges that require further attention. In reflecting on these points, we hope to elucidate the ways in which psychology can help students to become graduates who can solve problems in everyday life, who will continue to develop through lifelong and lifewide learning, and thus can thrive in a changing world.

Firstly, in terms of lessons learned, we believe that teaching for psychological literacy provides considerable opportunities. Students who are facilitated to "think like a psychologist" are equipped with good skills in scientific literacy and critical thinking. In this regard, psychology prepares them well for further scientific training, as well as developing a broader skill base. Indeed, Trapp et al. (2011) describe psychology as a "STEM+" subject. Given the diversity of students who study psychology, and especially the high proportion of female students, psychological literacy may facilitate increased participation in science for otherwise under-represented groups, and as such impact greatly on the scientific literacy of the general population. Thus, psychology could be considered as a "gateway" science, creating opportunities for graduates to engage further with other aspects of science. Our experiences have demonstrated both the value of this for students, and the importance of making the scientific nature of psychology explicit within the curriculum. Likewise, we would suggest that "thinking like a psychologist" allows one to question not only published research reports and claims in the media but also one's own way of thinking, and the latter is the greatest cognitive, emotional, and motivational challenge (Halpern, 1998; Morris et al., 2018).

The diversity of psychology students also creates opportunities for learning about equality, diversity, and inclusion in wider society, and the application of psychological knowledge to the development of intercultural competency. Respect for and value of diversity is an important component of psychological literacy (McGovern et al., 2010) and is especially important at a time of global migration, international trade, and racial and religious tensions, and in light of gender inequality, mental health challenges, and inequities for those with disabilities. Education that develops psychological literacy taps into psychology students' desire to help others (Bromnick & Horowitz, 2013), and even increases this desire (Akhurst & Mitchell, 2012). We are increasingly aware of the benefits of educating for psychologically literate citizenship in terms of meeting the goal of higher education that serves the public good (Boyer, 1990; Horan, 2018).

However, psychology students do not always find learning to be psychologically literate easy. Learning in general, and acquiring a "psychologically literate mindset" in particular, is challenging, both for psychology students and for psychology educators. There are "desirable difficulties" (Worrell et al., 2010, p. 132) in effective and meaningful learning that frame learning as a joint responsibility (and at best, a partnership): students must expend quality effort to acquire new knowledge and skills, and educators must provide evidence-based teaching and assessment strategies to effectively support and provide opportunities for student learning (Halpern et al., 2010). These opportunities must encourage students to try, potentially fail, but then learn from those failures. The benefit of desirable difficulties is evident from our evaluations, such as those from *Making a Difference* and *Psychology in Education*, above, where students initially struggle with the applied nature of the learning, but subsequently report that these modules transform their thinking and develop their confidence. A key lesson here is the importance of scaffolding, and the need to reassure students that learning higher-level psychological literacy skills is difficult, but will be worthwhile, and is achievable with support.

We suggest that the challenges are related to the rewards, as epitomized in this quote from George Bernard Shaw: "Life is not meant to be easy, my child; but take courage: it can be delightful."

Within this chapter, we have explored a number of ways of ensuring that education for psychological literacy can be successful and create opportunities to develop students' ability to apply psychology to their personal, professional, and societal goals. This benefits not only the students themselves, but also wider society. However, a number of challenges are also apparent.

Firstly, much of the psychological literacy work, including our own position within this chapter, relates to a strong claim that psychology is a science. In particular, there is a sense that knowledge is derived from the scientific method, particularly an experimental approach which includes random assignment of participants to conditions, the control of potentially confounding variables, and some level of scientific objectivity. However, it is important to note that psychology as a discipline draws upon a wide range of research methods, including those that might be perceived to be "stereotypically" scientific, and those that are less positivistic, including qualitative methods. It is important that we must not undermine the value of the diverse methodologies that are recognized within psychology; different methodologies provide valuable insights and perspectives on the complexity of human experience. Psychologically literate students also need to recognize their own subjectivity, and the way that this can affect their interpretation and evaluation of information, even that which is traditionally scientific. For this reason, we have chosen to talk here about "thinking like a psychologist," rather than "thinking like a scientist"; we hope that this captures the richness of empirical evidence available within the discipline as a whole. However, challenges remain, in that the discourse of "psychology as science" permeates the discipline to a large extent, and this can create barriers to students' engagement with the wider range of psychological methods, as well as a perception that qualitative research is somehow less rigorous than experimental approaches (Povee & Roberts, 2014). The psychology education community must find ways to encourage students (and colleagues) to appreciate the heterogeneity of research in the discipline.

A further challenge relates to cultural responsivity and relativity. We acknowledge that the contents of this chapter are biased by our Western World views, and we welcome critiques and extensions of these discussions from colleagues in diverse cultures, particularly around the value-laden conceptualization of psychological literacy and psychologically literate citizenship. While encouraging our students to develop intercultural competence, we are aware that this is very much a "work in progress" for us too. In Australia and the USA, psychology educators are keen to better reflect the perspectives of First Nations people (e.g., Darlaston-Jones, 2015), while in the UK, South Africa, and Canada, for example, the international and ethnic diversity of the student body has motivated considerable work to "decolonise the curriculum." This increased attention to cultural diversity is welcome, and we would encourage our colleagues to continue the work, individually and across the global discipline community. The international sharing of insights and practices in this regard is essential in our attempts to become psychologically literate educators who ourselves respect and value diversity in our classrooms.

Relatedly, the development of psychologically literate educators more broadly presents a challenge. Psychological literacy is new to many psychology educators (Hulme & Winstone, 2017) and indeed, is a "threshold concept" (Meyer et al., 2010) for educators as well as for students. In order to deliver psychological literacy effectively, there is a need for psychology-specific academic development and learning on the part of psychology educators. Just as we must create and share strategies to help students acquire the concept, we must do the same for our colleagues. There is a challenge here for psychology professional and subject-related bodies to promote psychological literacy not only through accreditation processes but also through offering resources and accessible continuing professional development opportunities.

Throughout this chapter, we have argued that psychology undergraduate students will acquire (and be aware of, apply, and be able to articulate) a "moderate level of psychological literacy." This raises the question of what is really meant by "a moderate level of psychological literacy"? In his criticism of educational systems in the Western World, Nadal Ravakant (Ravakant & Navukant, 2017) argues that all students should "learn the basics" (including learning to think better, to achieve psychological health, and to have healthy relationships) really well. Subsequently, Ravakant suggests, students should be allowed to pursue only those topics that interest them. Similarly, we suggest (consistent with Halonen et al., 2011) that the psychology major should consist of: (a) a fundamental set of minimal attributes (knowledge, skills, attitudes), supported by at least one cornerstone course which includes an introduction to "thinking like a psychologist"; followed by (b) significant choice in topics that build upon those foundations; and then (c) a capstone experience whereby students have opportunities for integrative learning, with a high level of choice and autonomy to ensure engagement and deep learning. As such, psychology graduates will acquire a "spiky profile" of psychological attributes: they may excel in some components of psychological literacy, while exhibiting minimal knowledge and skills in other areas. The challenge here, then, is that our current perspectives on psychological literacy may imply: "a relatively well-integrated and functional set of schemas that across individuals may show some variability in expression, but in terms of central tendency, can be recognized and assessed as 'psychological literacy'" (Cranney & Dunn, 2011, p. 8). The reality, from a student and educator perspective, may be that some aspects of psychological literacy are aspirational (Murdoch, 2016), and some students may never acquire the full set of associated attributes. Indeed, perhaps the most important element of psychological literacy might be the development of reflective skills and self-awareness, enabling the student themselves to be aware of their own strengths and weaknesses. We would argue that all psychology students should be given opportunities to engage with all of the different components of psychological literacy, and to determine the relevance of each for themselves. Further work is required to establish whether a "threshold" level of achievement against the different skills can be, or should be, determined, and to determine how, or if, we can measure that achievement. Some researchers have attempted to measure psychological literacy (e.g., Heritage, Roberts, & Gasson, 2016), but this is still in its early stages, and debate around how psychological literacy can be operationalized is ongoing. Further work in this area presents an exciting challenge for the psychology education community.

Indeed, as psychology educators, we face a similar challenge in regard to our own personal and professional development. As Cranney and Morris (in press) suggest: "No one is ever 'fully' psychological literate—this is impossible. But we choose our own areas of our lives where we want to apply psychology to achieve our personal, professional, and societal goals. Of particular relevance to us as psychology educators is to apply the knowledge and skills of psychology to the educational context, and become 'scientist-educators'." Only in addressing this challenge, we suggest, will we fully capitalize on the lessons we are learning, and truly develop the principles of education for psychological literacy.

Concluding Thoughts

In conclusion, then, psychological literacy is still a relatively new concept within psychology education, and as such, there are still lessons to learn and challenges to overcome. However, we have argued that the opportunities presented by delivering psychology education through the lens of psychological literacy are immense. For society, psychological literacy offers a means of ensuring that higher education is fit for its purposes of preserving knowledge, creating new knowledge, and serving the public good (Horan, 2018). For educators, it offers a means to teach psychology in a way that is rewarding, engaging, and enables us to continue to learn and develop our own psychological understanding and skills. Perhaps most importantly, for students, psychological literacy enables them to develop as lifelong and lifewide learners, and facilitates their engagement with science, critical thinking, and civic issues, albeit to varying extents. In this way, our psychology graduates are well prepared for the uncertain future of a changing world; they are able to "learn for life."

Teaching, Learning and Assessment Resources

If you are now keen to increase the focus on psychological literacy within your teaching practice, we hope you will find these tips and additional resources useful.

Tips

1. Start out by thinking about what you want students to know and do; try to ensure that you give them an opportunity to practice with support in class, and that your assessments measure the same knowledge and skills.
2. If engaging students in active and problem-based learning seems daunting at first, start by thinking of examples of the way that the psychology content you are teaching can be applied to everyday life – and encourage your colleagues to do the same. Don't try to change everything all at once – take steps, and learn as you go.
3. Try to involve students in the process of renewing your classes, assessments, and curricula. Students can be extremely creative, providing you with lots of ideas

– and working with them in partnership can give them a sense of ownership over their learning, which can facilitate their engagement.
4. Like students, educators' learning can be facilitated by working with other educators. Find like-minded colleagues at your university or elsewhere, and work in partnership to renew your curricula. Consider observing others' classes, or asking them to observe yours, and give you some ideas on what you can do to increase the focus on application and psychological literacy.
5. Reflect on your own position as a psychologically literate educator: to what extent are you applying psychology to your teaching and assessment practices, and how do you model psychological literacy to your students? If you think there is room for improvement in some areas, consider exploring some of the further reading suggestions below, to develop your thinking and practices in the areas you think need most work.

Further Readings

1. Cranney, J., & Dunn, D. (2011a). *The psychologically literate citizen: Foundations and global perspectives*. New York, NY: Oxford University Press.
   - The definitive source to develop your thinking about education for psychological literacy, covering definitions, cultural perspectives, and suggestions for practice.
2. Morris, S., Cranney, J., Baldwin, P., Mellish, L., & Krochmalik, A. (2018). *The rubber brain: A toolkit for optimising your study, work, and life*. Bowen Hills, QLD: Australian Academic Press.
   - Provides useful content and techniques for helping students to apply psychology to their own personal and professional development, helping them to learn effectively. The practical exercises – relevant either to the subject matter or to general skills that facilitate successful completion of assessments – could be integrated into almost any psychology unit.
3. Cranney, J., Morris, S., & Baldwin, P. (n.d.). Psychological literacy. Retrieved from http://www.psychliteracy.com/
   - A useful website collating a plethora of resources, information and insights into psychological literacy from around the world.
4. Mair, C., Taylor, J., & Hulme, J. A. (2013). *An introductory guide to psychological literacy and psychologically literate citizenship*. York, UK: Higher Education Academy. Retrieved from https://www.heacademy.ac.uk/knowledge-hub/psychology-education-psychological-literacy
   - A practically-focused introduction to the concepts of psychological literacy and psychologically-literate citizenship, with ideas about ways in which different core topics in psychology can be applied to everyday life.
5. Taylor, J., & Hulme, J. A. (2015). Psychological literacy: A compendium of practice. Retrieved from http://eprints.bournemouth.ac.uk/22906/4/psychological_literacy_compendium_final2._amended.pdf
   - A set of case studies from the UK, illustrating the ways in which some educators have delivered psychological literacy to their students.

6. Taylor, J., & Hulme, J. A. (2018). International edition of the psychological literacy compendium. Retrieved from http://eprints.bournemouth.ac.uk/30425/1/International%20edition%20Psychological%20Literacy%20Compendium%20Final.pdf
   - Building upon Taylor and Hulme (2015), this international edition of the compendium includes additional case studies, from the UK and the rest of the world.
7. Halpern, D. (1998). Teaching critical thinking for transfer across domains: Dispositions, skills, structure training, and metacognitive monitoring. *American Psychologist, 53*, 449–455.
   - This article is ground-breaking in the sense that it points to the motivational aspect of critical thinking – that is, in order to engage in critical thinking – possibly the most commonly stated graduate outcome for Western universities – one must be motivated to do so, because it takes effort! The highlighting of the metacognitive aspects of critical thinking underline this point. Examination of one's own thinking, of course, is fundamental to progress in any domain of one's life.
8. Halpern, D. (2010). *Undergraduate education in psychology: A blueprint for the future of the discipline*. Washington, DC: APA.
   - This collection contains McGovern et al.'s (2010) ground-breaking chapter, as well as many other useful chapters specifically written to support psychology educators.
9. Dunlosky, J., Rawson, K., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest, 14*(1), 4–58.
   - A review of the psychological literature to inform learning and teaching practices using evidence from psychological science.
10. Harré, N. (2018). *Psychology for a better world: Working with people to save the planet*. Auckland, New Zealand: Auckland University Press.
   - An intriguing exploration of the ways in which psychology can be applied to the global environmental crisis, illustrating one aspect of psychologically-literate citizenship.

Cross-References

▶ Basic Principles and Procedures for Effective Teaching in Psychology
▶ Inquiry-Based Learning in Psychology
▶ Problem-Based Learning and Case-Based Learning
▶ Service Learning
▶ Teaching Introductory Psychology
▶ Teaching of General Psychology: Problem Solving
▶ Teaching the Foundations of Psychological Science

References

Akhurst, J., & Mitchell, C. (2012). International community-based work placements for UK psychology undergraduates: An evaluation of three cohorts' experiences. *Psychology Learning and Teaching, 11*(3), 401–405. https://doi.org/10.2304/plat.2012.11.3.401.

American Psychological Association. (2013). APA Guidelines for the undergraduate psychology major: Version 2.0. Retrieved from http://www.apa.org/ed/precollege/about/undergraduate-major.aspx

Augar, P. (2019, May 30). Independent panel report to the review of post-18 education and funding. Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/805127/Review_of_post_18_education_and_funding.pdf

Australian Psychology Accreditation Council. (2019). Accreditation standards for psychology programs: Effective 1 January 2019, Version 1.2. Retrieved from https://www.psychologycouncil.org.au/sites/default/files/public/Standards_20180912_Published_Final_v1.2.pdf

Banyard, P., & Hulme, J. A. (2015). "Giving psychology away": How George Miller's vision is being realised by psychological literacy. *Psychology Teaching Review, 21*(2), 93–101.

Barnett, R. (2011). Lifewide education: A new and transformative concept for higher education. In N. J. Jackson (Ed.), *Learning for a complex world: A lifewide concept of learning, education and development*. Bloomington, IN: AuthorHouse.

Bernstein, D. (2011). A scientist-educator perspective on psychological literacy. In J. Cranney & D. S. Dunn (Eds.), *The psychologically literate citizen: Foundations and global perspectives* (pp. 281–295). New York, NY: Oxford University Press.

Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education, 32*, 347–364. https://doi.org/10.1007/bf00138871.

Boneau, C. A. (1990). Psychological literacy: A first approximation. *American Psychologist, 45*, 891–900. https://doi.org/10.1037//0003-066x.45.7.891.

Boyer, E. L. (1990). *Scholarship reconsidered: Priorities of the professoriate*. San Francisco, CA: Carnegie Foundation for the Advancement of Teaching.

BPS. (2019, January). Standards for the accreditation of undergraduate, conversion and integrated Masters programmes in psychology. Retrieved from https://www.bps.org.uk/sites/bps.org.uk/files/Accreditation/Undergraduate%20Accreditation%20Handbook%202019.pdf

Bromnick, R., & Horowitz, A. (2013). Reframing employability: Exploring career-related values in psychology undergraduates. Proceedings of the HEA STEM conference, Birmingham, UK. Retrieved from https://www.heacademy.ac.uk/system/files/resources/reframing_employability_exploring_career-related_values_in_psychology_undergraduates.pdf

Carroll, A., Lodge, J. M., Bagraith, R., Nugent, A., Matthews, K., & Sah, P. (2018). *Higher education learning framework matrix – An evidence-informed model for university learning*. Brisbane, QLD: The University of Queensland. Retrieved from https://www.slrc.org.au/wp-content/uploads/2018/05/HELF-isbn.pdf

Cranney, J., & Dunn, D. S. (2011). Psychological literacy and the psychologically literate citizen: New frontiers for a global discipline. In J. Cranney & D. S. Dunn (Eds.), *The psychologically literate citizen: Foundations and global perspectives* (pp. 3–12). New York, NY: Oxford University Press.

Cranney, J., & Morris, S. (2018). Undergraduate capstone experiences and psychological literacy. In G. J. Rich, A. Padilla-Lopez, L. K. de Souza, L. Zinkiewicz, J. Taylor, & J. L. S. B. Jaafar (Eds.), *Teaching psychology around the world: Volume 4* (pp. 306–327). Newcastle upon Tyne, UK: Cambridge Scholars Press.

Cranney, J., & Morris, S. (in press). Psychological literacy in undergraduate psychology education and beyond. In P. Graf & D. Dozois (Eds.), *Handbook on the state of the art in applied psychology*. Hoboken, NJ: Wiley.

Darlaston-Jones, D. (2015). (De)Constructing paradigms: Creating a psychology curriculum for conscientisation education. *The Australian Community Psychologist, 27*(1), 38–48.

Dudgeon, P., Darlaston-Jones, D., & Clark, Y. (2011). Changing the lens: Indigenous perspectives on psychological literacy. In J. Cranney & D. S. Dunn (Eds.), *The psychologically literate citizen: Foundations and global perspectives* (pp. 72–90). New York, NY: Oxford University Press.

Dunlosky, J., Rawson, K., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest, 14*(1), 4–58. https://doi.org/10.1177/1529100612453266.

Dunn, D., Cautin, R. L., & Gurung, R. A. R. (2011). Curriculum matters: Structure, content, and psychological literacy. In J. Cranney & D. S. Dunn (Eds.), *The psychologically literate citizen: Foundations and global perspectives* (pp. 3–12). New York, NY: Oxford University Press.

Enhancing Student Wellbeing. (2016). Enhancing student wellbeing: Resources for educators. Retrieved from http://unistudentwellbeing.edu.au/

Halonen, J. S., Dunn, D. S., Baker, S., & McCarthy, M. A. (2011). Departmental program approaches for educating psychologically literate citizens. In J. Cranney & D. Dunn (Eds.), *The psychologically literate citizen: Foundations and global perspectives*. New York, NY: Oxford University Press.

Halpern, D. (1998). Teaching critical thinking for transfer across domains: Dispositions, skills, structure training, and metacognitive monitoring. *American Psychologist, 53*, 449–455. https://doi.org/10.1037/0003-066x.53.4.449.

Halpern, D. (2010). *Undergraduate education in psychology: A blueprint for the future of the discipline*. Washington, DC: American Psychological Association.

Halpern, D. F., Anton, B., Beins, B. C., Bernstein, D. J., Blair-Broeker, C. T., Brewer, C., et al. (2010). Principles for quality undergraduate education. In D. Halpern (Ed.), *Undergraduate education in psychology: A blueprint for the future of the discipline*. Washington, DC: American Psychological Association.

Heritage, B., Roberts, L., & Gasson, N. (2016). Psychological literacy weakly differentiates students by discipline and year of enrolment. *Frontiers in Psychology, 7*, 162. https://doi.org/10.3389/fpsyg.2016.00162.

Horan, S. (2018, March 14). What are universities for? Report for the Halpin Partnership. Retrieved from https://www.halpinpartnership.com/debate/what-are-universities

Hulme, J. A. (2014). Psychological literacy: From classroom to real world. *The Psychologist, 27*, 932–935.

Hulme, J. A., & De Wilde, J. (2014). *Tackling transition in STEM disciplines: Supporting the Science, Technology, Engineering and Mathematics (STEM) student journey into higher education in England and Wales*. York, UK: Higher Education Academy. Retrieved from https://www.heacademy.ac.uk/system/files/resources/hea_tackling_transitions_in_stem.pdf

Hulme, J. A., & Kitching, H. J. (2016). Teaching and learning issues in the disciplines: Psychology. Retrieved from https://www.bps.org.uk/sites/bps.org.uk/files/Member%20Networks/Divisions/DARTP/Teaching%20and%20Learning%20Issues%20in%20the%20Disciplines%20Psychology.pdf

Hulme, J. A., & Kitching, H. J. (2017). The nature of psychology: Reflections on university teachers' experiences of teaching sensitive topics. *Psychology Teaching Review, 23*(1), 4–14.

Hulme, J. A., Skinner, R., Worsnop, F., Collins, E., Banyard, P., Kitching, H. J., Watt, R., & Goodson, S. (2015). Psychological literacy: A multifaceted perspective. *Psychology Teaching Review, 21*(2), 13–24.

Hulme, J. A., & Winstone, N. E. (2017). Do no harm: Risk aversion versus risk management in the context of pedagogic frailty. *Knowledge Management & E-Learning: An International Journal, 9*(3), 261–274. https://doi.org/10.34105/j.kmel.2017.09.016.

Lantz, C. (2011). *The psychology student's guide to employability*. York, UK: Higher Education Academy. Retrieved from https://www.heacademy.ac.uk/system/files/employability_guide_0.pdf

Maree, K. (2017). The psychology of career adaptability, career resilience, and employability: A broad overview. In K. Maree (Ed.), *Psychology of career adaptability, employability and resilience*. Cham, Switzerland: Springer.

McGovern, T. V. (2011). Virtues and character strengths of psychologically literate faculty. In J. Cranney & D. Dunn (Eds.), *The psychologically literate citizen: Foundations and global perspectives* (pp. 296–305). New York, NY: Oxford University Press.

McGovern, T. V., Corey, L. A., Cranney, J., Dixon, W. E., Jr., Holmes, J. D., Kuebli, J. E., Ritchey, K., Smith, R. A., & Walker, S. (2010). Psychologically literate citizens. In D. Halpern (Ed.), *Undergraduate education in psychology: Blueprint for the discipline's future* (pp. 9–27). Washington, DC: American Psychological Association.

Meyer, J. H. F., Land, R., & Baillie, C. (2010). *Threshold concepts and transformational learning*. Rotterdam, The Netherlands: Sense Publishers.

Miller, G. (1969). Psychology as a means of promoting human welfare. *American Psychologist, 24* (12), 1063–1075. https://doi.org/10.1037/h0028988.

Morris, S., Cranney, J., Baldwin, P., Mellish, L., & Krochmalik, A. (2018). *The rubber brain: A toolkit for optimising your study, work, and life*. Bowen Hills, QLD: Australian Academic Press.

Murdoch, D. D. (2016). Psychological literacy: Proceed with caution, construction ahead. *Psychology Research and Behavior Management, 9*, 189–199. https://doi.org/10.2147/prbm.s88646.

Oliver, B., & de St Jorre, T. J. (2018). Graduate attributes for 2020 and beyond: Recommendations for Australian higher education providers. *Higher Education Research & Development, 37*(4), 821–836. https://doi.org/10.1080/07294360.2018.1446415.

Oxfam. (1997). *A curriculum for global citizenship*. Oxford, UK: Oxfam.

Pollard, E., Hirsh, W., Williams, M., Buzzeo, J., Marvell, R., Tassinari, A., … Ball, C. (2015). *Understanding employers' graduate recruitment and selection processes* (BIS research paper 231). Retrieved from https://core.ac.uk/download/pdf/74379837.pdf

Povee, K., & Roberts, L. (2014). Qualitative research in psychology: Attitudes of psychology students and academic staff. *Australian Journal of Psychology, 66*(1), 28–37. https://doi.org/10.1111/ajpy.12031.

QAA. (2016, October). Subject benchmark statement for psychology. Retrieved from https://www.qaa.ac.uk/docs/qaa/subject-benchmark-statements/sbs-psychology-16.pdf?sfvrsn=af95f781_8

Ravakant, N., & Navukant, N. (2017). Naval Ravakant: The knowledge project. Farnam Street Media Inc. Retrieved from https://www.farnamstreetblog.com/2017/02/naval-ravikant-reading-decision-making/

Reddy, P., Lantz, C., & Hulme, J. A. (2013). *Employability in psychology: A guide for departments*. York, UK: Higher Education Academy. Retrieved from https://www.heacademy.ac.uk/knowledge-hub/employability-psychology-guide-departments

Reddy, P. A., & Moores, E. (2006). Measuring the benefits of a psychology placement year. *Assessment and Evaluation in Higher Education, 31*(5), 551–567. https://doi.org/10.1080/02602930600679555.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68–78. https://doi.org/10.1.1.335.6945&rep=rep1&type=pdf.

Sarkar, M., Overton, T., Thompson, C., & Rayner, G. (2016). Graduate employability: Views of recent science graduates and employers. *International Journal of Innovation in Science and Mathematics Education, 24*(3), 31–48.

Trapp, A., Banister, P., Ellis, J., Latto, R., Miell, D., & Upton, D. (2011). *The future of undergraduate psychology in the United Kingdom*. York, UK: Higher Education Academy. Retrieved from https://www.heacademy.ac.uk/knowledge-hub/future-undergraduate-psychology-united-kingdom

Watt, R. (2013). Developing the psychologically-literate citizen at the University of Stirling. Retrieved from https://www.heacademy.ac.uk/sites/default/files/resources/Watt-developing-psyc-lit-Stirling-v2.pdf

Worrell, F. C., Casad, B. J., Daniel, D. B., McDaniel, M., Messer, W. S., Miller, H. L., Jr., Prohaska, V., & Zlokovich, M. S. (2010). Promising principles for translating psychological science into teaching and learning. In D. Halpern (Ed.), *Undergraduate education in psychology: A blueprint for the future of the discipline*. Washington, DC: American Psychological Association.

Yorke, M. (2006). *Employability in higher education: What it is – What it is not*. York, UK: Higher Education Academy. Retrieved from https://www.heacademy.ac.uk/knowledge-hub/employability-higher-education-what-it-what-it-not

Psychology in Professional Education and Training

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Christoph Steinebach

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C. Steinebach (✉)
ZHAW Zurich University of Applied Sciences, School of Applied Psychology, Zürich, Switzerland
e-mail: Christoph.Steinebach@zhaw.ch

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Abstract

Psychology plays a special role in vocational education in many respects. In the course of rapidly developing professional and educational worlds, its importance continues to grow. This change corresponds to a new understanding of psychological courses in vocational education and training. For individuals, as well as for institutions and organizations, the changes in the world of work can lead to orientation crises. Interest in psychological content is increasing.

Psychological reflection of the vocational biography, psychological training offers, as well as the psychological career-related counseling are of special importance here. From this, recommendations can be derived to offers, to their goals, and to their didactics. Psychological theories help to grasp the meaning of the offers. From a psychological point of view, vocational training is a learning, development, and socialization process. Learning opens up opportunities for personality formation and optimal development in a changing professional world.

The reflection of psychological competences offers the possibility for a competence-oriented description of programs. It also shows that the usual focus of psychological competences on social skills falls short. Psychology in academic studies and further education requires a didactic approach that enables self-determined learning in formats that are independent of time and place. This results in special tasks for didactics and the monitoring of learning processes. This is also associated with special challenges for teachers. The impact of psychological offerings in higher and further education can be seen, among other things, in the extent to which "psychological literacy" promotes personal development, innovation in the workplace, and social participation.

Keywords

Vocational education · Continuing education · Social change · Competence models · Career resilience · Psychological literacy

Introduction

With the interest to apply psychology to education, to the professional world or to health promotion, the question of its teaching for people in different professions also arose. Therefore, the roots of these offers go back to the foundation of the first psychotechnical institutes in Europe at the beginning of the last century (Carpintero & Herrero, 2002; Suter, 1935). Also, even today a multitude of changes in society as a whole and in the professional world make psychological training courses attractive and necessary.

For a long time now, a wide variety of offers in very different formats with different designs have enjoyed great popularity. Special interests, questions, and competences of the participants pose particular challenges to the didactics. After all, it is necessary to harmonize professional profiles, individual needs and interests, competence profiles, contents, and didactics. In this way, psychology makes an important contribution to training "non-psychologists" personally and professionally for the special challenges of work life during their studies and in further education.

Purpose of the Curricula in Vocational Education and Further Education in a Changing World

Social Change

In the course of their lives, people have to cope with a variety of challenges in different areas of life. Many of these challenges are to be expected as tasks in the course of life. Others are unexpected and can be associated with crises. Since the turn of the last millennium, at least four central "megatrends" have been mentioned: globalization, pluralization, acceleration, and knowledge orientation (Renn, Chabay, van der Leeuw, & Droy, 2020; on acceleration, Rosa, 2017). The concern to avoid or manage global risks (World Economic Forum, 2020), the focus on fundamental societal development goals (United Nations, 2020), and the quest to improve quality and efficiency bring new demands for individuals, teams, and institutions. Rapidly knowledge becomes obsolete and requires continuous updating and optimization.

It is important to keep in mind that teaching and learning in vocational education and training differ significantly in the various countries and cultures. These differences also represent different cultural norms, values, and beliefs that influence individual learning, individual development, and career biography. Conversely, it can also be assumed that such individual changes can lead to cultural change (Albert & Trommsdorff, 2014).

Change in the Professional World

In the world of work, too, positive development, satisfaction and well-being are only conceivable if individuals face up to the given challenges. Resilience manifests itself in successful self-development and environmental empowerment (Steinebach, 2015). It is important not to lose sight of one's own path and goals while worrying about one's professional career. "Career adaptability" becomes a prerequisite for "career satisfaction and career success." As Maree (2017) suggests, referring to Hartung and Cadaret, "career adaptability is (the) key to developing career resilience and changing the self in fluctuating career contexts, leading to the successful accomplishment of career development tasks and career transitions as well as the resolution of career- and work-based traumas" (Maree, 2017, 6). In this context, the world of work has always been changing. However, terms like "Work 4.0" or

"Industry 4.0" stand for a change that is happening very fast and is very fundamental (cf. Ahrens & Gessler, 2018).

Continuing education is an adequate response to these challenges. From the company's perspective, continuing education then appears to be a sensible investment that secures competitive advantages and influence, supports strategic adaptation, strengthens resources, enables participation, and solves operational problems (on the theories of continuing education, see Käpplinger, 2018).

Change in the Comprehension of Learning

At school, in university, and in continuing vocational training, learning and personal development today are in many respects a self-designed and self-responsible processes. Learning succeeds particularly well when learners have the impression that they are working on solving real problems. Existing knowledge should be awakened, and new insights should be secured and consolidated. In a strong practical reference, the benefit of theoretical knowledge for practical action should become clear. At the same time, the transfer of knowledge into practice should also ensure that the new knowledge is sustainably anchored in the learners' lifeworld (Jenkins & Healey, 2005). What "institutional strategies to link teaching and research" can succeed in this? (Jenkins & Healey, 2005, 1). Research-based learning is most likely to meet this understanding of learning (Zumbach & Astleitner, 2016). On the one hand, because the learning process can be understood as research, and on the other hand, because one needs to understand research in order to stay up to date with the latest knowledge. In professional education, we also view psychology as empirical science and evidence-based practice. Therefore, learning opportunities must teach how psychological expertise worthy of the label "evidence-based" is generated (Jenkins & Healey, 2005, 22).

Change in Learning Environments

The understanding of teaching and learning described above suggests a special design of the learning environment in studies and further education. At the micro level, courses require special forms of didactics. The connection between the university as a place of learning and the other learning and living environments of the course participants is a particular challenge. More and more, the workplace is being understood as a place of learning. This means that cooperation between companies and external training providers, e.g., universities, is becoming increasingly important. At the meso level, it is a matter of designing the continuing education course in such a way that the competences acquired in the modules build on one another in a meaningful way. At the exo level, universities must present themselves as an institution for the acquisition and recognition of competences. In this context, it proves to be a challenge that not only the continuing education landscape but also universities are under strong pressure to change. Especially

since they themselves are also involved in the local and regional context at the macro level (Braun, Weiß, & Seidel, 2014).

Requirements for Education

Current discussions about higher education and continuing vocational training point to a variety of very fundamental societal changes. This makes it difficult to give recommendations on necessary competences and skills (Wilson, 2019). The relationship between "theory" and "practice" plays a special role in understanding societal change, individual development, needs, and the design of psychological offerings in vocational education. "Theory" is considered the link between research, teaching, and practice.

The reference to the learners' own development and personal responsibility makes it clear that education is more than knowledge. Education aims at basic skills of understanding the world and thus also at competences to decide on good actions as a basic question of ethics (Mittelstraß, 2002; Pfadenhauer, 2013).

Professional action always has an impact on others. Knowledge helps to be able to assess the consequences of one's own actions and to justify one's own actions. Thus, theoretical knowledge is essential for meeting ethical requirements in research and professional action (Doylea & Buckley, 2014). Students learn what ethical research guidelines must be considered. They learn that research in the applied sciences serves evidence-based practice and enables practice-based theory development. They learn that theory is always individual and intersubjective. They increasingly understand practice as experience in a concrete environment and learn to understand the interactions between theory and practice. All this is combined with the question of whether the chosen procedure is ethically justifiable. Against this background, research-based learning also imparts knowledge about the dangers of deliberate falsification and bona fide manipulation in research, about the rules of peer review and scientific self-control. This makes it clear that when we integrate research-based learning into vocational education and training, it is not only techniques and tools that become the topic. We also convey an attitude of scientific honesty and thus also promote a corresponding scientific culture of the university or institution.

Rationale, Basic Concepts, and Objectives of Vocational Education and Further Education

Theory-Based Versus Practice-Integrated

Professionals face a highly complex and rapidly changing world. In this situation, they expect psychology as a science to provide answers to their questions (Narciss, 2019). The close connection between research, theory, teaching, and practice is a wonderful ideal. However, the practical implementation is not easy (Zumbach & Astleitner, 2016). For each learning field with its own competence profiles, it will be

necessary to clarify (a) the relationship between research and teaching, (b) which competences and metacompetences should be taught at which educational level, (c) which special challenges for professional ethics and research ethics exist in this subject in particular, and (d) with which subject-specific didactics psychological competences should be taught to students and participants in continuing education with their own individual or professional profiles. In all of this, the learning process with its specific phases must be taken into account (Zumbach & Astleitner, 2016).

The currently common biopsychosocial model of human development can help reduce complexity and order the relevant factors. From this systemic perspective, human development is understood as a process explained by changes at the biochemical, neurophysiological, emotional, and cognitive levels. These interconnected systemic processes, following the work of Uri Bronfenbrenner (1917–2005) are in turn embedded in different environmental systems, usually distinguished as micro-, meso-, exo-, and macrosystems. Levels and processes change over time. Not infrequently, complex adaptation processes become necessary here. This is especially true for ecological transitions (e.g., from school to work, from one employment to another), where the relationships between requirements, activities, and roles change (Schmidt-Lauff, 2018; Steinebach, 2013; Steinebach, Eberhardt, Kotrubczik, Majkovic, & Zinsli, 2014; Steinebach, Steinebach, & Brendtro, 2012).

The perfectly reasonable reference to the complexity of the problem and the relevant conditions often triggers skepticism and dissatisfaction (Steinebach, 2019). However, skepticism might be also seen as an expression of critical thinking. Associated with this approach is the insight that theories are at best maps that never represent reality one-to-one but can nevertheless provide orientation ("theories-are-maps," Erikson & Erlandson, 2015, p. 3). Thus, transfer to everyday life becomes a major challenge. In order to promote the transfer, the everyday life is didactically included. Practice becomes the place of learning to ensure the transfer of theory into everyday life (Eckert & Kadera, 2018). In this context, everyday life then stands for the physical and social aspects of the context, for the real occurrences and their social construction (Gerstenmaier & Mandl, 2018).

Formal Versus Informal

Meanwhile, when it comes to acquiring specific skills, vocational training often seems to be disconnected from formal offerings. With informal learning, occupational activities, social relationships in the workplace, in-company training, and human resource development become more important. It is emphasized that skills are not acquired only to the usual settings of instruction (Rintala et al., 2019). Learning often occurs independently of specific times (e.g., problem-based), places (e.g., job-dependent), and social situations (e.g., dialogue with competent co-workers). Especially in continuing education, learning is thus highly self-determined, individualized, and dependent on individual dispositions and resources, environmental offers and incentives, as well as social support in learning and living environments (Thalhammer & Schmidt-Hertha, 2018).

Flexibilization and individualization are also considered desirable in formal offerings. At the level of continuing education, for example, courses are now also offered as "open studies." For the most part, offerings at the university level do not require prior degrees. It may be, however, that professional prerequisites are required. To acquire these prerequisites, as well as for the "open studies" courses themselves, existing formal learning opportunities can be opened up to those interested.

Due to the concern to describe learning in all its facets and to finally be able to confirm the acquisition of competences, a distinction is made between formally, non-formally, and informally acquired competences. Competences are considered to be formally acquired if they have been imparted within the framework of regulated educational programs. This can be the case, for example, in the context of bachelor's and master's degree programs or in the context of curricular continuing education programs. Non-formally acquired competences are competences that were acquired apart from regular educational programs. This usually includes in-company training. Informally acquired competences are all those skills and abilities that have been acquired in everyday life, whether at work or in free time. The fact that informally acquired competences are also of particular importance for professional development is not new. What is new, however, is the concern to also document these competences and to credit them as equivalent to formally acquired competences (Council of the European Union, 2012; Harteis & Heid, 2018). This is not only intended to promote learning in the workplace. It is also intended to increase permeability between vocational education and tertiary education. However, this requires appropriate standards and recognition processes (Winterton, Delamare Le Deist, & Stringfellow, 2006; Schröder & Denbostel, 2019).

General Versus Vocationally Specific

The scope and structure of psychological courses in higher and further education differ depending on which competences are to be imparted. The distinction between sub-competences and competences, key competences and meta-competences alone makes it clear that very different abilities and skills can be the subject of psychological offerings. Due to the variety of meanings and the many overlaps with everyday language, a pragmatic definition of "competence" is obvious. Competences are then understood as characteristics of individuals or groups, of institutions, or organizations. Competences are needed to achieve given goals. They are manifested in actions that are appropriate to the situation. From these actions are inferred (a) general cognitive competences, (b) specialized cognitive competences, (c) a competence-performance model, (d) a modified competence-performance model, (e) motivated action tendencies, (f) objective and subjective self-concepts, (g) action competence, (h) key competences, and (i) meta-competences (Weinert, 2001). Emphasized is that basic competences are important across different fields of action. They cannot be defined by a specific subject matter. Here Weinert speaks of domain-general competences, metacognitive competences, competence-relevant motivational attitudes, and competence-relevant volitional skills (Weinert, 2001).

Competence models are not static. They evolve with the concerns of people and the requirements of work. Currently, "entrepreneurship" is considered an important competence in which "innovation skills" are particularly relevant (Deitmer, 2019). In addition, "Work 4.0" places special demands on communication with customers ("connectivity and creativity" as competences, Kim, 2019, p. 191).

Efficiency Versus Personal Growth

Continuing professional development is about learning measures that are more or less planned, more or less structured, more or less self-directed, self-responsible and self-financed, and more or less recognized. One can think of seminars, courses, trainings, guidance and supervision, coaching, job rotation, job shadowing, and much more (Käpplinger, 2018). In all of these, psychological skills can also be taught.

In many ways, psychological knowledge can be helpful in solving problems in very different professional situations and fields of work. Therefore, the decision to pursue psychological learning opportunities may be motivated by a desire to become more effective in one's profession. To be distinguished from this would be the desire to grow personally. It is about learning how to use one's potential for one's own development and for life as a whole. Personal fulfillment, well-being, and health are important goals. The concerns of professional effectiveness and personal growth are also the subject of self-determination theory (Deci & Ryan, 2015). In this theory, self-determination, autonomy, and experience of competence are understood as basic needs. People are particularly motivated to address goals and perform actions when they feel that these goals and actions serve to satisfy their basic needs. "Satisfaction of these basic needs promotes optimal motivational traits and states of autonomous motivation and intrinsic aspiration" (Deci & Ryan, 2015, 486). The basic assumptions of this theory can also be applied to career development. We then speak of "career self-determination," "career autonomy," and "career competence" (Chen, 2017, 330). Thus, the pursuit of autonomy reflects the self-concept and professional identity, one's own interests, as well as the meaning of the professional activity. With the experience of being able to act competently in one's career, self-efficacy and thus individual resilience also grow.

Literacy Versus Citizenship

In today's world, what does a person need to achieve goals, acquire knowledge, realize his or her potential, and participate in society? The answer to this question is "literacy" (United Nations Educational, Scientific and Cultural Organization, 2019). Literacy encompasses many different skills in a wide range of areas that are not limited to cognitive skills alone. For a more precise clarification of what is meant by "psychological literacy," on the one hand, the definitions of "literacy" are used, and on the other hand, "citizenship" becomes an important determinant.

"Citizenship" refers to the ability to actively participate in the life of the community and society as a whole and to assume responsibility. This is also based on intercultural competence and a comprehensive understanding of the world.

Psychological literacy encompasses a wide range of specialist knowledge and thus also knowledge of the conceptual world of psychology. Human actions can be reflected, analyzed, and developed; problems are reflected upon openly, creatively, and from a professional distance. Psychological theories are applied in the analysis of information and the evaluation of techniques as well as in the development of solutions to problems. "Psychological Literacy" is also demonstrated in the ability to communicate appropriately in different situations, taking into account the diversity of people and their living conditions. It is manifested in a prudent and reflective attitude towards oneself and others and is also the basis for ethical action (Cranney & Dunn, 2011; ▶ Chap. 36, "Psychological Literacy and Learning for Life").

When it comes to designing programs (Dunn, Cautin, & Gurung, 2011), it is generally assumed that such competences can only be taught in a comprehensive study of psychology. "... psychological literacy is a core component of graduate literacy in general, and ... the psychologically literate citizen is a core component of the global citizen ..." (Cranney & Dunn, 2011, p. 10.). On the other hand, "literacy" is also talked about in other fields of practice and sciences. And we can assume that psychological competences certainly play a role in these fields. For example, someone who works as an engineer and has leadership responsibility for his or her team will be interested in developing his or her own leadership competences and will be happy to acquire psychological competences in the process. Therefore, we should not define "psychological literacy" too narrowly and create a general educational ideal in which psychological competences also have their place.

Teaching, Learning, and Assessment in Vocational Education and Further Education

Professional Socialization

Psychological theories of socialization try to shed light on the contribution of the environment to the development of the personality, of cognitions, emotions, and behavior. In this context, family, school, and professional institutions are considered important instances of socialization. With reference to Niklas Luhmann (1927–1998), we can assume that social processes without corresponding structures would appear disorderly and chaotic. Social processes appear chaotic to the observer, who lacks any category to judge them. Within the process of socialization, we learn to bring order into chaotic social processes, to read and understand them better. Socialization ensures the possibility of remaining capable of action over the course of one's life and of pursuing one's own goals in social responsibility. "The term *Socialization* is used to describe the very general, anthropologically based facts of the social shaping of reliable social relationships and the intergenerational

transmission of social knowledge of action ..." (translated by the author, emphasis in original, Grundmann, 2017, 64).

Personality and identity thereby represent physical, emotional, and cognitive resources, as well as possibilities and limitations of environmental systems (Tomlinson & Jackson, 2019). In reflecting on one's competences, one learns more about one's personality. However, people also process their external reality largely through social interaction and communication with others. Transferred to executive education, this means that their current behavior can be understood as the result of a (self-)reflected socialization process. Knowledge, their personality profile, and social skills are expressed in their leadership style. The effects of leadership behavior are reflected in the commitment, willingness to learn, and, for example, the assumption of responsibility by those led. And this has consequences for general communication, for learning in the company, for the planning of processes up to the productivity and growth of the company (von Rosenstiel, 2018; articles in Lippmann, Pfister, & Jörg, 2019). Colleagues, one's team, supervisors, and professional development offerings assume the function of direct mediators of external reality in professional life. They provide patterns of appropriation and processing of external reality via conversation, instruction, guidance, and training.

Personality Development

Vocational training follows formal and informal paths. Formal education tends to be determined by institutionalized rules and serves the systematic transmission of knowledge. Informal education is rooted in everyday situations and mostly uses implicit pedagogy. In different cultures, the effects of formal versus informal education vary. "These differences are presumably related to several factors, including differences in educational systems, teaching and learning styles, time use, cultural values, and relations between informal and formal education" (Trommsdorff & Dasen, 2001, p. 3006). This also applies to the development and socialization of emotionality and social behavior (Albert & Trommsdorff, 2014; Trommsdorff, 2012).

Professional socialization and education take place in an immediate social and cultural context, and yet socialization processes and their engagement are highly individual. In the ideal of self-determined learning, everyone can, based on their own personality and developmental history, actively engage with individual preferences, objectives, and assistance, and thus explore their own potential and use it for their own vocational education and development. New norms and trends or emerging risks give rise to individual reflection and reorientation. Personal experience offers little security. Problems of action and orientation are increasingly seen as problems of the individual. Those who fail are seen as having little resilience. "Burnout" becomes the recognized way out. Some experience developments in this field of tension as delightful "surfing"; for others, the "feeling of life on the slippery slope" (Rosa, 2017) triggers anxiety and depression. Concern for one's own well-being becomes a central challenge of individual developmental. According to Ryff and

Keyes (1995), self-acceptance, positive social relationships, autonomy, control over the environment, meaning in life, and personal growth are considered important needs or values. When we have a positive attitude toward ourselves, experience warm, satisfying, trusting relationships, are concerned about the well-being of others, lead a self-determined and independent life, can resist social pressures, experience ourselves as competent, have goals in life and can thus give direction to our lives, and are open to new experiences, we feel good.

Admittedly, it is not easy to achieve and maintain this well-being under the pressure of the rapidly changing world of work. In this time of change and contradictions, conflicts can hardly be avoided. The decoupling of thinking, feeling, and physical experience can become a problem. Workplace health promotion interventions, e.g., with a focus on mindfulness and mindful leadership, are designed to counteract this (Knafla & Schär, 2019). Learners can benefit from reflecting on their socialization and coming to terms with their own values. They use thinking about themselves to promote their own competences in dealing with the complexity and dynamics of social relations and to support the competence development of their peers.

Optimal Development

Referring to relevant models of developmental psychology (Brandtstädter, 2015; Steinebach, 2006), we would assume that evaluations of one's own development take place in the life course, for example, in dealing with particular developmental tasks ("How can I advance my career?"). There is an initial attribution of events to the individual ("I put myself out there! I'm really good at that!"), or to external stable or variable factors ("I can rely on my family, they'll support me!" "I must be lucky!"). Values, developmental goals, and control beliefs ("I can do something about that!") also factor into the assessment. With the broader consideration of competences, this attribution of personal and situational factors expands to include the acquisition, consolidation, or diffusion of competences. Here, the conception of competence as a self-organizing disposition takes on a decisive significance. Especially in the reflection of one's own potential, it is important to be able to self-critically define special opportunities for professional development.

What competences do people possess that come fairly close to the goal of autonomous and at the same time socially responsible self-determination? Brandtstädter (1980) mentiones:

- An ongoing and differentiated review of one's own behavior
- An internal environmental model that reflects and explains aspects of the environment in a differentiated way
- An internal self-model that adequately reflects one's own feelings and behavioral potentials
- A self-critical and experience-open attitude as a prerequisite for flexible changes of the internal environmental and self-model

- A high degree of "exploratory variability and spontaneity" (translated by the author, Brandtstädter, 1980, p. 219)
- The capacity for self-reinforcement with regard to the environmental and self-ideal
- The extensive personal autonomy of one's own evaluative criteria and standards
- A reluctance to accept instructions or role expectations
- The willingness to change the self- and environmental ideal if necessary
- A positive self-assessment and evaluation
- A willingness to change perspectives, empathize, and consider the interests of others

From the point of view of developmental psychology, vocational training and counseling should make it possible to reevaluate one's own life story and thus also the issues, phases, and events that are difficult at present or in retrospect. One's own weaknesses and strengths, but also the obstacles and supportive potentials of the environment should be reflected upon. By processing past experiences and developmental crises, a personal and social reorientation becomes possible for the person. The reassessment is supported by information on general development and current development conditions, risks, and opportunities.

Learning

"Acquiring competencies is hardly comparable with learning as knowledge acquisition. Competencies are described as learnable but not teachable. ... Methodical notes about competency acquisition or about didactic conceptions of imparting competency are usually of a rather general character, which is often not least due to a rather vague competency concept" (Barth, Godemann, Rieckmann, & Stoltenberg, 2007). In professional development, situations are conceivable in which behavioral-cognitive theories as well as theories of situated learning are helpful (Steinebach, Süss, Kienbaum, & Kiegelmann, 2016). Of particular importance then are cognitive and constructivist theories of learning in which construction, action, schema formation are reflected under personal, social, and societal conditions (Ludwig, 2018). Such reconsideration then certainly has implications for the design of learning opportunities. Madson, Zaikman, and Hughes (2020), for example, recommend making greater use of offerings in "team-based learning" for teaching psychological competences.

Learning – and thus education – happens earlier and naturally before, during, and after (and in) schooling, apprenticeships, or in the early years of employment. Especially the constructivist theories of self-directed learning are helpful to grasp educational processes in their complexity therein. Successful learning opportunities offer sufficient room for self-directed learning in authentic challenging situations and thus address motivation and emotion in a special way (Merrill, 2002). However, motivation and positive emotions alone are not sufficient, but they are also of great importance in the development of social competences – compared to planning or

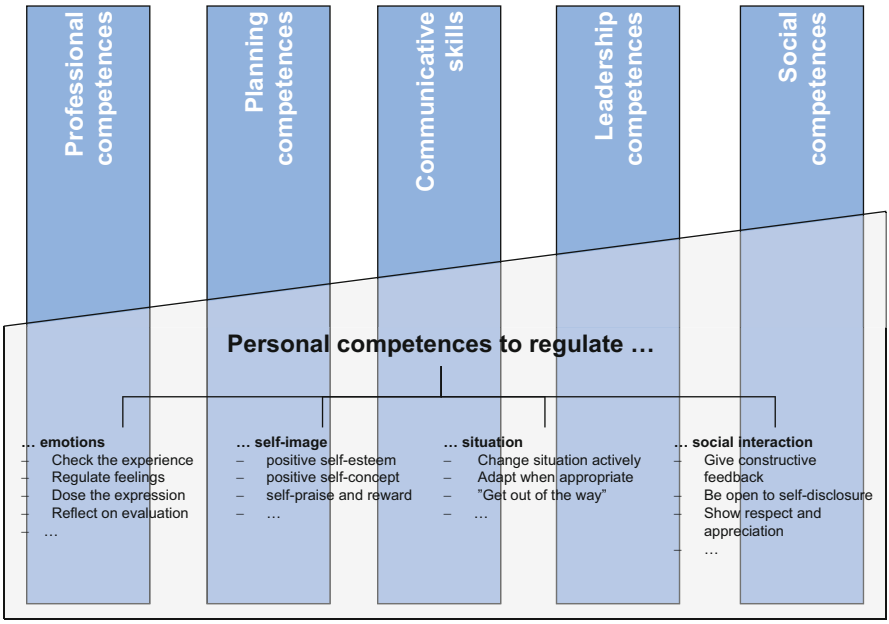

Fig. 1 Psychosocial competences for the workplace (cf. Steinebach et al., 2016)

technical competences (Barth et al., 2007; Diener, Thapa, & Tay, 2020). Furthermore, it is important to be able to learn to understand a subject matter through exploration and observation, to be active in the learning process, and to be able to control this action oneself (Mayer, 2019; Steinebach, 2005). "Personal competence" here means appropriate forms of situation regulation, self-regulation, interaction regulation, and emotion regulation (Arnold, Pätzold, & Ganz, 2018, Diener et al., 2020; Heyse, Erpenbeck, Coester, Ortmann, & Sauter, 2019; Steinebach & Steinebach, 2013, see Fig. 1). Whereby all forms of self-regulation are to be understood as culture-based, i.e., they have to correspond to the cultural context with its views on appropriate self-regulation (Trommsdorff, 2009).

Competence Development

"The trend towards competence-based ICVT (Initial and Continuing Vocational Training) development is not only observed at the national level within countries but also at an international level" (Mulder, Weigel, & Collins, 2006, p. 8). Even though concepts of competence-based education permeate the professional world and continuing vocational training after the "competency-based turn" of the 1990s (Ahrens & Gessler, 2018), competences are controversially discussed. "The term 'competency' echoes throughout the country. ... However, no agreement exists about what (key) competencies actually are, which are of importance and how the

approach of competence acquisition finds its way into higher education." (Barth et al., 2007, 417; Zeuner, 2018). The use of the concept of competence also supports other developments, such as increasing self-responsibility in the learning process, the inclusion of practice as a place of learning, recourse to previously acquired knowledge, and the development of new learning theories that emphasize self-direction of learning as well as cognitive and social construction of knowledge (Mulder et al., 2006). Diversity in understanding concepts is matched by diversity in theories (Mulder, 2019). We usually assume that personal competence is partly related to professional competence, partly related to methodological competence, but certainly related to social competence. Just as there is an overarching personal competence, we could also assume an overarching research competence. This would then most likely still play a role for professional competence, or also for the evaluation and development of methods, i.e., for methodological competence (cf. Steinebach et al., 2014). Personal competences also require meta-competences, in which knowledge about one's own competences is reflected. Competences to act professionally in the narrower sense include professional competences and planning competences (cf. Tippelt, 2018; Winterton et al., 2006).

There is agreement in describing job-related competences as prerequisites that are necessary to cope with complex, mostly occupational tasks. According to Erpenbeck and von Rosenstiel (2017), competences do not represent arbitrary abilities to act in any number of domains, but rather abilities or dispositions "that allow for meaningful and fruitful action in open, complex, sometimes chaotic situations, that is, that enable self-organized action under mental and representational uncertainty" (p. 6). In this context, the ability to understand the consequences of one's own actions in terms of their impact on the environment and individual responsibility for sustainable use of resources is gaining importance ("higher education for sustainable development," Barth et al., 2007, p. 416). Competences thus include skills, knowledge, and qualifications, but cannot be reduced to these. Overarchingly, it can be stated that in the psychological tradition, competences are conceived as learnable context-specific performance dispositions "that functionally relate to situations and requirements in specific domains" (Klieme & Hartig, 2007, p. 17).

The examination of one's own learning, one's own values and experiences, as well as reflection on how to deal with and cope with complex demanding situations (e.g., through supervision or intervision) supports the development of one's own potential and the learning process in the acquisition and deepening of competences. This openness in the contribution of the individual as well as in the different places of learning is also reflected in the recognition of informally acquired competences in the European Qualifications Framework (EQF; critically Mulder & Winterton, 2017). In the EQF, personal competences and national qualifications become comparable across all educational sectors and qualification levels. Learning outcomes are described and systematized on the basis of knowledge, skills, and competences (see Table 1). Knowledge refers to the respective factual, experiential, and theoretical knowledge. Skills refer to all knowledge and experience necessary for the successful performance of a specific task or occupation. Competence means the ability to use knowledge, skills and personal, social and/or methodological abilities in work and

Table 1 Selected psychological competences for other professions

Competences: psychological competences[a]	Knowledge: subjects of psychology	Skills: topics and professional fields	Interface of psychological competences, knowledge, and skills to other professions
Part I			
• Has the necessary foundational knowledge of psychological concepts, constructs, theories, methods, practice, and research methodology to support competence. • Has the necessary specialized knowledge of psychological concepts, constructs, theory, methods, practice, and research methodology relating to own areas to support competence. • Adopts an evidence-based orientation to the provision of assessments, interventions, service delivery, and other psychological activities. • Identifies assessment or evaluation needs in individuals, groups, communities, organizations, systems, or society. • Consults psychological and other relevant research to inform practice. • Selects, designs, or develops assessments or evaluations, using methods appropriate for the goals and purposes of the activity. • Resolves ethical dilemmas in one's professional practice using an appropriate approach. • Consults peers, supervisors, or other relevant sources when appropriate.	Learning and cognition	Design of learning processes based on theories of learning and thinking.	Economy and behavior economics
	Perception and motivation	Reflection on the influences of perception and motivation on thinking, feeling, and behavior.	Health promotion, security engineering
	Biological psychology	Evaluation of physiological processes associated with various aspects of experience and behavior.	Biology
	Psychophysiology	Evaluation of the influences of various pharmaceuticals on physiology, experience, and behavior.	Pharmacology
	Neuropsychology	Describe neurological processes and their psychological effects.	Neurology
	Social psychology	Understanding social processes in, e.g., dyads, groups, and organizations.	Social education, social work, cultural consultant
	Life span developmental psychology	Consideration of special needs in education and counseling across the life span.	Social work, gerontology
	Personality psychology	Selection, implementation, and evaluation of psychodiagnostic tools.	Psychiatry

(continued)

Table 1 (continued)

Competences: psychological competences[a]	Knowledge: subjects of psychology	Skills: topics and professional fields	Interface of psychological competences, knowledge, and skills to other professions
Part II			
• Integrates assessment and other information with psychological knowledge to guide and develop psychological interventions. • Has the necessary basic skills to support competence in psychological practice. • Has the necessary specialized skills to operate in own areas of psychological practice to support competence. • Works with knowledge and understanding of the historical, political, social, and cultural context of clients, colleagues, and relevant others. • Resolves ethical dilemmas in one's professional practice using an appropriate approach. • Works and communicates effectively with all forms of diversity in clients, colleagues, and relevant others. • Establishes, maintains, and develops appropriate working relationships with clients and relevant others. • Establishes, maintains, and develops appropriate working relationships with colleagues in psychology and other professions. • Works with knowledge and understanding of the historical, political, social, and cultural context of clients, colleagues, and relevant others.	Statistics and research methods	Evaluating empirical data and critically assessing research methods	Statistics and computer science
	Biostatistics	Reflection on problems in considering high complexity of factors and interactions including neural bases	Cognitive and neuroscience
	Educational psychology	Design of teaching and learning across the life span	Education
	Organizational and media psychology	Optimizing conditions of behavior and experience in work environments and organizations	Management, marketing, business, human resource management
	Work, traffic, and engineering psychology	Design of conditions and processes of human–machine interaction	Safety professions
	Health psychology	Promotion of health and well-being in prevention and rehabilitation	Nursing, physiotherapy
	Sport psychology	Promotion of body perception, movement processes, motivation and training in amateur and professional sports	Sports teacher, trainer
	Clinical psychology	Diagnosis and therapy of mental disorders	Psychiatry
	Forensic psychology	Diagnosis and therapy of deviant behavior.	Law and criminology
	Counselling psychology	Counseling and communication of individuals and systems	Social education, theology

(continued)

Table 1 (continued)

Competences: psychological competences[a]	Knowledge: subjects of psychology	Skills: topics and professional fields	Interface of psychological competences, knowledge, and skills to other professions
	Social psychology, community psychology, environmental psychology	Promotion of togetherness in culture and community	Urban planning, architecture

[a]International Association of Applied Psychology & International Union of Psychological Science, 2016

life situations for professional and personal development. Here, for example, independence and willingness to take responsibility, learning competence, communicative and social competences are taken into account. Table 1 provides an overview of competences, knowledge, and skills, and relates them to other professions. Even if, as is usually the case, various levels of proficiency remain unnoticed here, it is actually only a graduation from low to high proficiency that makes it possible to speak of excellence (e.g., to high performance Worrell, Olszewski-Kubilius, & Subotnik, 2019) and, for example, to offer continuing education courses at an "advanced level" (Barrick, 2019). It should be noted that a focus on one or another competence and the negative evaluation of low levels of competence can also lead to social exclusion of those who are considered "incompetent" (see on Ableism and Prejudice Nario-Redmond, 2019; Debray & Spencer-Oatey, 2019, Morgan, 2019).

Challenges and Lesson Learned: Course Design and Didactics

Psychological competences for other professions complement the respective specific competence profile with further aspects. "Curricula for non-psychologists should be (a) specific to the profession of the target group, (b) specific to the needs and (c) work processes of the target group and (d) limited to the professional field of the target group. Although psychology curricula for non-psychology students need to be limited regarding their breadth, they should (e) maintain the depth and multi-perspectivity required for understanding psychological phenomena" (Dutke et al., 2019, S. 111–112). This also requires a basic knowledge of the nonpsychological discipline or at least the involvement of experts from the other profession in curriculum development.

Psychologists are asked to develop psychological competences, learning objectives, and teaching methods "from silos to bridges" (Linden, 2015). For example, if the goal is to build "shaping competence" in Higher Education for Sustainable Development (ESD), the "goal . . ., is to promote personality development, enabling a person to be able to cope with complex situations, to be able to act upon reflection

and to make decisions. It is also about being able to take on responsibility, to consider ethical standards when acting and to be able to judge consequences.

Learning processes which consider the requisites of such a new learning culture can be characterized on the basis of three consequences: (1) Competence-orientation. . . . This requires a normative framework for the justified selection of such competences in the same way as an educational concept is necessary which offers contents for developing competences and helps to identify learning opportunities. (2) Societal orientation. . . . Learning takes place in real-life situations which question and change societal living. (3) Individual centering. Learning by the individual is seen to be active in the societal context" (Barth et al., 2007, 419). In all of this, it is the case that the target groups in lifelong learning are very heterogeneous because educational biographies are very diverse. At the same time, however, a close interlocking of initial education and continuing education is required (Jütte & Bade-Becker, 2018). The different living and working environments lead to a high need for coordination, if necessary, also with employers. Which forms of learning opportunities are therefore particularly promising?

Experiential Learning and Inquiry-Based Learning

"Experiential learning" builds on particular learning experiences. These address the whole person and require that prior learning and life experiences be utilized. The activation of prior knowledge and the reflection of lessons learned are of particular importance. In this context, "single loop learning" and "double loop learning," as "widely accepted cyclical models of learning illustrate the links between two types of learning: 'single-loop' learning about obtaining knowledge to solve specific problems based on existing premises; and 'double-loop' learning about establishing new premises such as mental models and perspectives" (Winterton et al., 2016, p. 6). It becomes possible to integrate learning experiences into existing knowledge and to further develop one's own knowledge in terms of a qualitatively better understanding (Barth et al., 2007). Here, the proximity to the concept of inquiry-based learning also becomes clear.

A variety of recommendations show how research can be integrated into teaching. For example, why is "inquiry-based learning" (Spinath, Seifried, & Eckert, 2014) a good way to teach knowledge and skills in higher education? Not only since the work of David Merrill (2002, 2008) we know that learning is sustainably supported when learners try to solve real problems, when existing knowledge is activated as a basis for new knowledge, when new knowledge is generated with the applications, when the new knowledge is applied by the learner, and when the new knowledge is integrated into the learner's life world. Those who integrate research into teaching ensure that learners engage with real problems, that theory-based knowledge is activated, that not only is more knowledge developed and consolidated in an evidence-based manner, but that practical skill is fostered. Now, various types and degrees of linking research and teaching are conceivable. The resulting forms of teaching are mostly located with reference to Jenkins and Healey (2005) in an axis

cross of student self-activity on the one hand and content vs. process issues on the other (cf. Jenkins & Healey, 2005; Tremp & Hildbrand, 2012).

Hybrid Forms of Teaching

The term "hybrid" has different roots and thus different facets of meaning. It expresses that different elements are brought together or mixed. Or it emphasizes that something particularly powerful is created by the combination. Hybrid forms of teaching generally refer to the combination of analog and digital teaching. In the course of globalization and technological change, not least in "Work 4.0," special opportunities are seen in the combination of analog and digital. Blended learning generally refers to the supplementation of classroom events with online offerings. This includes internet forums, chats, podcasts, videos, and work with various communication and learning platforms. All of this can be used in the service of knowledge transfer and competence building. The "Cognitive Theory of Multimedia Learning" and the "Adaptive Control of Thought- (ACT-) and Script Theory" provide a good theoretical framework here (Kollar & Fischer, 2018). They are a foundation for innovative instructional approaches such as (1) the cognitive apprenticeship approach, (2) psychology of instructional design (ID) approach, (3) problem-based learning, and (4) knowledge building (Kollar & Fischer, 2018).

Particular opportunities are provided by learning opportunities in which learning is independent of location and time, in which social interaction can be designed flexibly, and in tools that enable virtual simulation of professional situations. For example, electronic learning diaries, virtually staged problem situations with clients and patients, digital settings for simulating practical professional tasks, and the use of information platforms are now being used in studies and further education.

From the point of view of educational psychology, various decisions have to be made when considering the appropriate design of hybrid forms of teaching: The question arises, for example, whether the chosen offerings follow a behaviorist, a cognitivist, or a constructivist perspective. Accordingly, the methods will be oriented towards questions and answer selection, tutorials and adaptive systems, or simulations and serious games (Zumbach, Rammerstorfer, & Deibl, 2020).

When choosing suitable media, it is important to decide whether the offerings should be online or offline. Here it is necessary to choose between CD-ROM and offers via websites on learning platforms. From a didactic point of view, the question of whether learning is synchronous or asynchronous is interesting. For example, face-to-face classes or group work require agreements on time and place, but independent, rather informal research and practice ("hands on") can certainly take place synchronously (Renner et al., 2020). In addition to didactic questions, there are also economic challenges. E-learning offerings have led to a very fundamental change in the continuing education landscape. Due to high costs, errors in management, and a lack of competences, even simple successes had to be hard fought for (Attwell, 2019).

Vocational Guidance and Counseling

Psychological counseling in the field of vocational education follows different concerns: It serves the orientation in the choice of profession; it looks for solutions for occurring problems and helps to cope with difficulties; it helps in the choice of suitable offers; it is an offer for the reflection of goals in case of decreasing or missing motivation and much more; it is an offer for students before or during their career choice, for students and participants in further education, for instructors and trainers as well as for teachers at universities (Mendzheritskaya, Ulrich, Hansen, & Heckmann, 2018; Schreiber, 2020). In vocational education, psychological counseling promotes the ability for self-development and self-education, not only in studies and continuing education but also in everyday professional life, thus supporting success in the profession and satisfaction with one's own professional development (Grant, 2013).

"Psychological counseling is a non-patronizing process in which problems of those seeking advice in their behavior, actions, and experiences are clarified with reference to psychological theories in a setting designated as counseling through information and reflection and where attempts at solutions are accompanied" (translated by the author, Steinebach, 2006, p. 13). From this understanding, the person seeking advice is considered the expert for his or her life situation, and the counsellor is considered the expert for the process. He or she is responsible for (1) the relationship between the person seeking advice and the person giving advice. (2) Psychological counseling in education and training focuses on concrete questions and problems of the person seeking advice. Here it distinguishes itself from psychotherapy, which focuses on severe mental health problems. (3) Counseling is understood as a holistic offer, which deals with the behavior, actions, and experiences of those seeking advice. (4) The psychological perspective is shown by using psychological theories and current research results to explain problems and to work out solutions. (5) Under the maxim of informed consent, it is ensured that the person seeking advice is always oriented during the process about what is being done and why. (6) Different methods ensure that a new view of the existing problems succeeds, strengths become clear, and solutions are addressed (Kiel, 2020). Such methods accompany the process until solutions are stable and new competences have been consolidated.

In the field of vocational training, psychological counseling can be understood as complementary. It is then an offer that accompanies the vocational (further) training and helps to avoid or solve possible problems. In addition, psychological counseling can also be understood as a very individual learning offer. It teaches problem-solving skills that make it possible to master future solutions on one's own. From this point of view, in the field of vocational education counseling and coaching (Passmore & Sinclair, 2020) are understood very similarly (Möller, Beinicke, & Bipp, 2019). Regardless of different theoretical or methodological emphases, counseling and coaching promote self-determination and resilience in addressing difficult career challenges (Maree, 2017).

Subjects and Contents

There are a variety of psychological subjects and contents that represent an important offer for personnel of other professions and fields of work. Some of the offerings are of interest regardless of the specific field of work. These include courses on stress management, conflict management, or mediation. They offer opportunities to reflect on and build on one's own resources and personal strengths. The corresponding modules sometimes also introduce students to techniques of meditation and mindfulness.

Competences in communication and mediation can also be part of offerings to promote competences in counseling. Modules here teach basics, but also specific knowledge and skills in the use of particular media (e.g., online counseling) or in the application of particular counseling strategies (e.g., systemic counseling).

However, the teaching of psychological content in the broad field of counseling also focuses on career-related counseling and on organizational processes. In these courses, competences in career counseling and the design of development and change processes in organizations are developed. Competences for reflection and reorientation of the professional biography with individuals or also the analysis, consultation, and accompaniment of special situations of a team or an organization are imparted.

Different offers are also aimed at people who have taken on a special role in their organization. In this field, we include human resource management trainings or further education for leaders. Here, self-management, but also health promotion at the workplace, personnel psychology, counseling and support of employees, interview techniques and new leadership models, leadership of individuals and teams, or diversity in leadership are topics.

Other offerings and content are aimed specifically at members of different professions, for example, police officers and security forces (e.g., trauma psychology), trainers in sports (e.g., on mental skills), engineers in particularly safety-relevant workplaces.

All of these and a variety of other offerings help participants take a new look at themselves and the "human factor" in their professional and work fields.

Evaluation

Evaluation is a complex issue. It poses the question of the impact, effectiveness, and efficiency of training courses. It is about short- and long-term effects, about the design of the offers as well as the courses as a whole, and last but not least about the transfer. Psychological offers in continuing education also face the challenge of presenting psychology as an evidence-based science. The evaluation of one's own actions in continuing education thus becomes a question of one's own credibility. By asking about the fit of learning objectives, didactics, and resources, evaluation serves to assure quality (e.g., Ditton, 2018; Zumbach & Astleitner, 2016). The focus of evaluation can be narrow or broad. The biopsychosocial model helps

identify important factors. At the same time, it calls for considering the learning culture and work environment as relevant environmental aspects. Analyzing and changing the learning environment as well as the workspace as a learning space becomes a topic (Fleige & Robak, 2018; Stang, Bernhard, Kraus, & Schreiber-Barsch, 2018).

With the goal of evaluating, one's own learning and the learning of the learning group, the evaluation of one's own learning process can itself become the subject of teaching. This is where teaching, learning, and research come together. If we understand research competence as an important professional competence, it is indispensable to teach students these competences. However, we must keep in mind that not everyone who graduates sees their future in psychological research. For them, it is about research skills that are useful in their everyday professional lives. Professional practitioners should be interested in research findings. They should also know that research is human-made, and mistakes are possible. With healthy skepticism, they should be able to reflect on current research findings in terms of their relevance to practice. Professional practitioners should know that cognitive processes in everyday life and in research are often similar, but in some respects research findings can also be superior to subjective assessments. Both are important: research criticism, but also self-criticism. By linking research and teaching, we should succeed in making learners curious about current research. We can assume that this will succeed especially if lecturers are seen as models, as experts who exemplify the transfer of evaluation results into practice and for practice with enthusiasm and thoughtfulness. In this sense, the goal is to foster an evaluative competence in which reflection is informed by curiosity and expertise. Which didactics are most likely to ensure this is certainly an empirical question.

Psychologists as of Teachers

What makes psychologists good teachers in continuing education? What competences are needed? Connected to these questions is a universe of other questions. Many also serve the effort to better grasp psychological and educational competences, competence profiles, and competence promotion (see, for example, Ludwig, 2018). In addition, there seems to be a need to call for expertise in counselling as well as teaching (Mendzheritskaya et al., 2018; Schiersmann, 2018). Expertise is also expected in those professional fields for which psychological competences are to be taught in a complementary manner (Loo, 2019). Knowledge and skills related to the professional field, didactic skills, own continuing education, and a network appropriate to the teaching field are considered important (Broad, 2019). Finally, all social changes read not only for learners but also for teachers. And they have intensified in the time of the COVID-19 pandemic (Boeren, Roumell, & Roessger, 2020).

All of this suggests a very challenging competence profile for psychologists in continuing education. The challenge is all the greater when learning psychology

takes place in informal settings. Especially in informal settings, the roles are often not clear. Nevertheless, the goal must be to strive for evidence-based behavior change even in "recovery-oriented systems" and to positively change the social, societal, and political frameworks (▶ Chap. 36, "Psychological Literacy and Learning for Life"; Ponce, Carr, Miller, Olezeski, & Silva, 2019). In all of this, continuing education, as well as psychology in continuing education, is also under public scrutiny. It is necessary from there that psychologists can prove their competences, also over appropriate standards in the own further training (Taylor & Neimeyer, 2015).

It is also important for psychologists working as continuing educators to engage in their own continuing education and to take advantage of appropriate formal offerings. In addition, it seems important to reflect on one's own informal learning, one's own experiences. Reflection supports the acquisition of competences, especially outside the professional field, and learning processes take place. Thus, the organizational conditions that provide the framework for all teaching programs also become an important topic. Structures and processes, strategy and finances must be aligned in such a way that they support the competence development of teachers.

Outlook: Innovation of Continuing Education and Psychology for Non-psychologists

The preceding considerations make it clear: Continuing education in psychology for non-psychologists is an exciting, but also very demanding professional and research field. Continuing education is oriented toward current conditions and the changes in which the world of work stands. In addition, there are individual challenges and needs that make psychological learning content and competences interesting for participants. This also gives rise to requests for psychology. Often there is a lack of standards for courses and continuing professional development (CPD), not only for non-psychologists but also for psychologists and probably also for psychologists in continuing education. Therefore, it is necessary to develop the needs and the cut, the offers, and the didactics with the participants and their employers.

In further education as a psychological offer, the professional and specialist associations are of particular importance. It is necessary to design competence profiles, to formulate standards, and to secure these nationally and internationally. This requires not only political commitment but also research. After a phase of discussing different theories, models, and concepts, it seems necessary to bring together the available knowledge on continuing education and lifelong learning (Käpplinger, 2018). This concerns "competence" as a concept as well as theories on learning and instruction, on the interconnectedness of learning and guidance, and on diversity in learning and professional biographies (Migliore, 2019 on diversity). The focus should be on strengthening learner and instructor self-reflection (Pachner, 2018). The call for "frameworks," "taxonomies," "recognition," "acquisition,"

"assessment," and "new concepts" on the "to-do-list" (Mulder, 2019) makes connecting teaching and research a strategic concern in continuing education in psychology. Research questions can arise in teaching and solutions can be developed in the classroom. However, this requires that we secure such teaching strategically and structurally, but also financially. Thus, the connection between teaching and research must be anchored in the vision, mission, and strategy of the university or the institution. The pedagogical foundations and curricula are to be further developed in the sense of linking research and teaching. Structural measures are to facilitate collaboration between researchers and teachers (Braun et al., 2014). Where particular didactic challenges arise, staff should be further developed (cf. Jenkins & Healey, 2005). Before that, however, a major challenge remains we need to know more about promoting specific psychological competences in nonpsychological professions. The call from the 1960s "Give Psychology away!" (Banyard & Hulme, 2015) is not enough. After all, today we are talking about specific psychological content in highly specialized nonpsychological professional fields. This brings benefits to the practice of very different professions. But it should not stop at this occupation-specific use of psychology. The general promotion of psychological competences and "psychological literacy" will also have an impact on companies, communities, and society. And this will open up new perspectives on what is humanly possible (Banyard & Hulme, 2015) in order to be able to lead a life of dignity, self-determination, and social responsibility, also at work.

Teaching, Learning, and Assessment Resources

Tips and Questions

(1) How do you think continuing education programs that promote psychological competences have changed in the wake of the COVID-19 pandemic? Think about changes in goals, didactics, and methods.
(2) Psychology for non-psychologists: What learning content absolutely must be taught in face-to-face situations in the field and definitely cannot be taught virtually?
(3) Take a look at the ESPLAT European Society for Psychology Learning and Teaching website (https://www.esplat.org). How do you think the professional identity of a school psychologist differs from that of a psychology teacher?
(4) Educational policy (e.g., https://europa.eu/europass/en/validation-non-formal-and-informal-learning) demands the recognition of informally and non-formally acquired competences for formal education. When you think of psychological competences, what informally acquired psychological competence would you possibly recognize? How would you validate that someone actually has this competence?
(5) Which psychological offerings in job-related continuing education particularly support the SDGs of the United Nations (https://sdgs.un.org/goals)?

Further Readings

1. Broad, J. H. (2019). Pedagogical issues in vocational teachers' learning: The importance of teacher development. In: McGrath, S., Mulder, M., Papier, J. & Suart, R. (Eds.): *Handbook of vocational education and training. Developments in the changing world of work* (Vol. 2, pp. 1769–1786). Springer Nature Switzerland.
   - Psychologists are not necessarily good teachers by themselves. What is important in order to be able to teach psychology and convey psychological content?
2. Chen, C. P. (2017). Career Self-Determination Theory. In: Maree, K. (Ed.): *Psychology of career adaptability, employability and resilience* (pp. 329–347). Springer International Publishing.
   - Self-determination theory is a good aid to understanding why people make decisions and then implement the decisions they make. Here, this theory is applied to career-related decisions.
3. Dutke, S. Bakker, H., Sokolova, L., Stuchlikova, I., Salvatore, S. & Papageorgi, I. (2019). Psychology curricula for non-psychologists? A framework recommended by the European Federation of Psychologists' Associations' Board of Educational Affairs. *Psychology Learning & Teaching*, *18*(2), 111–120.
   - Psychology for non-psychologists is rarely critically reflected upon. In this paper, an analysis of the development and current situation of corresponding offerings is provided. In addition, recommendations are given on how the field should develop in the future.
4. Erikson, M. G., & Erlandson, P. (2015). *Theories as maps: Teaching psychology. Beyond mind and behavior*. Scholarship of Teaching and Learning in Psychology. Advance online publication. 1–8.
   - Psychology is often considered to be very "theory-heavy." What is the significance of theories in psychology and how can the metaphor of theories as "maps" help to create a better understanding?
5. Kim, S. Y. (2019). The fourth industrial revolution: Trends and impacts on the world of work. In: McGrath, S., Mulder, M., Papier, J. & Suart, R. (Eds.): *Handbook of vocational education and training. Developments in the changing world of work*. (Vol. 1, pp. 177–194). Springer Nature Switzerland.
   - The change in the course of „Work 4.0" reaches into all areas of society. In this paper, lines of development and influences are highlighted.
6. Maree, K. (2017). The Psychology of career adaptability, career resilience, and employability: A Broad Overview. In: Maree, K. (Ed.): *Psychology of career adaptability, employability and resilience* (pp. 3–11). Springer International Publishing.
   - Organizational and societal changes pose a variety of challenges to the individual. This article shows how career development, resilience, and professional success interact.

7. Migliore, M. C. (2019). Older workers' vocational learning: Taking activities and personal senses into account. In: McGrath, S., Mulder, M., Papier, J. & Suart, R. (Eds.): *Handbook of vocational education and training. Developments in the changing world of work* (Vol. 2., pp. 1001–1018). Springer Nature Switzerland.
   - Offers of career-related continuing education, also in psychology, must be geared to the respective target groups. In doing so, the diversity of people must be taken into account. This article shows how this can be done for continuing education of older employees.
8. Mulder, M. (2019). Foundations of competence-based vocational education and training. In: McGrath, S., Mulder, M., Papier, J. & Suart, R. (Eds.): *Handbook of vocational education and training. Developments in the changing world of work*. (Vol. 2., pp. 1167–1192). Springer Nature Switzerland.
   - From a technical and educational policy point of view, competence orientation is an important feature of vocational training. Basics for education and training are shown here.
9. Wilson, R. (2019). Skills forecasts in a rapidly changing world: Through a glass darkly. In: McGrath, S., Mulder, M., Papier, J. & Suart, R. (Eds.): *Handbook of vocational education and training. Developments in the changing world of work*. (Vol. 1, pp. 3-21). Springer Nature Switzerland .
   - Often enough it is the demand to orientate offers towards future developments. In this way, employees as well as organizations are well prepared for upcoming changes. Whether and how this can succeed, however, must be critically questioned.
10. Worrell, F. C., Olszewski-Kubilius, P., & Subotnik, R. F. (2019). The psychology of high performance: Overarching themes. In: Subotnik, R.F., Olszewski-Kubilius, P. & Worrell, F. C. (Eds.): *The psychology of high performance: Developing human potential into domain-specific talent* (pp. 369–385). American Psychological Association.
   - In the discussion about competences, little attention has been paid to the question of whether a competence is only weakly or even very strongly developed. This question is explored in the article on high performance.

Cross-References

► First Principles of Instruction Revisited
► Inquiry-Based Learning in Psychology
► Problem-Based Learning and Case-Based Learning
► Psychological Literacy and Learning for Life
► Teaching Engineering Psychology
► Teaching of Work and Organizational Psychology in Higher Education

References

Ahrens, D., & Gessler, M. (2018). Von der Humanisierung zur Digitalisierung: Entwicklungsetappen betrieblicher Kompetenzentwicklung. In D. Ahrens & G. Molzberger (Eds.), *Kompetenzentwicklung in analogen und digitalisierten Arbeitswelten, Kompetenzmanagement in Organisationen* (pp. 157–172). Springer.

Albert, I., & Trommsdorff, G. (2014). The role of culture in social development over the lifespan: An interpersonal relations approach. *Online Readings in Psychology and Culture, 6*(2), 1–30.

Arnold, R., Pätzold, H., & Ganz, M. (2018). Weiterbildung und Beruf. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/Weiterbildung* (6th ed., pp. 931–945). Springer VS.

Attwell, G. (2019). E-learning at the workplace. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), *Handbook of vocational education and training. Developments in the changing world of work* (Vol. Vol. 1, pp. 923–947). Springer Nature Switzerland.

Banyard, P., & Hulme, J. A. (2015). Giving Psychology away: How George Miller's vision is being realised by psychological literacy. *Psychology Teaching Review, 21*(2), 93–101.

Barrick, R. K. (2019). Competence and excellence in vocational education and training. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), *Handbook of vocational education and training. Developments in the changing world of work* (Vol. 2, pp. 1155–1166). Springer Nature Switzerland.

Barth, M., Godemann, J., Rieckmann, M., & Stoltenberg, U. (2007). Developing key competencies for sustainable development in higher education. *International Journal of Sustainability in Higher Education, 8*(4), 416–430.

Boeren, E., Roumell, E. A., & Roessger, K. M. (2020). COVID-19 and the future of adult education: An editorial. *Adult Education Quarterly, 70*(3), 201–204.

Brandtstädter, J. (1980). Gedanken zu einem psychologischen Modell optimaler Entwicklung. *Zeitschrift für Klinische Psychologie und Psychotherapie, 28*(3), 209–222.

Brandtstädter, J. (2015). *Positive Entwicklung. Zur Psychologie gelingender Lebensführung*. Springer Spektrum.

Braun, E., Weiß, T., & Seidel, T. (2014). Lernumwelten in der Hochschule. In T. Seidel & A. Krapp (Eds.), *Pädagogische Psychologie* (pp. 433–453). Beltz.

Broad, J. H. (2019). Pedagogical issues in vocational teachers' learning: The importance of teacher development. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), *Handbook of vocational education and training. Developments in the changing world of work* (Vol. 2, pp. 1769–1786). Springer Nature Switzerland.

Carpintero, H., & Herrero, F. (2002). Early applied psychology: The early days of the IAAP. *European Psychologist, 7*(1), 39–52.

Chen, C. P. (2017). Career self-determination theory. In K. Maree (Ed.), *Psychology of career adaptability, employability and resilience* (pp. 329–347). Springer International Publishing.

Council of the European Union. (2012). *Council Recommendation of 20 December 2012 on the validation of non-formal and informal learning (2012/C 398/01)*. (https://www.cedefop.europa.eu/files/Council_Recommendation_on_the_validation_20_December_2012.pdf).

Cranney, J., & Dunn, D. S. (2011). Psychological Literacy and the psychological literate citizen. New frontiers for a global discipline. In J. Cranney & D. S. Dunn (Eds.), *The psychologically literate citizen. Foundations to global perspectives* (pp. 3–12). Oxford University Press.

Debray, C., & Spencer-Oatey, H. (2019). *'On the same page?Marginalisation and positioning practices in intercultural teams*. *Journal of Pragmatics, 144*, 15–28.

Deci, E., & Ryan, R. (2015). Self-determination theory. In J. Wright (Ed.), *International encyclopedia of the social & behavioral sciences* (Vol. 21, 2nd ed., pp. 486–491). Elsevier.

Deitmer, L. (2019). Innovation skills in apprentice training. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), *Handbook of vocational education and training. Developments in the changing world of work* (Vol. 1, pp. 121–137). Springer Nature Switzerland.

Diener, E., Thapa, S., & Tay, L. (2020). Positive emotions at work. *Annual Review of Organizational Psychology and Organizational Behavior, 7*(1), 451–477.

Ditton, H. (2018). Evaluation und Qualitätssicherung im Bildungsbereich. In R. Tippelt & B. Schmidt-Hertha (Eds.), *Handbuch Bildungsforschung* (4th ed., pp. 757–777). Springer VS.

Doylea, E., & Buckley, P. (2014). Research ethics in teaching and learning. *Innovations in Education and Teaching International, 51*(2), 153–163.

Dunn, D. S., Cautin, R. L., & Gurung, R. A. (2011). Curriculum matters: Structure, content, and psychological literacy. In J. Cranney & D. S. Dunn (Eds.), *The psychologically literate citizen. Foundations to global perspectives* (pp. 15–26). Oxford University Press.

Dutke, S., Bakker, H., Sokolova, L., Stuchlikova, I., Salvatore, S., & Papageorgi, I. (2019). Psychology curricula for non-psychologists? A framework recommended by the European Federation of Psychologists Associations Board of Educational Affairs. *Psychology Learning and Teaching, 18*(2), 111–120.

Eckert, T., & Kadera, S. (2018). Der sozialökologische Ansatz in der Erwachsenenbildung. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/Weiterbildung* (6th ed., pp. 185–203) Springer VS.

Erikson, M. G., & Erlandson, P. (2015). *Theories as maps: Teaching psychology. Beyond mind and behavior*. Scholarship of Teaching and Learning in Psychology. Advance online publication. 1–8.

Erpenbeck, J., & von Rosenstiel, L. (2017). *Handbuch Kompetenzmessung* (3rd ed.) Schäffer-Poeschel Verlag.

Fleige, M., & Robak, S. (2018). Lehr-Lernkultur in der Erwachsenenbildung. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/Weiterbildung* (6th ed., pp. 623–641) Springer VS.

Gerstenmaier, J., & Mandl, H. (2018). Konstruktivistische Ansätze in der Erwachsenenbildung und Weiterbildung. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/Weiterbildung* (6th ed., pp. 221–233) Springer VS.

Grant, A. M. (2013). The efficacy of coaching. In J. Passmore, D. B. Peterson, & T. Freire (Eds.), *The Wiley- Blackwell handbook of coaching & mentoring psychology* (pp. 15–39). New York: Wiley Blackwell.

Grundmann, M. (2017). Sozialisation – Erziehung – Bildung: Eine kritische Begriffsbestimmung. In R. Becker (Ed.), *Lehrbuch Bildungssoziaiologie* (pp. 63–88). Springer.

Harteis, C., & Heid, H. (2018). Bildungsarbeit in Wirtschaft und Betrieb. In R. Tippelt & B. Schmidt-Hertha (Eds.), *Handbuch Bildungsforschung* (4th ed., pp. 565–585). Springer VS.

Heyse, V., Erpenbeck, J., Coester, S., Ortmann, S., & Sauter, W. (2019). *Kompetenzmanagement mit System*. Waxmann.

International Association of Applied Psychology & International Union of Psychological Science (2016). *International declaration on core competences in professional Psychology.* https://iaapsy.org/site/assets/files/1476/ref_competences_iaap_2016.pdf., 11–14.

Jenkins, A., & Healey, M. (2005). *Insitutional strategies to link teaching and research*. The Higher Education Academy.

Jütte, W., & Bade-Becker, U. (2018). Weiterbildung an Hochschulen. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/Weiterbildung* (6th ed., pp. 821–836) Springer VS.

Käpplinger, B. (2018). Theorien und Theoreme der betrieblichen Weiterbildung. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/Weiterbildung* (6th ed., pp. 679–695). Springer VS.

Kiel, V. (2020). *Analoge Verfahren in der systemischen Beratung. Ein integrativer Ansatz für Coaching, Team- und Organisationsentwicklung*. Vandenhoeck & Ruprecht.

Kim, S. Y. (2019). The fourth industrial revolution: Trends and impacts on the World of work. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), *Handbook of vocational education and training. Developments in the changing world of work* (Vol. Vol. 1, pp. 177–194). Springer Nature Switzerland.

Klieme, E., & Hartig, J. (2007). Kompetenzkonzepte in den Sozialwissenschaften und im erziehungswissenschaftlichen Diskurs. *Zeitschrift für Erziehungswissenschaft, 8*, 11–29.

Kollar, I., & Fischer, F. (2018). Digitale Medien für die Unterstützung von Lehr-/Lernprozessen in der Weiterbildung. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/ Weiterbildung* (6th ed., pp. 1553–1568). Springer VS.

Knafla, I., & Schär, M. (2019). Verhaltensauffälligkeit, psychische Störungen und Führung. In E. Lippmann, A. Pfister, & U. Jörg (Eds.), *Handbuch Angewandte Psychologie für Führungskräfte: Führungskompetenz und Führungswissen* (pp. 911–935). Springer.

Linden, W. (2015). *From silos to bridges: Psychology on the move*. *Canadian Psychology/ Psychologie Canadienne, 56*(1), 1–5.

Lippmann, E., Pfister, A., & Jörg, U. (Eds.). (2019). *Handbuch Angewandte Psychologie für Führungskräfte* (5th ed.). Springer.

Loo, S. (2019). Vocational teachers knowledge, experiences, and pedagogy. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), *Handbook of vocational education and training. Developments in the changing world of work* (Vol. 2, pp. 1611–1625). Springer Nature Switzerland.

Ludwig, J. (2018). Lehr-Lerntheoretische Ansätze in der Erwachsenenbildung. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/Weiterbildung* (6th ed., pp. 257–274) Springer VS.

Madson, L., Zaikman, Y., & Hughes, J. S. (2020). Psychology teachers should try team-based learning: Evidence, concerns, and recommendations. *Scholarship of Teaching and Learning in Psychology, 61*(1), 53–68.

Maree, K. (2017). The Psychology of career adaptability, career resilience, and employability: A Broad Overview. In K. Maree (Ed.), *Psychology of career adaptability, employability and resilience* (pp. 3–11). Springer International Publishing..

Mayer, R. E. (2019). How multimedia can improve learning and instruction. In J. Dunlosky & K. A. Rawson (Eds.), *The Cambridge handbook of cognition and education* (pp. 460–479). Cambridge University Press.

Mendzheritskaya, J., Ulrich, I., Hansen, M., & Heckmann, C. (2018). *Gut beraten an der Hochschule: Wege zum besseren Lehren und Lernen*. Kohlhammer Verlag.

Merrill, M. D. (2008). Reflections on a four-decade search for effective, efficient and engaging instruction. In M. W. Allen (Ed.), *Michael Allens 2008 e-Learning Annual* (Vol. 1, pp. 141–167). Wiley Pfeiffer.

Merrill, M. D. (2002). *First principles of instruction*. *Educational Technology Research and Development, 50*(3), 43–59.

Migliore, M. C. (2019). Older workers vocational learning: Taking activities and personal senses into account. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), *Handbook of vocational education and training. Developments in the changing world of work* (Vol. 2, pp. 1001–1018). Springer Nature Switzerland.

Mittelstraß, J. (2002). Bildung und ethische Maße. In N. Killius, J. Kluge, & L. Reisch (Eds.), *Die Zukunft der Bildung* (pp. 151–170). Suhrkamp.

Möller, H., Beinicke, A., & Bipp, T. (2019). Wie wirksam ist Coaching? In A. Beinicke & T. Bipp (Eds.), *Strategische Personalentwicklung. Meet the Expert: Wissen aus erster Hand* (pp. 165–188). Springer.

Morgan, H. M. (2019). *Underdog entrepreneurs: A framework of success for marginalized and minority innovators*. Springer Nature.

Mulder, M. (2019). Foundations of competence-based vocational education and training. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), *Handbook of vocational education and training. Developments in the changing world of work* (Vol. 2, pp. 1167–1192). Springer Nature Switzerland.

Mulder, M., Weigel, T., & Collins, K. (2006). The concept of competence in the development of vocational education and training in selected EU member states. A critical analysis. *Journal of Vocational Education and Training, 59*(1), 65–85.

Mulder, M., & Winterton, J. (2017). Introduction. In M. Mulder (Ed.), *Competence-based vocational and professional education. Bridging the worlds of work and education* (pp. 1–43). Springer Nature.

Narciss, S. (2019). *Curriculum design for (non-) psychology programs–a reflection on general and specific issues, and approaches on how to address them: Comment on Dutke et al., 2019*. *Psychology Learning and Teaching, 18*(2), 144–147.

Nario-Redmond, M. R. (2019). *Ableism: The causes and consequences of disability prejudice*. John Wiley & Sons.

Pachner, A. (2018). Lehren in der Erwachsenen- und Weiterbildung. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/Weiterbildung* (6th ed., pp. 1439–1456). Springer VS.

Passmore, J., & Sinclair, T. (2020). What is coaching? In J. Passmore & T. Sinclair (Eds.), *Becoming a coach* (pp. 7–13). Springer.

Pfadenhauer, M. (2013). Competence – more than just a buzzword and a provocative term? Towards an internal perspective on situative problem-solving capacity. In S. Blömeke, O. Zlatkin-Troitschanskaia, C. Kuhn, & J. Fege (Eds.), *Modeling and measuring of competencies in higher education: Tasks and challenges* (pp. 81–90). Sense Publishers.

Ponce, A. N., Carr, E. R., Miller, R., Olezeski, C. L., & Silva, M. A. (2019). *Psychologists as educators: Creating change in community mental health*. *Professional Psychology: Research and Practice, 50*(6), 427–433.

Renn, O., Chabay, I., van der Leeuw, S., & Droy, S. (2020). *Beyond the indicators: Improving science, scholarship, policy and practice to meet the complex challenges of sustainability*. *Sustainability, 12*(2), 578.

Renner, B., Wesiak, G., Pammer-Schindler, V., Prilla, M., Müller, L., Morosini, D., Mora, S., Faltin, N., & Cress, U. (2020). *Computer-supported reflective learning: how apps can foster reflection at work*. *Behaviour & Information Technology, 39*(2), 167–187.

Rintala, H., Nokelainen, P., & Pylväs, L. (2019). Informal workplace learning. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), *Handbook of vocational education and training. Developments in the changing world of work* (Vol. 1, pp. 729–742). Springer Nature Switzerland.

Rosa, H. (2017). *Beschleunigung: die Veränderung der Zeitstrukturen in der Moderne*. Suhrkamp Verlag.

Ryff, C. D., & Keyes, C. L. M. (1995). *The structure of psychological well-being revisited*. *Journal of Personality and Social Psychology, 69*(4), 719–727.

Schiersmann, C. (2018). Beratung im Kontext von Weiterbildung. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/Weiterbildung* (6th ed., pp. 1495–1512). Springer VS.

Schmidt-Lauff, S. (2018). Zeittheoretische Implikationen in der Erwachsenenbildung. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/Weiterbildung* (6th ed., pp. 319–338). Springer VS.

Schreiber, M. (2020). *Wegweiser Im Lebenslauf. Berufs-, Studien- und Laufbahnberatung in der Praxis*. Kohlhammer.

Schröder, T., & Dehnbostel, P. (2019). Enhancing permeability between vocational and tertiary education through corporate learning. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), *Handbook of vocational education and training. Developments in the changing world of work* (Vol. 1, pp. 603–625). Springer Nature Switzerland.

Spinath, B., Seifried, E., & Eckert, C. (2014). Forschendes Lehren: Ein Ansatz zur kontinuierlichen Verbesserung von Hochschullehre. *Journal Hochschuldidaktik*, *25*(1–2), 14–16.

Stang, R., Bernhard, C., Kraus, K. & Schreiber-Barsch, S. (2018). Lernräume in der Erwachsenenbildung. In: Tippelt, R. & von Hippel, A. (Eds.): \ (6 643–658). Springer VS.

Steinebach, C. (2005). Neue Theorie – neue Praxis? Perspektiven der Hochschuldidaktik aus psychologischer Sicht. In C. Steinebach (Ed.), *Psychologie Lehren und Lernen. Beiträge zur Hochschuldidaktik* (pp. 13–22). Universitätsverlag Winter.

Steinebach, C. (2006). Beratung und Entwicklung. In C. Steinebach (Ed.), *Handbuch Psychologische Beratung* (pp. 37–56). Klett-Cotta.

Steinebach, C. (2013). Beratung. Stärkenorientierte Gespräche. In C. Steinebach & K. Gharabahi (Eds.), *Resilienzförderung im Jugendalter. Praxis und Perspektiven* (pp. 51–68). Springer.

Steinebach, C. (2015). Resilience. In J. D. Wright (Ed.), *International Encyclopedia of the Social & Behavioral Sciences* (Vol. 20, 2nd ed., pp. 555–560). Elsevier.

Steinebach, C. (2019). *Teaching non-psychologists: The third step. Comment on Dutke et al., 2019*. *Psychology Learning and Teaching, 18*(2), 131–133.

Steinebach, C., Eberhardt, D., Kotrubczik, H., Majkovic, A., & Zinsli, M. (2014). Reflexion persönlicher Kompetenzentwicklung. Die Auseinandersetzung mit dem eigenen Potenzial als Sozialisationsprozess und Grundlage für Gesundheit und Wohlbefinden. In B. Sieber-Suter (Ed.), *Kompetenzmanagement. Erfahrungen und Perspektiven zur beruflichen Entwicklung von Lehrenden in Schule und Weiterbildung* (pp. 20–31). hep-Verlag.

Steinebach, C., & Steinebach, U. (2013). Gleichaltrige: Peers als Ressource. In C. Steinebach & K. Gharabaghi (Eds.), *Resilienzförderung im Jugendalter. Praxis und Perspektiven* (pp. 93–109). Springer.

Steinebach, C., Steinebach, U., & Brendtro, L. K. (2012). Peerbeziehungen und Gesundheit im Jugendalter. In C. Steinebach, D. Jungo, & R. Zihlmann (Eds.), *Positive Psychologie in der Praxis* (pp. 153–161). Beltz.

Steinebach, C., Süss, D., Kienbaum, J., & Kiegelmann, M. (2016). *Basiswissen Pädagogische Psychologie*. Weinheim: Beltz.

Suter, J. (1935). Rück- und Ausblick. In H. Spreng (Ed.), *Psychotechnik. Angewandte Psychologie* (pp. 201–214). Max Niehans Verlag.

Taylor, J. M., & Neimeyer, G. J. (2015). *Public perceptions of Psychologists professional development activities: The good, the bad, and the ugly. Professional Psychology: Research and Practice, 46*(2), 140–146.

Thalhammer, V., & Schmidt-Hertha, B. (2018). Bildungsforschung zum informellen Lernen. In R. Tippelt & B. Schmidt-Hertha (Eds.), *Handbuch Bildungsforschung* (4th ed., pp. 947–966). Springer VS.

Tippelt, R. (2018). Professionsforschung und Bildung. In R. Tippelt & B. Schmidt-Hertha (Eds.), *Handbuch Bildungsforschung. Springer Reference Sozialwissenschaften* (pp. 649–666). Springer VS.

Tomlinson, M., & Jackson, D. (2019). Professional identity formation in contemporary higher education students. *Studies in Higher Education, 46*(4), 1–16.

Tremp, P., & Hildbrand, T. (2012). Forschungsorientiertes Studium – universitäre Lehre: Das «Zürcher Framework» zur Verknüpfung von Lehre und Forschung. In T. Brinker & P. Tremp (Eds.), *Einführung in die Studiengangentwicklung* (pp. 101–116). Bertelsmann.

Trommsdorff, G. (2009). *Culture and development of self-regulation*. *Social and Personality Psychology Compass, 3*(5), 687–701.

Trommsdorff, G. (2012). Development of "agentic" regulation in cultural context: The role of self and world views. *Child Development Perspectives, 6*(1), 19–26.

Trommsdorff, G., & Dasen, P. (2001). Cross-cultural study of education. In N. J. Smelser & P. B. Baltes (Eds.), *International encyclopedia of the social and behavioral sciences* (pp. 3003–3007). Elsevier.

United Nations (2020). *SDGs Learning, Training & Practice. 2020 Edition Report*. UNITAR. https://sdgs.un.org/sites/default/files/2020-09/26938SDG_Learning_HLPF_Publication.pdf.

United Nations Educational, Scientific and Cultural Organization (2019). *UNESCO Strategy for Youth and Adult Literacy (2020-2025)*. https://unesdoc.unesco.org/ark:/48223/pf0000371411?posInSet=2&queryId=fab6406f-989c-4049-b36b-a2fb1c00bda3.

von Rosenstiel, L. (2018). Weiterbildung von Führungskräften. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/Weiterbildung* (6th ed., pp. 1345–1361). Springer VS.

Weinert, F. E. (2001). Concept of competence: A conceptual clarification. In D. S. Rychen & L. H. Salganik (Eds.), *Defining and selecting key competencies* (pp. 45–65). Hogrefe & Huber Publishers.

Wilson, R. (2019). Skills forecasts in a rapidly changing world: Through a glass darkly. In S. McGrath, M. Mulder, J. Papier, & R. Suart (Eds.), *Handbook of vocational education and*

training. Developments in the changing world of work (Vol. 1, pp. 3–21). Springer Nature Switzerland.

Winterton, J., Delamare Le Deist, F., & Stringfellow, E. (2006). *Typology of knowledge, skills and competences: Clarification of the concept and prototype. Cedefop Reference series; 64*. Luxembourg: Office for Official Publications of the European Communities.

World Economic Forum. (2020). *The global risks report 2020*. World Economic Forum.

Worrell, F. C., Olszewski-Kubilius, P., & Subotnik, R. F. (2019). The psychology of high performance: Overarching themes. In R. F. Subotnik, P. Olszewski-Kubilius, & F. C. Worrell (Eds.), *The psychology of high performance: Developing human potential into domain-specific talent* (pp. 369–385). American Psychological Assoziation.

Zeuner, C. (2018). Internationale Perspektiven der Erwachsenenbildung. In R. Tippelt & A. von Hippel (Eds.), *Handbuch Erwachsenenbildung/Weiterbildung* (6th ed., pp. 659–678). Springer VS.

Zumbach, J., Rammerstorfer, L., & Deibl, I. (2020). Cognitive and metacognitive support in learning with a serious game about demographic change. *Computers in Human Behavior, 103*, 120–129.

Teaching Sport and Exercise Psychology

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Robert Weinberg and Joanne Butt

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R. Weinberg (✉)
Department of Sport Leadership and Management, Miami University, Oxford, OH, USA
e-mail: weinber@miamioh.edu

J. Butt
School of Sport & Exercise Sciences, Liverpool John Moores University, Liverpool, UK
e-mail: j.butt@LJMU.ac.uk

J. Zumbach et al. (eds.), *International Handbook of Psychology Learning and Teaching*,
Springer International Handbooks of Education,
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Abstract

The purpose of this chapter is to highlight how the field of sport and exercise psychology has evolved, especially from a curriculum point of view, and how this has influenced the teaching of sport and exercise psychology, including innovative strategies for assessment and approaches to teaching. After providing a brief history and current and future issues within the field, the purposes and rationales for curriculum development are discussed. The influences of the Association for Applied Sport Psychology (AASP) in the United States and the British Psychological Association and the Health and Care Professions Council in the United Kingdom on curriculum development and accreditation of programs helped determine the focus of curriculum development. Specifically, if individuals wanted to be certified in applied sport psychology, they had to complete certain courses and had a certain amount of supervised experiences. Next the core content areas that make up the field of sport and exercise psychology are discussed. These include many topic areas including individual differences (e.g., anxiety, personality, motivation), group dynamics (group cohesion, social loafing, group roles and norms), exercise related to well-being, adherence, and addictive behaviors, burnout, moral development, psychological skills, and psychology of injury. Strategies to enhance assessment and teaching/learning are offered including flipping the classroom, breaking classes into teams, teaching psychological skills through the use of Transtheoretical Model principles, as well as innovative ways to perform formative and summative assessments. These teaching strategies are followed by a discussion of some of the major challenges and lessons learned regarding the teaching of sport and exercise psychology. These challenges include determining the necessary requirements of becoming an accredited sport psychology graduate program as curriculum development will likely accreditation requirements for those universities wanting graduate-level accreditation as well as providing both more applied and theoretically oriented curriculum for those individuals wanting careers in applied sport psychology as well as those wanting to focus on becoming a university faculty member. Furthermore, future curriculums will need to include information geared toward professionals wanting to focus more on counseling or clinical interventions vs. those interested in sport performance.

Keywords

Sport psychology · Certification · Psychological skills · Research · Exercise behavior change

Introduction

Definition and Brief History of Sport and Exercise Psychology

Sport and exercise psychology is the scientific study of people and behaviors in sport and exercise contexts and the practical application of that knowledge (Gill, Williams, & Reifsteck, 2017). More recently, there has been interest in specifically defining applied sport psychology as a subfield of performance psychology which puts the focus on the practice and profession of sport psychology (cf. Portenga, Aoyagi, & Cohen, 2017). Typically, the field can be also defined by two overarching objectives: (a) to understand how psychological factors affect an individual's (or team's) physical performance and (b) to understand how participation in sport and exercise affects a person's psychological development, health, and well-being. Modern sport psychology dates back to the 1890s (Kornspan, 2012) with some of the early work on social facilitation and cyclists (Triplett, 1898). Colman Griffith, with his extensive research and application with athletes at the University of Illinois, is known as the father of American sport psychology (Kroll & Lewis, 1970). Many scholars (e.g., Kornspan, 2015) point to the first World Congress in Sport Psychology held in in Rome in 1965 as the formal beginnings of sport psychology as it was the first time athletes, coaches, researchers, and others formally got together to discuss the psychological aspects of sport.

Current Issues and Future Directions

Over the years, the growth of sport psychology has now included exercise psychology. Specifically, instead of only studying psychological factors in sport and competitive settings, the field now incorporates psychological factors related to exercise (specific content will be discussed later in the chapter). Because it is a growing field, there have been a number of issues or trends that are shaping the field currently and will probably continue to provide direction in the future.

- Tension between academic (research) and applied sport psychology still exists. Although improving, there needs to be more interaction between researchers and practitioners, focusing on the science-practitioner model.
- Tension between psychology-trained (and licensed) psychologists and kinesiology-trained (specializing in sport psychology but not licensed) psychologists in administering psychologically based interventions with athletes and other performers (e.g., first responders, business people, artists, doctors, police, etc.).
- There are opportunities for advanced training in psychology departments, counseling/clinical psychology, versus through kinesiology departments, sport/exercise psychology (Peterson, Brown, McCann, & Murphy, 2012). This divide leads to issues in what to call a person working with athletes on mental skills/

issues as well as competency issues (what minimum training and knowledge is required to work with an athlete population).
- Competency issues being addressed through a revised certification program including coursework, practical mentored experiences, and an exam administered by the Association for Applied Sport Psychology so one can call themselves a Certified Mental Performance Consultant (Watson & Portenga, 2014).
- Multidisciplinary research with experts in other kinesiology subdisciplines (e.g., exercise physiology, biomechanics, motor learning) as well as other disciplines (e.g., nursing, engineering, social work) to study big issues facing society such as the obesity epidemic or enhancing positive youth development (Weinberg & Gould, 2019).
- Increases in globalization and cultural diversity. New knowledge and best practices are rapidly being developed in a host of Asian, European, and South American countries. Understanding the differences and diversity among cultures is becoming more and more essential for successful sport psychology practitioners.
- The positive psychology movement which focuses on the development of positive attributes such as happiness, optimism, and hope (Seligman & Csikszentmihalyi, 2002) has really always been part of the field of sport psychology, but it has been enhanced in the past several years.

Purposes and Rationale of the Curriculum

Sport psychology classes at the university level started to develop in earnest in the late 1960s into the 1970s. This growth was accelerated in the 1980s and 1990s and continues today at both undergraduate and graduate levels. At undergraduate level, sport psychology and psychology of coaching classes are usually a requirement or an elective class within a kinesiology/sport science department for students majoring in some sport science curriculum (e.g., sports medicine, exercise science, sport management, coaching). There are only a few schools nationwide where students can actually major in sport psychology at the undergraduate level (e.g., West Virginia University). At graduate level, there are a number of universities that offer either master's or doctoral degrees specializing in sport psychology, and these are highlighted in a publication from the Association for Applied Sport Psychology titled Directory of Graduate Programs in Applied Sport Psychology (Burke, Sachs,, & Tomlinson, 2018).

Sport and exercise psychology curriculums in the United States have generally not been aligned with, or constrained by, any competency models, accreditation bodies, or professional standards. However, in many countries, there has been a movement toward establishing a competency-based qualification for the training and development of applied sport psychologists (cf. Fletcher & Maher, 2013), which often includes a specified taught curriculum offered by institutions. As one example of this process, the two-stage qualification to become a registered sport and exercise psychologist in the United Kingdom is described later in this chapter. As far back as

2003, in a position statement on behalf of the International Society of Sport Psychology (ISSP), the increase in sport psychology practitioners across the globe was noted, in addition to the influx of academic programs available (Tenenbaum, Lidor, Papaianou, & Samulski, 2003). Thus, developments in competencies focusing on occupational standards, knowledge, and specific skills continue to be at the forefront of professional practice issues in sport and exercise psychology, especially in Europe (e.g., Hutter, Van der Zande, Rosier, & Wylleman, 2018). Specific to the United States, based on both the American Psychological Association (APA) (2002), and Association for Applied Sport Psychology (AASP) (2010) codes of ethics regarding issues of competence, there are expectations for individuals teaching sport and exercise psychology. For example, the APA states in Sect. 2.01 of the ethics code that (a) "Psychologists provide service, teach and conduct research with populations and in areas only within the boundaries of their competence, based on their education, training supervised experience, consultation, study, or professional experience" (2002, p. 5). This standard regarding competence in teaching echoed in the AASP code of ethics Principle A (2010). The standard of being up to date is the essence of competence in knowing one's subject matter. This could be achieved via coursework, reading the literature, attending conferences, participating in continuing education workshops, webinars, etc. However, competence could also be demonstrated in the use of technology and in actual teaching methods. Thus, although the teaching of sport and exercise psychology is not constrained by accreditation standards, teachers do need to maintain competence in the field as demonstrated by the above examples.

However, it would be remiss if there was no discussion in this chapter about certification of sport psychologists and accreditation of sport psychology graduate programs as they relate to the teaching of sport psychology. First, certification of sport psychologists has been administered by AASP since 1989. The certification process (which has been updated and now includes an exam) includes a variety of coursework (i.e., sport psychology, research methods, professional ethics, psychopathology, counseling, sport science, diversity and culture, psychological foundations of behavior) as well as 400 hours of mentored practical experience in applied sport psychology. Many schools, which have a graduate specialization in sport psychology, try to offer most (if not all) of the classes that students need to be certified in applied sport psychology. However, there are no specific requirements about the specific content of these courses. For example, besides having a sport psychology course in the curriculum (focusing on some aspects of sport psychology content), there is no specification as to exactly the content of the course, who teaches the course (do they need to be AASP certified), or the methods employed to teach the class. Therefore, the certification process has had little influence on the teaching of sport psychology (just as long as it is a required part of the graduate curriculum). Nonetheless, the debate on developing "Accredited graduate programs" in the United States has been ongoing over many years (cf. Quartiroli, 2014).

However, recently, AASP has added an exam component to becoming certified in applied sport psychology. In essence, starting in 2018, besides requiring specific coursework, a person who wants to be certified by AASP (now called a Certified

Mental Performance Consultant CMPC) needs to pass an exam in applied sport psychology. The exam will target many of the areas noted above but also focus on the research and practice related to becoming a competent CMPC. Therefore, specific areas of competency will be required, and it is likely that courses in sport and exercise psychology will need to incorporate these knowledge areas into their curriculum so that individuals will be properly prepared to take and pass the exam to become a CMPC. In addition, for many years, there has been discussion of accreditation of sport psychology graduate programs. This is an ongoing discussion and will probably have some standards attached to the courses in the programs, but at this time this is still in the discussion stage.

While it is not the purpose of this chapter to compare sport and exercise psychology teaching and learning from other countries, it is interesting to briefly mention the training pathway that has been developed in the United Kingdom, as sport and exercise psychology amalgamated into the British Psychology Society (BPS) along with other divisions of psychology such as health, clinical, social, and forensic. Prior to this movement occurring in approximately 2007, a training pathway for certification similar to the United States existed with the British Association for Sport and Exercise Science (BASES). However, when the BPS adopted the Division of Sport and Exercise Psychology, a specific training pathway to qualification (becoming a registered sport and exercise psychologist legislated by the Health and Care Professions Council) was developed. The foundation psychology requirement (Graduate Basis for Chartered status; GBC) is initially obtained from studying an undergraduate degree in psychology, which covers a range of core topics (e.g., individual differences, developmental psychology, biological psychology, research methods). Undergraduate students studying outside of psychology (e.g., sport science degrees) must obtain these key areas of knowledge via alternative options (such as short courses, conversion diplomas, top-up psychology in developmental and bio-psychology) if they want to pursue the full practitioner qualification. Obtaining an accredited master's degree with the BPS (which emphasizes theoretical knowledge rather than applied practice) is the first stage toward qualification. The Training and Standards Partnership Committee (BPS Division of sport and exercise psychology) ensures that universities offering accredited master's programs are adhering to the specified curriculum and that teaching staff are appropriately qualified. Re-accreditation visits take place every 5 years. Stage 2 part of the qualification requires supervised experience (normally 2–3 years) with a registered supervisor as trainees work toward achieving competency across four key roles (ethics, applied practice, research project and skills, dissemination of work). Following the submissions of training logs, practice hours, reflective practice, case studies, and supervisor interactions, candidates attend a viva with two independent assessors who have been periodically assessing submitted work during the 2–3-year period. The latest development in the training pathway has occurred within BASES where students can now opt to take their supervised practical experience through SEPAR (Sport and Exercise Psychology Accreditation Route). The end product of taking the training pathway with either the BPS or BASES leads to registration as a sport and exercise psychologist legislated by the Health and Care Professions Council (HCPC).

As noted earlier, within the United States, since there are no specific competencies thrust upon the teaching of sport psychology by outside agencies, what might be some core teaching and learning objectives and competencies to be included in sport psychology classes? Although some textbooks in sport psychology focus more on research (e.g., Horn & Smith, 2019) and some more on application (e.g., Orlick, 2008), most textbooks take a scientific-practitioner perspective (e.g., Weinberg & Gould, 2019). The superordinate learning objectives of the scientist-practitioner model involve taking a research-to-practice approach. Specifically, the objective is to understand sport psychology research and theory and then be able to apply this knowledge to practical sport settings. In essence, research should inform practice although at times practice could lead to specific sport psychology research endeavors.

The other superordinate goals focus more on specific sport psychology content put in the form of two questions. These include (a) to understand how psychological factors affect an individual's physical performance (performance enhancement focus) and (b) to understand how participation in sport and exercise settings affect an individual's psychological development, health and well-being (mental health focus). An example of a question regarding performance enhancement would be "what is the effect of anxiety on penalty kicks in soccer?" For the mental health perspective, a question would be "what is the relationship of regular exercise to reductions in depression and anxiety?" Although coaches and athletes are generally more interested in the performance enhancement aspect of sport psychology, probably in the long run, the effect of one's participation on their psychological development and mental health is most likely the more important aspect.

Core Contents and Topics of Sport and Exercise Psychology

To determine core content and topics in sport and exercise psychology, it is again instructive to take a close look at the current popular textbooks in the field focusing on content that appears to cut across both more applied-oriented and more research-oriented as well as research-to-practice texts. In addition to core content and topics, we will briefly discuss the major theories, themes, models, and research paradigms that build the core of what students need to learn.

Historical Perspectives

An understanding of the history of sport psychology along with current issues and future directions is typically the first chapter in many texts (e.g., Gill et al., 2017; Weinberg & Gould, 2019; Williams, 2014). Some critical aspects of history that are usually covered include Norman Triplett's research on social facilitation and cycling in the 1890s, Coleman Griffith's extensive research and practice in the 1920s and 1930s giving him the title of father of American sport psychology, Franklin Henry providing a scientific approach to the study of sport psychology, the formal

beginning of sport psychology in 1965 with the first International Congress in Sport Psychology in Rome, the establishment of professional applied and scholarly organizations in the 1970s and 1980s, and the multidimensional and global nature of sport psychology in the 2000s. Present and future issues and trends in sport psychology (some noted earlier) include such things as cultural diversity, ethics and competency, limited full-time positions for applied sport psychologists, importance of counseling and clinical training to help enhance the mental health of athletes, focus on positive psychology, and focus on specific specializations (e.g., exercise psychology, positive youth development, performance excellence outside of sport – business, music, military).

Knowledge Development

In most sport psychology texts, there is a chapter that focuses on how knowledge is derived. There are scientifically derived knowledge and professional practice knowledge. Both of these are important. Students learn the difference between professional practice knowledge which is usually guided by trial-and-error learning and scientific knowledge which is derived by experiments and studies using the scientific method. Throughout the years, there has been a gap between scientific and professional practice knowledge. However, more recently, there has been an attempt to integrate professional practice and scientific knowledge. For example, the RE-AIM model (Glasgow, Vogt, & Boles, 1999) outlines five factors that interact to affect knowledge transfer. These include (a) reach (who the program affects), (b) efficacy (program outcomes), (c) adoption (who uses the program), (d) implementation (is the program delivered as specified), and (e) maintenance (sustaining the program over time).

In terms of paradigms, most knowledge in sport psychology in the 1960s and 1970s was quantitative with the focus on laboratory research. However, in a seminal article (Martens, 1979) entitled "Smocks to Jocks," the importance of gathering data in field (realistic) settings was championed in addition to the already laboratory research. This led to many studies being conducted in the field as well as a start to more qualitative research, which started appearing in the literature in the late 1980s and has now a strong foothold into the development of sport psychology knowledge. Qualitative research along with emergence of case studies has provided sport psychology with more depth and richness of data that was missing with purely quantitative studies.

Individual Differences

How people are different is one of the central themes throughout all of psychology and thus is one of the themes in most sport psychology courses. Although the specific individual differences somewhat vary among different textbooks and courses, some of the mainstay topics include personality, motivation, confidence, and anxiety.

Personality Literally hundreds of articles on sport personality have been published although most as the field started to gain prominence in the 1960s and 1970s (Vealey, 2002). Although the trait approach dominated the early research on personality (as it did in mainstream psychology), currently the interactional perspective, which takes a person-by-situation approach, is the dominant paradigm as it accounts for the most variance in behavior. Along with the interactional approach, the other contemporary approach to personality gaining the most support is the phenomenological approach. This is similar to the interactional approach. However, the interactional approach focuses on fixed traits or dispositions as the primary determinants of behavior, whereas the phenomenological approach focuses on individuals' understanding and interpretation of themselves and their environment. In essence, individuals' subjective experience and personal views of the world and of themselves are seen as critical. Many of the most prominent theories in sport psychology such as self-determination, achievement goal, cognitive evaluation, and social cognitive fall within the phenomenological framework (these theories will be discussed further in relation to their place within the themes of sport psychology).

Motivation A very popular individual difference variable is motivation for both researchers and practitioners. There are a number of influential theories that attempt to understand how motivation affects performance as well as other important variables such as persistence, choice of activities, and affective and cognitive responses. These include such theories as achievement motivation (Atkinson, 1974), achievement goal (Dweck, 1986; Nicholls, 1984), attribution (Weiner, 1985), self-determination (Deci & Ryan, 1985), and competence motivation (Weiss & Amorose, 2008). These encompass many individual differences such as intrinsic vs. extrinsic motivation, task vs. ego orientation, high vs. low achievers, and high vs. low self-esteem. In accordance with the scientist-practitioner model, these theories provide practical information for motivating different types of performers based on their unique personalities and individual differences.

Anxiety/Arousal Anxiety is a critical component if an athlete wants to perform at high levels. Many studies have been conducted investigating high- vs. low-anxiety individuals in their performance of a variety of strength, endurance, fine motor, coordination, speed, and balance tasks (Mellalieu, Hanton, & Fletcher, 2006). There are many theories which attempt to explain the arousal-performance relationship including drive theory, the inverted-U hypothesis, multidimensional anxiety theory, catastrophe theory, individualized zones of optimal functioning, and reversal theory. Although they provide different predictions, as a group, there are some consistencies which help practitioners/coaches help their performers to play up to their potentials. One point in relation to individual differences is the notion (especially highlighted by the zones of optimal functioning) that different individuals have different optimal levels of anxiety. For example, some perform their best at high levels, whereas others perform their best at low levels. In addition, research has revealed that the way an athlete interprets his anxiety is probably more important than their amount of anxiety (Jones, 1995).

Confidence Of all the individual difference variables, confidence is probably the one that most consistently is related to increased performance. For example, the individual attribute that comes up most consistently when studying mental toughness is confidence (Gucciardi, Hanton, & Fleming, 2017). A construct highlighted by the research and theorizing of Bandura (1977), self-efficacy, is seen as similar to confidence (although some differences) and have helped in the development of sport confidence (Vealey, 2001). Individuals high vs. low on sport confidence have demonstrated differences in performance, affect, cognitions, and behavior. Although self-efficacy and sport confidence were originated as individual difference variables, group/team concepts have been developed (i.e., team efficacy) as well as efficacy attached to a certain individual (i.e., coaching efficacy).

Group Dynamics

Besides individual differences, a major thrust within sport psychology is the focus on groups and group/team dynamics. Many different topics are included in this area such as the differences between groups and teams, theories regarding how groups are formed, group structure, group roles, role clarity, role acceptance, and role conflict, as well as group norms and norms for productivity. The relationship of individual to team performance is critical in sport, and Steiner's model of actual and potential productivity (Steiner, 1972), the Ringelmann effect (Ingham, Levinger, Graves, & Peckham, 1974), and social loafing (Heuze & Brunel, 2003) all address this critical issue in sport.

However, the topic of group/team cohesion is the one group area that most coaches are interested in developing. Defining task vs. social cohesion comes first and then a conceptual model for the personal, environmental, leadership, and team factors that influence cohesion (Carron, 1982). Measurement of task and social cohesion via sociograms and the Group Environment Questionnaire (Widmeyer, Brawley, & Carron, 1985) is critical to test the effectiveness of team building programs. The cohesion-performance relationship has received the most attention, and it is moderated by the type of measurement (task vs. social cohesion) and task demands (individual vs. team) (Carron, Coleman, Wheller, & Stevens, 2002). From an applied perspective, strategies for enhancing team cohesion by coaches and athletes as well as team building programs have been emphasized.

Leadership

Different approaches to leadership are emphasized from those emanating outside of sport including the trait, situational, behavioral, and interactional approaches. Models of leadership specific to sport include the cognitive-mediational model of leadership (Smoll & Smith, 1989), the multidimensional model of sport leadership (Chelladurai, 2007), and most recently the transformational model of leadership in

sport (Turnnidge & Cote, 2016). Effective leadership is seen as having four components including leader qualities, leadership styles, follower qualities, and situational factors.

Psychological Skills

A core aspect of most sport and exercise psychology texts is the focus on mental skills. Mental skills for performance enhancement have been one of the key aspects of applied sport psychology. This usually takes the form of chapters on goal setting, imagery, arousal regulation, and attentional focus. For arousal regulation, different somatic, cognitive, and multimodal techniques such as progressive relaxation, the relaxation response, and cognitive-affective stress management are typically discussed. Different imagery theories are highlighted such as psychoneuromuscular, bioinformational, and symbolic learning (see Weinberg, 2008, for a review) as well as developing an imagery training program such as PETTLEP (Physical, Environment, Task Type, Timing, Learning, Emotion, Perspective) (Holmes & Collins, 2001). Goal setting uses Locke's (1968) original theory and over 500 studies to develop goal setting principles and effective goal setting programs in sport and exercise settings. The psychological skill of focused concentration includes performers understanding concepts such as situation awareness, attentional selectivity, attentional capacity, attentional alertness, and shifting attentional focus (Weinberg & Gould, 2019). Changing self-talk and one's focus of attention through techniques such as mindfulness (Kabat-Zinn, 2003) and rational emotive behavior therapy (Ellis, 1994) are critical for maintaining appropriate attentional focus.

Exercise Motivation and Well-Being

As noted earlier, sport psychology has grown and incorporated exercise as part of its title and focus. Although some texts focus only on sport psychology, while other focus exclusively on exercise psychology, most combine both sport and exercise psychology. Two of the areas within exercise psychology that receive the most attention are typically exercise motivation and exercise and psychological well-being. Exercise motivation typically focuses on the concept of exercise adherence since approximately 50% of people starting an exercise program drop out within 6 months. In addition, large percentages of adults around the world are either overweight or obese (Afshin et al., 2017). Because of the serious health effects of being overweight and obese, many theories and models have been developed or applied to try and predict adoption and adherence to exercise. These include the Health Belief Model, Theory of Planned Behavior, Social Cognitive Theory, Self-Determination Theory, Ecological Model, and Transtheoretical Model (see Weinberg, 2018, for a review). In addition to the models and theories, much research has focused on the determinants of exercise adherence including personal factors,

demographic variables, environmental factors, cognitive and personality variables, social environment physical environment, physical activity characteristics, and leader qualities. Finally, different strategies and approaches highlighting this area include behavior modification approaches, reinforcement approaches, decision-making approaches, cognitive-behavioral approaches, social support approaches, and intrinsic approaches.

There is an abundant literature attesting to the physiological benefits of exercise. However, research within exercise psychology has demonstrated the positive influence of exercise on psychological well-being. The two mental health variables that have received the most attention are anxiety and depression, and research has consistently revealed exercise to reduce both of these negative mental states (see reviews by Mutrie, 2001; Landers & Arent, 2001). Exercise has also been shown to enhance mood, improve cognitive functioning, improve well-being in many different chronic diseases, and generally enhance quality of life (Weinberg & Gould, 2019).

Psychology of Injury

Part of exercise psychology typically in sport and exercise psychology textbooks is the psychology of injury. Early research focused on predicting, from a psychological perspective, who would be more likely to be injured with models focusing on antecedent variables, perceived stress, and coping skills (Andersen & Williams, 1986). In recent years, the focus has changed to using psychological skills such as relaxation, goal setting, and imagery to help performers during the rehabilitation process.

Character/Moral Development and Aggression

The related topics of moral development and aggression seem particularly important today with off-the-field issues that many athletes appear to be having with violence, sexual assaults, and other illegal behavior. Then there are the sport-related issues of bullying and hazing. So, the issue of "does sport build character or characters" has been a focus of much research investigating the relationship between sport participation and delinquency as well as gang behavior (Spruit, van der Put, van Vugt, & Stams, 2017; Spruit, van der Put, van Vugt, van der Stouwe, & Stams, 2016). Since a lot of the amoral behavior in sport has a physical component, as well as the need to be positively aggressive within sports, aggression theories appear relevant. Instinct theory, the frustration-aggression theory, and social learning theory have been used to help explain why, how, and under what conditions aggrieve behavior is probable. Applying research to enhance moral behavior in sport and decrease negative aggression is typically highlighted in sport and exercise psychology texts.

Teaching, Learning, and Assessment in Sport Psychology: Approaches and Strategies

Thus far, the focus of this chapter has been on the core content areas to be included within sport psychology courses as well as some historical background, purposes, and rationale for the curriculum. But how will this information be taught and conveyed to students to optimize their learning? First, it should be noted that there is really a dearth of written information (e.g., journal articles, books, book chapters) on the teaching of sport psychology. There have been some sessions dedicated to teaching strategies at the annual AASP Conference, as well as an interest group within AASP but not much written content specific to the teaching of sport psychology. Therefore, the approaches, strategies, and assessments for teaching sport psychology will primarily come from the above: AASP sources, generally known effective teaching practices, as well as in-depth discussions with colleagues about their teaching practices of sport psychology.

Flipping the Classroom

A technique that has gained some traction in terms of teaching is the "flipped classroom." This strategy basically means that events that normally take place inside the classroom now take place outside the classroom and vice versa (Bergmann & Sams, 2012). If students learn basic content outside the classroom, then time inside the classroom can be used for active learning strategies such as case studies, role-playing, and team projects. For example, outside of class, students might be asked to read a chapter in their textbook, take an online quiz, and participate in an electronic discussion board where students react to a couple of thought-provoking questions (e.g., should a coach have his/her athletes set individual goals in a team sport?) and interact with each other responding to different posts. In this way, they would be prepared to come to class with some knowledge learned outside the classroom. In class, for example, if the outside homework focused on effective goal setting in sport, students could be divided into teams/groups and each given a different question related to goal setting. After meeting for, say, 10–15 min, each group reports to the class on how they responded to their goal setting question. Some of these questions might include (a) discuss the differences between outcome, process, and performance goals and apply the use of these to different types of teams (younger vs. older, skilled vs. unskilled, competitive vs. non-competitive); (b) discuss the process of setting goals on a team sport including how goals are set, the role of the coach, and individual vs. team sports; and (c) discuss the principles of effective goal setting and provide examples of how they would be implemented. Of course, an instructor could employ a classroom that was totally flipped, as noted above, as well a partially flipped classroom where, for example, the instructor might selectively and intentionally lecture on difficult and complex material or use some sessions for keynote lectures but other sessions for active learning strategies.

Turning a Class Into a Team

A teaching strategy that is taken from the practice of sport psychology and social psychological research (Tuckman, 1965) is the making of a team or taking a group and making it into a team. Eggleston (2009) provides some suggestions for using and applying Tuckman's research to the classroom. The basic premise of Tuckman's research is that groups go through four different stages to become a team. The stages are forming, storming, norming, and performing. Teams are first formed so that hopefully they are heterogeneous and relatively equal and they create a team name, team colors, and maybe a team saying. In the storming phase, teams are given different assignments to be discussed in class, with competitions between teams highlighted as well as choice of captains within teams which usually creates some conflict. In the norming stage, the instructor gives each team some rules and strategies for the completion of successful team projects. Communication among teammates can be enhanced outside of class through a course management system (e.g., blackboard, canvas), e-mails, and other technology. In the performing stage, teams will present their projects (usually 2–3) to the rest of the class throughout the semester. Projects that are presented might use PowerPoint or YouTube videos, create brochures, conduct coaching clinics in sport psychology, role-play interactions between coaches and athletes, etc. The concept of working in teams can also be applied when helping sport psychology students learn to work from a multidisciplinary sport science perspective. From an applied perspective, preparing students for working with athletes and teams is important as they might be required to work as part of a multidisciplinary sport science support team or when engaging in case formulation. In this instance, team case study work can be used, and sport psychology students can work in teams with students majoring in physiology, strength and conditioning, and nutrition to identify an athlete's key strengths and areas for improvement. This also an effective way of students learning the process of goal setting as this can become an extension of moving beyond identifying areas to work on and how to form a training plan.

UNIFORM Program

One of the main thrusts of applied sport psychology is to teach psychological skills such as anxiety management, goal setting, self-talk, and imagery. A 12-week curriculum called UNIFORM has been shown to be effective in teaching these mental skills (cf. Gilbert, Moore-Reed, & Clifton, 2017). The program uses a unique teaching approach called the Game Plan Format, which is based in the Trans-theoretical Model of behavior change. More specifically, facilitators use a multi-method approach (i.e., interactive education sessions, in-class assignments, films/video footage, take-home adherence strategy tasks, physical activities, and journaling) to help the participants learn the skills and apply them to their sport and daily lives. Research has shown that varsity student-athletes undergoing a psychological skills intervention increased their use of these psychological skills when compared to a control group.

Assessment Considerations in Sport Psychology

Assessment and feedback for learning rather than just assessing for progress have become increasing popular topics when discussing the important aspect of the student learning experience (cf. Brown & Knight, 1994). Formative assessments are designed to help students meet the learning outcomes of the class/module and considered a strategy to engaging learners. It is a method that is also known to enhance self-evaluation and self-reflection on learning which are important skills for sport psychology students to develop if they are to pursue careers in teaching, in applied sport psychology consultancy, or in research. The strategy of peer feedback (cf. Nicol, Thomson, & Bresline, 2014) can easily be embedded into formative assessment strategies and further provide opportunities for students to learn through a reflective process about their own work and their peers. In sport psychology, one example for formative assessments might include keeping a reflective practice diary while taking internship credit. In this example, students would receive periodic feedback on their use of literature and evidenced-based research and how their knowledge can inform the next phase of their internship work. A second example might be centered on the research side of sport psychology where the final summative assessment is to submit a lab report or research report. Students can undertake three or four formative assessments in this process and receive feedback on literature searching, using literature to develop a rationale for the research, data collection, and analysis. Summative assessments can still be used to evaluate the knowledge, and a grade can be produced commensurate with students' standard of achievement. In sport psychology, more traditional-based assessments (e.g., tests, essays, oral presentations) can be effective for summative assessments especially as understanding theoretical knowledge of sport psychology and the science underpinning intervention is crucial before students are able to learn how to start to apply that knowledge as a practitioner.

When considering the broad spectrum of career options for students who have studied sport psychology (e.g., research/further qualifications, applied consultancy, coaching, lecturing), it is important to consider "blended learning" options, not just for engagement and learning but as a way for students to become more familiar with using technology. Using technology has become part of sport psychology work, especially when working as a practitioner/consultant where searching for innovative ways to engage athletes and coaches in education is becoming a key skill. Blended learning (cf. Ward & LaBranche, 2003) typically involves a mixture of traditional face-to-face classroom strategies and the use of different technologies, such as video/audio streaming, and learning platforms, such as a Padlet, or electronic discussion boards. The use of Socrative has become popular in recent years where students can engage in the classroom through responding to a live quiz using their mobile phones and results can be shown immediately. For sport psychology students, the use of technology (beyond traditional blended learning activities) could involve creating a research-to-practice blog, developing a webpage, or even creating a professional development profile (e.g., LinkedIn profile).

Challenges and Lessons Learned

Since sport and exercise psychology is a relatively new field (compared to other areas of psychology), there are several challenges that we currently face as well as those in the future in terms of curriculum development and teaching. Despite the challenges, we have learned a great deal as curriculum has been developing at a rapid pace to stay abreast of the rapid research and applied changes and advances in the field. As noted earlier, a main focus in the field (spearheaded by the Association for Applied Sport Psychology) was to develop a certification program which would recognize sport psychology professionals in terms of their experiences and expertise. The requirements of certification have changed (e.g., an exam has been added to course work and applied practicum experience), and one of the challenges is to continue to develop curriculum especially at the graduate level. Besides trying to provide some "teeth" (standards) into becoming certified in applied sport psychology, there is also a move to provide accreditation to graduate programs in sport psychology. Thus, a challenge for the future is to determine the necessary requirements of becoming an accredited sport psychology graduate program as curriculum development will likely follow accreditation requirements for those universities wanting graduate-level accreditation.

Because the majority of new graduate students are interested in consulting with athletes (or other performers), it will be incumbent upon many graduate programs to develop curriculum that will be aligned with not only becoming certified in sport psychology but also becoming an accredited graduate program. However, graduate work in sport psychology is based on a scientist-practitioner model. Therefore, as curriculum develops, it needs to both meet the needs of those graduate students wanting more of an applied focus as well as providing a theoretical and empirical underpinning of theories and research that informs the practice of applied sport psychology and provides future researchers and teachers the knowledge to be not only cutting-edge in research but also cutting-edge in teaching.

Along these lines, in terms of practitioners of sport psychology, one of the key challenges is to provide clear career paths (via curriculum development) for those individuals wanting to be able to work on mental health issues of athletes (focus on clinical or counseling psychology typically through a psychology department) versus those who want to focus on performance enhancement (focus on studying sport psychology through a kinesiology department). In recent years, there has been increased interest in the mental health of athletes especially at the college level, and these athletes have pressure to perform well both in the classroom and on the athletic field and thus are often stressed not having enough time and energy to spend on each endeavor. There are only a very few universities that have a graduate sport psychology specialization/practicum while studying counseling psychology through a psychology department or where a graduate counseling degree can be obtained alongside a kinesiology (sport psychology) PhD degree. It seems logical that curriculum needs to be developed and enhanced so that more of these combined psychology and kinesiology programs can meet the needs of our current and future students. After providing empirical research and theory, teachers could then utilize a

number of hands-on teaching techniques to give students experience using the research/theory to inform practice such as role-playing, mock interviews, simulations, group/team competitions, and the inverted (flipped) classroom.

Teaching, Learning, and Assessment Resources

This Special Interest Group from the Association of Applied Sport Psychology is committed to the improvement of the teaching and learning process in sport and exercise psychology. Topics of interest include (a) the tools and strategies employed by instructors (e.g., curriculum design, innovative activities), (b) empirical research on the teaching and learning of sport and exercise psychology, and (c) professional and ethical issues related to the assessment and evaluation of sport exercise psychology students, courses, and instructors.

http://tamieggleston.com/uploads/3/6/1/9/3619199/aaspnews23-1(2).pdf

This article uses social psychology research on the stages of group formation applied to sport psychology classes. The author discusses breaking up her sport psychology classes into teams with 5–7 students per team. Activities and assignments are provided which use the different stages of group/team formation.

Eggelston, T. (2015). Adventures with flipping: Students will flip over a sport psychology class that incorporates flipped classroom strategies. Association for Applied Sport Psychology Newsletter, 30 (1) 10–12.

This article discusses the strategy of flipping the classroom where events that normally take place inside the classroom now take place outside the classroom. Students learn basic content outside the classroom so they are prepared to lead the class and/or partake in active learning classroom activities.

Smith, G. (2007, March). Going for the Gold: Using Sports Psychology to Improve Teaching and Learning. Association for Psychological Science. Observer.

This article focuses on using active learning through sport psychology principles. Specifically using Olympic designations of bronze, silver, and gold, different learning activities are developed with increasing levels of difficulty and risk with degree of difficulty and risk increasing from bronze to gold.

Cruickshank, A., Martindale, A., & Collins, D. (2018). Raising our game. The necessity and progression of expertise-based training in sport psychology. Journal of Applied Sport Psychology, 30, 1–19.

This article focuses on the training in applied sport psychology. Presently, our training focuses on enhancing competence. However, the authors argue that our

training should focus on professional expertise rather than simply competence. Ways in which expertise-based training can be implemented are also discussed.

Gilbert, J., Moore-Reed, S., & Clifton, A. (2017). Teaching sport psychology for now and the future? The psychological UNIFORM with high school varsity athletes.

This article focuses on the delivery of a 12-week curriculum (called UNIFORM) taught to high school athletes. This curriculum focused on teaching psychological skills (e.g., relaxation, imagery, goal setting, self-talk). Results revealed that athletes were able to learn these skills and then employ them in actual competition. Athletes still used the skills 4 months after the intervention was completed.

Forneris, T., Conley, K., Danish, S., & Stoller, L. (2014). Teaching life skills through sport: Community-based programs to enhance adolescent development. In J. Van Raalte & B. Brewer (eds.) Exploring sport and exercise psychology (third ed.) pp. 261–276.

This chapter focused on teaching life skills to adolescents through sport in community-based settings. A unique part of this program is that peer leaders (usually high school students) are taught how to integrate life skills into the teaching of sport skills. Because life skills are being taught, the more similar the teachers to the students in their life experiences and skill level, the more the students will learn. In essence, a coping model is preferred over a mastery model.

References

Afshin, A., Forouzanfar, M., Retisma, M., Sur, P., Estep, K., Lee, A., et al. (2017). Health effects of overweight and obesity in 195 countries over 25 years. *New England Journal of Medicine, 377*, 213–227.

American Psychological Association. (2002). *Ethical principles of psychologists and codes of conduct*. Washington, DC: American Psychological Association.

Andersen, M., & Williams, J. (1986). A model of stress and athletic injury: Prediction and prevention. *Journal of Sport and Exercise Psychology, 10*, 294–306.

Association for Applied Sport Psychology. (2010). *AASP code of principles and standards*. Retrieved from http://www.appliedsportpsych.org/about/ethics.

Atkinson, J. (1974). The mainstream of achievement-oriented activity. In J. Atkinson & J. Raynor (Eds.), *Motivation and achievement* (pp. 13–42). New York: Halstead.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191–215.

Bergmann, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day.* Washington D.C: International Society for Technology in Education.

Brown, S., & Knight, P. (1994). *Assessing learners in higher education*. London: Kogan Page.

Burke, K., Sachs, M., & Tomlinson. (2018). *Directory of graduate programs in applied sport psychology* (12th ed.). Indianapolis, IN: Association for Applied Sport Psychology.

Carron, A. (1982). Cohesiveness in sport groups: Interpretations and considerations. *Journal of Sport Psychology, 4*, 123–138.

Carron, A., Coleman, M., Wheller, J., & Stevens, D. (2002). Cohesion and performance in sport: A meta-analysis. *Journal of Spot and Exercise Psychology, 23*, 168–188.
Chelladurai, P. (2007). Leadership in sports. In G. Tennenbaum & R. Eklund (Eds.), *Handbook of sport psychology* (3rd ed., pp. 113–135). Hoboken, NJ: Wiley.
Deci, E., & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behavior.* New York: Plenum Press.
Dweck, C. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040–1048.
Eggleston, T. (2009). Making a class a team. *Association for Applied Sport Psychology Newsletter, 23*, 26–28.
Ellis, A. (1994). The sport of avoiding sports and exercise: A rational emotive behavior therapy perspective. *The Sport Psychologist, 8*, 248–261.
Fletcher, D., & Maher, J. (2013). Toward a competency-based understanding of the training and development of applied sport psychologists. *Sport, Exercise, and Performance Psychology, 2* (4), 265–280.
Gilbert, J. N., Moore-Reed, S. D., & Clifton, A. M. (2017). Teaching sport psychology for now and the future? The psychological UNIFORM with high school varsity athletes. *The Sport Psychologist, 31*(1), 88–100.
Gill, D., Williams, L., & Reifsteck, E. (2017). *Psychological dynamics of sport and exercise* (3rd ed.). Champaign, IL: Human Kinetics.
Glasgow, R., Vogt, T., & Boles, S. (1999). Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *American Journal of Public Health, 8*, 1322–1327.
Gucciardi, D., Hanton, S., & Fleming, S. (2017). Are mental toughness and mental health contradictory concepts in elite sport? A narrative review of theory and evidence Journal of Science and Medicine in Sport. Doi.org/https://doi.org/10.1016/j.jams.2016.08.006.
Heuze, J., & Brunel, P. (2003). Social loafing in a competitive contest. *International Journal of Sport and Exercise Psychology, 1*, 246–263.
Holmes, P., & Collins, D. (2001). The PETTLEP approach to motor imagery: A functional equivalence model for sport psychology. *Journal of Applied Sport Psychology, 13*, 60–83.
Horn, T., & Smith, A. (2019). *Advances in sport and exercise psychology* (3rd ed.). Champaign, IL: Human Kinetics.
Hutter, R. V., van der Zande, J. J., Rosier, N., & Wylleman, P. (2018). Education and training in the field of applied sport psychology in Europe. *International Journal of Sport and Exercise Psychology, 16*(2), 133–149.
Ingham, A., Levinger, G., Graves, J., & Peckham, V. (1974). The Ringelmann effect: Studies of group size and group performance. *Journal of Experimental Social Psychology, 10*, 371–384.
Jones, G. (1995). More than just a game: Recent development and issues in competitive anxiety and sport. *British Journal of Psychology, 86*, 449–478.
Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present and future. *Clinical Psychology: Science and Practice, 10*, 144–156.
Kornspan, A. (2012). History of sport and performance psychology. In S. Murphy (Ed.), *The Oxford handbook of sport and exercise psychology* (pp. 3–23). Oxford, UK: Oxford University Press.
Kornspan, A. (2015). John D. Lawther: Contributions in the psychology of sport. *The Sport Psychologist, 29*, 346–357.
Kroll, W., & Lewis. (1970). America's first sport psychologist. *Quest, 15*(3), 1–4.
Landers, D., & Arent, S. (2001). Physical activity and mental health. In R. Singer, H. Hausenblas, & C. Janelle (Eds.), *Handbook of sport psychology* (2nd ed.). New York: Wiley.
Locke, E. (1968). Toward a theory of task motivation incentives. *Organizational Behavior and Human Performance, 3*, 157–189.
Martens, R. (1979). About smocks to jocks. *Journal of Sport Psychology*, 94–99.
Mellalieu, S., Hanton, S., & Fletcher, D. (2006). A competitive anxiety review: Recent directions in sport psychology research. In S. Hanton & S. Mellalieu (Eds.), *Literature reviews in sport psychology* (pp. 1–45). New York: Nova.

Mutrie, N. (2001). The relationship between physical activity and clinically-defined depression. In S. Biddle, K. Fox, & S. Boucher (Eds.), *Physical activity, mental health and psychological Well-being* (pp. 46–62). London, UK: Routledge & Kegan Paul.

Nicholls, J. (1984). Concepts of ability and achievement motivation. In C. Ames & R. Ames (Eds.), *Research on motivation in education: Student motivation* (pp. 39–73). New York: Academic Press.

Nicol, D., Thomson, A., & Bresline, C. (2014). Rethinking feedback practices in higher education: A peer review perspective. *Assessment & Evaluation in Higher Education, 39*(1), 102–122.

Orlick, T. (2008). *In pursuit of excellence* (4th ed.). Champaign, IL: Human Kinetics.

Peterson, C., Brown, C., McCann, S., & Murphy, S. (2012). Sport and performance psychology: A look ahead. In S. Murphy (Ed.), *The Oxford handbook of sport and performance psychology* (pp. 741–753). Oxford, UK: Oxford University Press.

Portenga, S. T., Aoyagi, M. W., & Cohen, A. B. (2017). Helping to build a profession: A working definition of sport and performance psychology. *Journal of Sport Psychology in Action, 8*(1), 47–59.

Quartiroli, A. (2014). The perceived value of the association for applied sport psychology certification and certification exam: A survey of sport and exercise psychology professionals. *Athletic Insight, 6*(3), 245.

Seligman, M., & Csikszentmihalyi, M. (2002). Positive psychology: An introduction. *American Psychologist, 55*, 5–14.

Smoll, F., & Smith, R. (1989). Leadership behavior in sport: A theoretical model and research paradigm. *Journal of Applied Sport Psychology, 19*, 1522–1551.

Spruit, A., van der Put, C., van Vugt, E., & Stams, G. (2017). Predictors of intervention success in a sports-based program for adolescents at-risk of juvenile delinquency. *International Journal of Offender Therapy and Cognitive Criminology, 122*. https://doi.org/10.1177/0306624X17698055.

Spruit, A., van der Put, C., van Vugt, E., van der Stouwe, G., & Stams, G. (2016). Sport participation and juvenile delinquency: A meta-analytic review. *Journal of Youth and Adolescence, 4*, 655–671.

Steiner, I. (1972). *Group process and productivity*. New York: Academic Press.

Tenenbaum, G., Lidor, R., Papaianou, A., & Samulski, D. (2003). ISSP position stand: Competencies (occupational standards, knowledge, and practice) and their accomplishment (learning specification, essential knowledge, and skills) in sport and exercise psychology. *International Journal of Sport and Exercise Psychology, 1*, 155–166.

Triplett, N. (1898). The dynamogenic factors in pacemaking and competition. *American Journal of Psychology, 9*, 507–553.

Tuckman, B. (1965). Developmental sequence in small groups. *Psychological Bulletin, 63*, 384–399.

Turnnidge, J., & Cote, J. (2016). Applying transformational leadership theory to coaching research in youth sports. A systematic literature review. *International Journal of Sport and Exercise Psychology*. https://doi.org/10.1080/1612197X2016.1189948.

Vealey, R. (2001). Understanding and enhancing self-confidence in athletes. In R. Singer, H. Hausenblas, & C. Janelle (Eds.), *Handbook of sport psychology* (2nd ed., pp. 550–565). New York: Wiley.

Vealey, R. (2002). Personality and sport behavior. In T. Horn (Ed.), *Advances in sport psychology* (pp. 43–82). Champaign, IL: Human Kinetics.

Ward, J., & LaBranche, G. A. (2003). Blended learning: The convergence of e-learning and meetings. *Franchising World, 35*, 22–23.

Watson, J., & Portenga, S. (2014). An overview of the issues affecting the future of certification in sport psychology. *Athletic Insight, 6*, 261–276.

Weinberg, R. (2008). Does imagery work? Effects on performance and mental skills. *Journal of Imagery Research in Sport and Exercise, 3*, 1–20.

Weinberg, R. (2018). Theories and models of behavior change applied to exercise: Research and practice. In S. Razon & M. Sachs (Eds.), *Applied sport psychology: The challenging journey from motivation to adherence* (pp. 37–48). New York: Routledge.
Weinberg, R., & Gould, D. (2019). *Foundations of sport and exercise psychology.* Champaign, IL: Human Kinetics.
Weiner, B. (1985). *An attribution theory of achievement and emotion* (*Psychological review*). New York: Springer Verlag.
Weiss, M., & Amorose, A. (2008). Motivational orientations and sport behavior. In T. Horn (Ed.), *Advances in sport psychology* (3rd ed., pp. 115–154). Champaign, IL: Human Kinetics.
Widmeyer, N., Brawley, L., & Carron, A. (1985). *The measurement of cohesion in sport teams: The group environment questionnaire*. London, ON: Sports Dynamics.
Williams, J. (2014). *Sport psychology: Personal growth to peak performance*. New York: McGraw Hill.

Family Therapy

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Clinical Supervision as a Sociocultural Generative Practice

Maria Elisa Molina, Pablo Fossa, and Viviana Hojman

Contents

Abstract

The present chapter understands *clinical supervision* as a sociocultural practice that concerns the construction of meanings and relationships in the field of family therapy, by means of which learning and transformation emerge. This process takes three modalities: the narrative, the live supervision, and the scene supervision, with different aims. The process entails a significant personal relationship together with knowledge and skill learning. It is developed in motion at a multilevel and reciprocal dialogue from individual to culture spheres. The chapter elaborates on the dynamics of the supervision activity from the theoretical frame of Cultural and Semiotic Mediation Psychology. It makes a revision of different

M. E. Molina (✉) · P. Fossa · V. Hojman
Universidad del Desarrollo de Chile, Santiago, Chile
e-mail: memolina@udd.cl

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concepts proposing the process of the therapist's training as triadic, dialogical, and generative of signs and meanings.

Keywords

Clinical supervision · Triadic model · Dialogical model · Semiotic mediation

The present article understands *clinical supervision* as a sociocultural practice that concerns the construction of meanings and relationships, in the field of family therapy, by means of which learning and transformation emerge. This practice comprises pedagogic strategies carried out for the effective functioning of educational programs. As a teaching action, clinical supervision aims at the development of knowledge, skills, and abilities. However, it differs from teaching being the personal relationship more significant than the aim of enhancing knowledge and skills in clinical practice. On the other hand, it is also a *process in motion*. As a human interaction, it creates new practices and leads to new ideas, knowledge, or theories that enable the dialogue among the professional, disciplinary, local, and historical context of contemporary human life.

The chapter aims theoretically analyzing this practice in order to enable understanding from a systemic and semiotic perspective. This approach will focus on some concepts such as triadic process, semiotic mediation, generalization-contextualization, temporality frame, and dialogicity.

Triadic Perspective

The clinical supervision process considers dynamically at least three actors: agent, (*the agent* (or team), who is the trainer), addressee (the apprentice who is the *addressee*), object (different focal points, that third party which is in turn the *object* of construction) (Fig. 1).

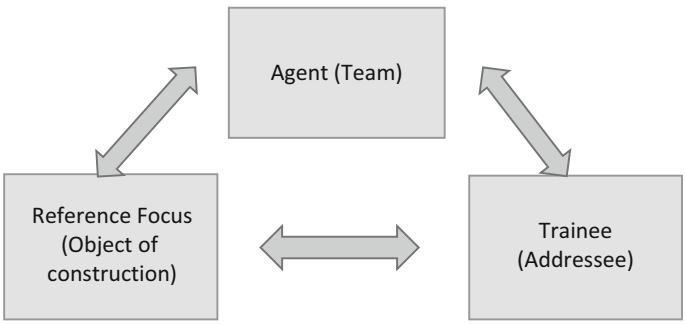

Fig. 1 The triadic model of clinical supervision

These *construction objects* include the consultant system, the training path of the practitioner, the therapeutic relationship, the supervisory relationship, and the discipline and interdiscipline – psychological, anthropological, sociological, and ethical. The consultant system means the individual and the relational system, particularly the family system, that seeks psychological help. The *training path of the practitioner* entails the trajectory of actions, duties, and behaviors displayed in the course of the formation. The therapeutic relationship is the aspects related with the quality of the bond between therapist and clients at therapy. The supervisory relationship refers to the interpersonal and affective aspects that enable as well as affect the learning process. The discipline and the interdiscipline address the field of knowledge comprised in the process of clinical supervision.

The training path of the supervised is the main construction object, which needs focusing on aspects of effectiveness, on the skills to carry out a helping relationship, on the process of reflection, and on flexibility to adapt to the situations that occur at the consultation of individuals and groups that are in trouble (Gilbert & Evans, 2000). This learning occurs from the beginning of the therapist training as a development of personal aspects of the therapist in a relational context, which includes permanent feedback of individual and intersubjective aspects.

The supervised-supervisor is a holistic relationship in which the *object* is included (the problem of the consultants, the technique, the theory, the understanding of the relationship, and so on), composing the triadic structure that co-evolves where each part is definable in terms of the two others (Simao, 2012; Zittoun, Gillespie, Cornish, & Psaltis, 2007). Then, agent (subject), addressee (other), and object conform a whole unit in a co-genetic dynamic. This understanding is isomorphic with the triadic metaphor proposed by Pierce, on which the generative process of unlimited semiosis is based (Rosa, 2007).

At a higher level, the triadic structure constitutes a unit in the experience of learning, training, and guidance, displaying generative actions and meaning construction. The dynamic consists of a dyad, basically a dialogical relationship of part and counterpart – an Ego and an Alter (Marková, 2003) – that displays movements towards an immediate future, which are directed to the object of construction. The third of the relationship is emergence, a created and renewed object that along with it modifies the relationship with and between the dyad, projecting the dialogue forward.

Triadic Perspective of Semiotic Mediation

This triadic model is inherent to the training process in its emphasis on psychological development seen as mutual interdependence between positions, not like static and individual structures that undergo events of change, but ongoing process of continuous transformation (Valsiner, 2014; Zittoun et al., 2007). Taking Vygotsky's proposal, a useful reference is the mediation model through the *subject-other-object* triangle. Considering this theoretical assumption, the dynamics of the triangle lead to the process of semiotic mediation, that is, the creation of the

sign (Vygotsky, 1978). In order to adapt, human beings construct signs, so the possibility of accessing the world is from a sign-dependent mind (Innis, 2012). This proposal entails the psychological foundation of the semiotic process by way of which the self exists and is built in semiosphere (Valsiner, 2014). Accordingly, the process of the therapist's training is triadic, dialogical, and generative of signs and meanings.

Clinical Supervision Modalities

The clinical supervision can take three modalities based on the object of analysis: (1) the narrative, (2) the live supervision, and (3) the therapeutic scene. The supervision of the narrative carries out a clinical discussion after the therapeutic meeting. This practice conducts joint discussions and reflections between the supervisor and the supervised, which may include a team of colleagues, around the descriptions, perceptions, ideas, and feelings of the supervised. This process aims to facilitate the visualization of therapeutic skills in the professional in training as well as resources and potential in the consulting system through continuous decision-making. The supervision of the therapeutic session is a second modality referred to as *live supervision*. This activity takes place since the origins of the systemic model of family therapy, where the teamwork of therapists, co-therapists, supervisors, and peers constructed the theoretical approach, using a one-way vision mirror (we will refer to this kind of supervision further on this chapter). The *scene supervision*, third modality, considers the observation and review of brief videotaped excerpts from the session and allows focusing on reflection and analysis of therapeutic interventions. The reflection at this context allows elaborating distinctions regarding psychotherapeutic techniques and interactions from the relational systemic model, referring to the organization of the relationship, the quality of reciprocal exchange, and the positions that the therapist takes respect to each interlocutor. In the *scene supervision*, the therapist chooses a relevant moment of the session – previously video recorded – and observes it together with the supervisor and the team. The supervisor positions himself with the peers as observers of the interaction, with the purpose of analyzing the wide variety of the interaction including details, nonverbal aspects, or subtleties that bring new perspectives of that encounter. The supervised has an equivalent perspective when observing the video-recorded interaction in which he was an active participant, now from a meta-position. It entails a psychological distancing as the interaction is observed that enables reflection, while on the other hand, as he/she loses distance, he/she manages the feelings of being evaluated or criticized in his/her skills. The discussion and analysis of chosen moments of the session promotes to monitoring of microprocess at the therapeutic encounter, distinguishing actions, interactions, gestures, and words, arranged in sequences of dialogical construction.

Generalization and Contextualization

The process of clinical supervision develops a semiotic process of meaning construction. It is developed around the therapist's narratives with the aim of searching new understandings around the problem and the possibilities of overcoming it. The new meanings include values – such as health/non-health, responsibility, intention, care, risk, resources, and other concepts. The process follows a trajectory motivated by value adding and decision-making (Lehmann, Murakami, & Klempe, 2019). The specific therapeutic situation and problems of the consultants become the objects of elaboration and co-construction in supervision as the therapist in training edits the narrative. This kind of work elaborates on the life meanings of the consultants from their discourses, which the therapist categorizes and contextualizes. At the team meeting, these elaborations have a conversation with other possibilities, understandings, approximations, and definitions, in the search for clarity around the role of the therapist as to the decisions to make in therapy. Those possibilities come from the personal and professional experiences of each of the team members, the theoretical background of the discipline, as well as the local and global social context. It entails a semiotic process of meaning making such as proposed by Valsiner (2006, 2014) that carries out mutual feed-forward loops between contextualization and generalization/abstraction as well as between pleromatization and schematization.

> The increasing richness of experience leads to the formation of over-abundant pleromatic signs – with the need to cope with the richness through schematization. The generalizing abstraction of the schematized kind leads to emergence of new richness of experiential side – leading further to new pleromatic signs, which feed into further abstraction from that semiotic richness through schematization (Valsiner, 2006, p. 14).

Pleromatization refers to the undifferentiated, ambiguous, holistic, and abundant experience, which addresses both to the experiences of the professional in training and to the uncertainties of the consultants. The supervision process would carry out a sequence of transition between an experience as a whole and its categorization that at the same time constraints it, loose aspects of the experience, but leads to decision-making for the immediate future and solving the feeling of uncertainty.

The exercise of visualizing possibilities and formulating new meanings and actions is the stimulus to the continuing work that the therapist will do with the consultants. These understandings and generalized categories will act as starting points for new dialogues, to enable the pleromatic semiosis – the experience in its wholeness – and push for the meaning construction at the therapeutic context. This approach does not see the motive of consultation as fixed or static but in transformation and movement and the therapeutic process as generative. Additionally, the therapeutic dialogue interprets what the consultants live and the holistic field of meaningful actions (ibid., P.10) by signs and categories like metaphor or hypothesis. This process allows psychological understanding, which could be analogous to diagnosis.

Training includes developing skills related to the semiotic process. The semiotic model offers a theoretical and methodological framework for the clinical supervision process. The micro-process describes trajectories of meaning construction that unfold as chains where each new constructed sign establishes a dialogic relationship with another immediately previous one (Josephs, Valsiner, & Surgan, 1999). The relationships between the meanings constructed are of similarity, opposition, and ambivalence, which stimulate the progress of the process and the decisions that are made in the therapeutic conversation to regulate tension and uncertainty. This analysis allows to appreciate how the therapeutic relationship is being carried out, where the foci are placed, is the therapist focused on the contributions of the consultants and their affections, or is he/she diverting the relevant foci according to the way in which the tension is regulated. A central aspect for the maintenance of dialogue and the generation of meanings is that the semiotic tension fluctuates between intermediate levels, in such a way as to favor the creative impulse. An excessively stressed semiotic tension raises an emotional tension with it that can lead to a decrease in the generation of alternatives, to deviate attention or leave the field of meanings under construction and get relief. The micro-process analysis of the therapy allows reviewing the construction describing how the therapist tunes in with the levels of elaboration of the consultants and delivering conceptual tools for the exploration of the moments of difficulty and change in therapy.

Levels of Semiotic Construction

The emotional climate or atmosphere that develops in the therapeutic scenario is an important aspect of the formation of systemic therapists, since beyond the individual emotions of consultants and therapists, they reflect a perception of feelings, affections, or shared experiences, as preverbal, ambiguous, and diffuse states. It is the pleromatization of the therapeutic system. That includes even aspects of great intensity at key moments of the therapeutic encounter. Constructing meanings and bringing generalization contribute to the development of a perception of congruency to the consultants and the therapist.

One aspect to develop in the trainee is learning to recognize different signs, such as the use the consultants made of the physical environment (space), their gestures, body movements and dispositions, and then the verbal contents. That implies to learn the ability to respond to the experience of pleromatization paying attention to some part of the hyper-richness totally of experience – the climate – and selecting some details to elaborate it through abstraction and categorization. A first experience with the other could emerge from a pleromatic sign based on intuition, from more undifferentiated levels of experience, to take the construction towards planes of explicitness, definition, contextualization, and then generalization. This process takes different types of sign and levels of affective semiosis from a primary level of physiological activation to the categorical designation of feelings or emotions, followed by generalization, and then hypergeneralization (Valsiner, 2006, 2014, 2017). The pleromatic sign could emerge at the physiological or at the hyper-generalized layer.

For example, intuition emerges at the physiological level, while the notions of freedom, love, or loyalty are constructed at a hypergeneralized level. The affective experience on a first preverbal level is holistic and ideosyncratic. As it is processed and categorized, it advances at the level of generalization and loses its unique and ideosyncratic character. As the construction advances at a hypergeneralized level, it get to a new form of holistic experience at the macrogenesis process of culture. Distinguishing the different levels of hierarchy and abstraction of the sign allows orienting the reflection around the therapeutic dialogue by offering semiotic tools for mobilizing the emergence of possibilities. Participants in a dialogue can lead it by increasing or decreasing generalization, around particular, unique, ordinary, or shared aspects.

Guidance Process in a Temporality Frame

In the clinical supervision, different thinking heads analyze the possibilities for the therapeutic scenario. The therapist in training participates at the discussion and experiences (in the first person), the learning activity, and the relational process of co-construction. It is the pattern of supervision, a useful tool for the therapeutic reflection. Supervision is a process of guidance that is developed in a temporality frame through a regulated, organized trajectory that implies more than instances of reflection. It also involves accompanying a pilgrimage that describes sequences of transient stabilities, transitions, and passages (border crossings) towards objectives that mean new self-positions for those who participate (Marsico, 2016). In that accompany and be accompanied, the supervisor applies a cultural function, through mutual interdependence with the supervised and the object of the training. The effects of this function regulate the construction of images and concepts around himself as a professional, therapeutic skills, and social role. This function also involves the object of construction, the problem of the consultants, the therapeutic and supervisory relationship, and the discipline. The actions appealed by social purposes include dispositions and intentions of the actors towards constructing the professional discipline and knowledge, but also around the construction of adult role in society, or the practice of guiding and leadership roles. The process of clinical supervision as well as that of therapy is a process of thinking on the edge (Aristegui, 2015; Marsico, 2016). One objective is to develop in the supervised the ability to be in the process, attentive to the here-and-now, when flowing on the meeting at the continuous taking decisions – self-positioning – based on the relationship with recent, or more remote past, to enhance future possibilities. This is relevant, insofar as only the supervised person is in the emerging consultant-therapist relationship. The supervisor's action is catalyzer for this construction process. As catalyzer, it establishes limits and regulations for external suggestions – contributions from the therapist in training, team members, and members of the consulting system – to be compatible with their elaborations concerning the needs of the process, facilitating the connection between previously disconnected notions, and enabling the transition of meanings among intersubjective spheres. The abductive reasoning favors the

meaning emergence. It differs from deductive or inductive thinking, as the ability to construct hypotheses, offering them as possibilities in dialogue (Rosa, 2007).

Dialogicity

Different visions converge in the work at the clinical supervision. For instance, at the live supervision, the supervisor together with some peers observe the interaction between the therapist and the family, while another team observes the interaction between supervisor and supervised therapeutic system. The Milan group was the pioneer of this modality, demonstrating at the team meeting after the session that different observers, from their different positions, provide very different visions and descriptions of what they observe (Elkaim, 1985). The supervisor, as observer of the therapeutic session, must face the immediacy of the activity that leads him to focus more on the effect of the interventions and on the trajectory of the therapeutic interaction, orienting (through his interventions by a cytophone) towards certain directions and not others, depending on the objectives to achieve for that particular meeting. From his/her role, he/she "dialogues" with two interlocutors or recipients, on the one hand with the therapeutic system as a relational organization, and on the other with the therapist in training, from his/her intentions and behavioral, emotional, and cognitive dispositions. On the other hand, the team that observes the supervision system will focus more on the constructions, distinctions, the interaction between the different actors, supervisor-therapist-members of the consulting system, and the ways in which they are organized. The richness of this process is the inclusion of wide possibilities of variability in the analysis perspectives. The actors share the object of co-construction of the clinical supervision and the display of the therapeutic session. Different dialogues approach this object: the therapist with the consulting system, the therapist with his supervisor, the supervisor with the therapeutic system, and the team with the supervision system – supervisor-supervised (see scheme). Every dialogue entails internal and external exchanges. For example, the therapist maintains an external exchange with his consultants and the supervisor, while internalizing voices and evoking other previously internalized towards the generation of ideas and meanings that contribute to the construction of the ongoing therapeutic process (Fig. 2).

This dialogical model allows expanding the range of possibilities for the life of the consultants and offering dialogical chains of explicit and implicit levels for developing understandings and conceptualizations. Those understandings go beyond what the team and each participant manage to categorize, enunciate, and explain in common. The therapeutic and supervision scene displays a pleromatic construction. Dialogue implies openness toward different positions where each participant enters into a relation of co-determination, in the transience of experience and uncertainty of the future. In this dialogical space, permanence and movement are shaped in a mutual relationship. From this perspective, learning experience implies a process of internalization of alter positions or positions referred to the other. The supervisor provides a position, a sign, that brings new resources to the self-image

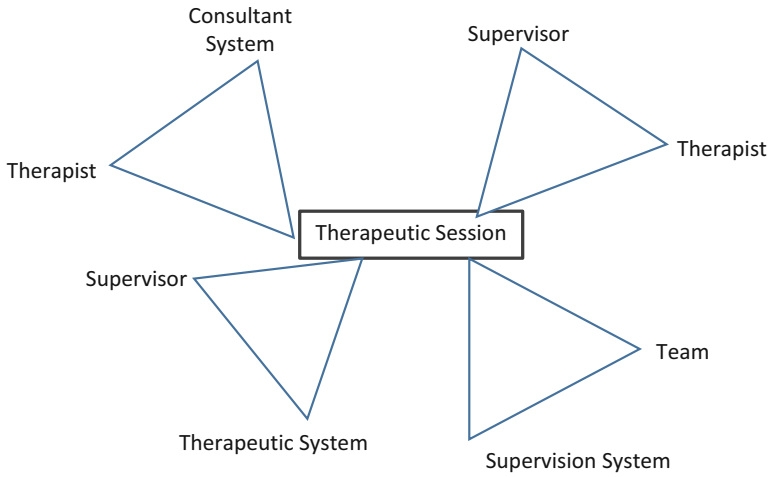

Fig. 2 Relational pattern of the live supervision based of the organization of multiple voices in dialogical tryad around the therapeutic session

and ideas of the trainee (built on imaginations and signs) to perceive himself as an agent with skills, knowledge, and autonomy in his role as a therapist.

The supervisor is not a specialist who manages predetermined information, as he/she does not guide a pre-established itinerary. He/she is an actor that subjectively adopts positions and provides meanings for the process of transformation. The dialogicity at the here and now disposes the relationship between diversity of meanings to produce semiotic tension with asymmetry. That asymmetry pushes the actors to take positions in the dialogue in the search for a novelty that results in overcoming that tension.

Part of teamwork involves an exchange of different or opposite positions. For example, in the case of a particular case, a student can focus on how to favor the change expected by the index patient; another may be focused on the meanings and emotions of the family that hinder change, while another can elaborate on the meanings and function of the symptom in the organization and family history. Looking from different perspectives allows connecting partial and individual visions of different problems and leads to systemic and complex thinking.

Diversity of Dialogues and Aims

The supervisee copes with different objectives that he or she needs to balance with the mediation of the supervisor. On one hand, there are emotional needs such as the feeling of being capable, approved, confirmed, validated, and supported by the supervisor. It is an objective to the supervisor as well to help to construct self-trust and confidence in the trainee that will allow him/her to be calm and take advantage of his resources to prioritize and be attentive to the needs of the consultants. In order to

enhance these feelings, he or she will construct the confidence in his/her ability to think and decide on what to do in the therapeutic context.

On the other hand, the specialized discipline knowledge is the content the trainee needs to assimilate. The knowledge comprehends *the signs* that the therapist needs to focus in order to have significant information about the consultants and their problems, *the techniques* that help to address the signs, and *the thoughts* that come from the theoretical perspective used for constructing meanings and understanding about selves, others, and relationships and difficulties, pain, and relief. Usually, the supervision open conversation focuses on knowledge. On the other hand, the not said – the subtext – is expressed probably through gestures, postures, accent, and tone of voice and is concerned with affects, emotions, values, and particularly opposition and diversity. The supervisor is challenged to address the not said and the opposition, not referring directly but circumventing it with meanings and topics slightly related to the problems the consultants have. The supervisor needs to manage the emotional tension and at the same time allow the construction of new knowledge related to the discipline. His/her function is to regulate these explicit and implicit dialogues that make arise emotional tension as well as semiotic tension of the conceptual construction. The emotional climate of the discussion will manifest the congruency of this regulation –mediation – and how the focus related with emotional needs and knowledge assimilation is kept in the meaning construction.

In addition, and on the other side, the supervisor manages two agendas in his mind: A personal agenda of own professional development and the aims of helping the trainee to develop psychotherapeutic competences. So, the professional in training in his/her turn acts as a mediator of the inner dialogues of the supervisor, between his personal needs and his role.

Every interaction entails at least two objects of meaning construction: the explicit content of the elaboration, in this case the concepts concerning psychotherapy, and the emotional definition of the relationship (Watzlawick, Beavin, & Jackson, 2002). The last issue entails fuzzy feelings about acceptance, validation, or sympathy that lead to define the relationship as collaborative, friendly, authoritarian, conflictive, or hostile.

The Person of the Therapist: From An Individual and Structural to a Dialogical and Temporal Understanding

An aspect of clinical supervision is the attention to the therapist, as the subjective experiences affect the quality of the resulting professional action. The intergenerational model proposed by the psychiatrist Murray Bowen (Kerr, 1984) has been considered useful for that purpose. It postulates the learning of patterns of interpersonal behavior within the family of origin, which would be brought by the therapist to interactions with patients, supervisors, and peers. From this conceptualization, clinical psychological formation would be aimed at making the supervisor aware of these patterns and developing strategies that allow him to interrupt the models that govern them (Harber & Hawley, 2004). Considering the concept of

intergenerational transmission and differentiation, this model raises a debate between repetition/transformation dynamics, differentiation/undifferentiation, and evolution/stagnation and stresses notions of functionality or dysfunctionality of behaviors and relationships. The assumption of patterns and repetition does not seem to agree with the concept of open systems. The concept of pattern repetition comprises an ontological notion of static entity in the absence of transformation or development. The theoretical proposals of these models are based on a broad clinical trajectory and psychotherapeutic experience. Using their contributions can be useful reconceptualizing them in a relationship of inclusive opposites (Valsiner, 2014) of structure/process, stability/transformation where dialogue, change and temporality are integrated. From there, we can explain that transgenerational processes display recursive relationships between systems and self-positions in time living, that is in the local and temporal context. On the other hand, the proposal of invisible loyalties (Boszormenyi-Nagy, 1997) and resistance to the differentiation of the family of origin does not seem consistent with the conceptualization of development defined by differentiation. Differentiation implies building identity and creating personal postures and refers to the construction of the self. The dialogical model (Ribeiro & Gonçalves, 2011) regards the self as a multivoiced space that is built through the internalization of the "others." The self-construction addresses two complementary and included processes of belonging and differentiation. It is an open and dynamic process, which goes on with temporality as it revises lived experiences with the family of origin editing them by means of a reconstructive memory. The process transforms each evocation in the very action of remembering. The cultural, semiotic, and dialogical perspective contributes to overcome the view of dysfunction and transgenerational transmission as obstacles for transformation and fixed entities as it points at new horizons of novelty and diversity.

On the other hand, relational practices associated with significant moments in personal histories reveal complex processes of cultural regulation that seek to ensure the inclusion of members to its institution, such as the family. But still, there are other institutions related with the local contexts and its values that regulate ways of living, relationships, coexistence, religious beliefs, and so on. The notion of cultural regulation becomes part of the analysis of self-construction in which relational phenomena are transforming processes between personal, local, and more global contexts.

The Clinical Supervision as Collaborative Learning

The dialogical conceptualization also finds a basis in the development of conversational and language-based models (Gergen, 2006). These, known as constructionist models, define supervision not by an expert role of the trainer. It incorporates the observer as part of the system, visualizing the supervisor as part of the therapeutic one. The supervision intends to the therapist to develop curiosity and collaboration. These ideas are also consistent with humanistic models of psychotherapy. The humanist models point to the development of a reflexive process, highlighting the

action of sense construction which is not instrumental (Aristegui, 2015). This view of psychotherapy takes the perspectives of reflexivity and flexibility, in relation to meaning construction and sense of one's life, the self, and its environment, opened to possibilities, and generating novelty. The dynamics of semiotic process that enable that flexibility are tension, ambivalence, and psychological distancing. They operate in this process facilitating the collaboration and elaboration of the senses of self and life (Molina & Del Río, 2009). The focus is no longer on a reality that needs to be discovered and known – because it is preexisting – but rather a reality that is built with others, is co-constructed, and is part of what does not yet exist, which belongs to the possibilities of the near future, *what should be* (Valsiner, 2014). A formation that is theoretically based on a circular thought, recognizing that there are no certainties but hypotheses, enables collaboration in practice and prevents dynamics of rivalry among the participants of that process.

The not-knowing position questions the idea of *generality* as an ontological value and emphasizes *particularity.* The non-expert position of the supervisor implies a respect towards a person and his experience as "other" who responds, demands, and brings possibilities to the expansion of horizons (Tateo, 2016). This co-construction, consequently, manifests itself in an idiosyncratic way, space-temporarily located, that is, contextualized and unique (De Luca Picione & Valsiner, 2017). Therefore, from this perspective, the supervisor is a collaborator in a mutual search for ideas generation and knowledge development, in the course of an interaction between supervised and the rest of the team in a peer relationship. Therapy and clinical supervision are similar processes of dialogue and co-construction, but not isomorphic: Clinical supervision is not therapy. The above implies that the training process is more focused on the meanings of therapy and supervision and less on intimate personal aspects of the supervised. Focusing on the individual sphere of the therapist could lead to restricting the possibilities for new conversations and introducing new limits in a scenario of greater intimacy, where the person of the therapist receives attention in a relational organization that ceases to be symmetric. The focus, in such a case, would be on his/her privacy but not towards the intimacies of the team members, who remain as external distanced observers of the process, with less active participation.

Conclusion

We have referred to the process of clinical supervision and training of systemic therapists as a continuum of experience and knowledge generation. The result of this moving process makes the disciples become diffusers and developers of the therapeutic thinking and knowledge.

The training process integrates diverse goals, such as training in skills, internalizing rules of the therapeutic process, as well as exercising creativity and self-confidence to be in the here-and-now of the exchange and construction. It is at the same time following and disobeying the supervisor guidance in order to cross borders to enhance knowledge and experience. From this perspective, change is

not a goal, but to generate possibilities of meanings, asymmetries, and tensions, seeking the trainee develops confidence in them and becomes their own agent. Agent, in a broad sense of the term, is a subject that positions him/herself from its intentions and subjectivities and relates to another, allowing the other to question and provoke him/her in order to receive answers.

The main activity is creation, where expectations need to be regulated and assumptions questioned, so difference becomes the purpose. Like every constructive process, many times we think of what we intend to build as something to discover, as if it were already somehow, somewhere. To develop ideas and imagining, the future entails the cognitive processes needed to enter that creation, but not for those goals to be achieved but to experience that the new experiences exceed the anticipated.

Cross-References

- ▶ Cultural Psychology
- ▶ Community Psychology and Psychological Distress
- ▶ Developmental Psychology: Moving Beyond the East–West Divide
- ▶ Epistemology of Psychology
- ▶ Qualitative Methodology
- ▶ The Methodology Cycle as the Basis for Knowledge

References

Aristegui, R. (2015). Social constructionism and discussion of paradigms in psychology: Indeterminacy, holism and language games vs. In *Theory pictorial language*. Ohio, Taos: Institute Publications/WorldShare Books.

Boszormenyi-Nagy, I. (1997). Response to "are trustworthiness and fairness enough? Contextual family therapy and the good family". *Journal of Marital and Family Therapy, 23*(2), 171–173.

De Luca Picione, R., & Valsiner, J. (2017). Psychological functions of semiotic borders in sense-making: Liminality of narrative processes. *Europe's Journal of Psychology, 13*(3), 532–547.

Elkaim, M. (1985). *Formaciones y prácticas en terapia familiar.* Buenos Aires: Ediciones Nueva Visión.

Gergen, K. (2006). *Therapeutic realities: Collaboration, oppression, and relational flow*. Chagrin Falls, Ohio: The Taos Institute Publications.

Gilbert, M. C., & Evans, K. (2000). *Supervision in context. Psychotherapy supervision: An integrative relational approach to psychotherapy supervision*. Maidenhead, BRK, England: Open University Press.

Harber, R., & Hawley, L. (2004). Family of origin as a supervisory consultative resource. *Family Process, 43*(3), 373–390.

Innis, R. (2012). Meaningful connections: Semiotics, cultural psychology, and the forms of sense. In J. Valsiner (Ed.), *The oxford handbook of culture and psychology*. London; Oxford University Press.

Josephs, I. E., Valsiner, J., & Surgan, S. E. (1999). The process of meaning construction. In J. Branststätdter & R. M. Lerner (Eds.), *Action & self-development* (pp. 257–282). Thousand Oaks, Ca: Sage.

Kerr, M. (1984). Theoretical base for differentiation of self in one's family of origin. *The Clinical Supervisor, 2*(2), 3–36.

Lehmann, O., Murakami, K., & Klempe, S. (2019). A qualitative research method to explore meaning-making processes in cultural psychology. *Sozialforschung/Forum: Qualitative, Social Research, 20*(2). https://doi.org/10.17169/fqs-20.2.3190

Marková, I. (2003). *Dialogicality and social representations*. Cambridge: Cambridge University Press.

Marsico, G. (2016). The borderland. *Culture & Psychology, 22*(2), 206–215. https://doi.org/10.1177/1354067X15601199

Molina, M. E. & Del Río, M. T. (2009). Dynamics of psychotherapy processes. J. Valsiner, P. Molenaar, M. Lyra N. Chaudhary. Handbook dynamic process methodology in the social and developmental science, New York: Springer-Verlag.

Ribeiro, A. P., & Gonçalves, M. M. (2011). Maintenance and transformation of problematic self-narratives: A semiotic-dialogical approach. *Integrative Psychological and Behavioral Science, 45*, 281–303.

Rosa, A. (2007). Acts of psyche: Actuations as synthesis of semiosis and action. In J. Valsiner & A. Rosa (Eds.), *The Cambridge handbook of sociocultural psychology* (pp. 205–237). New York, NY, US: Cambridge University Press. https://doi.org/10.1017/CBO9780511611162.013

Simao, L. (2012). The other in the self: A triadic unit. In J. Valsiner (Ed.), *The oxford handbook of culture and psychology*. London: Oxford University Press.

Tateo, L. (2016). Toward a cogenetic cultural psychology. *Culture & Psychology, 22*(3), 414–423.

Valsiner, J. (2006, June). The overwhelming world: Functions of pleromatization in creating diversity in cultural and natural constructions. International summer school of semiotic and structural studies, Imatra.

Valsiner, J. (2014). *An invitation to cultural psychology*. London, New Delhi: Sage.

Valsiner, J. (2017). *Between self and society: Creating psychology in a new key*. Tallinn: ACTA Universitatis Tallinnensis.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. London: Harvard University Press.

Watzlawick, P., Beavin, J., & Jackson, D. (2002). *Teoría de la comunicación humana: Interacciones, patologías y paradojas*. Herder: Barcelona.

Zittoun, T., Gillespie, A., Cornish, F., & Psaltis, C. (2007). The metaphor of the triangle in theories of human development. *Human Development, 50*, 208–229.

Medical Education

40

Ricardo Gorayeb and M. Cristina Miyazaki

Contents

Abstract

Behavioral and social variables play an important role on health and illness. If future physicians are to care effectively for their patients using the biopsychosocial model of healthcare and can identify and deal adequately with the stress associated with medical school and the practice of medicine, then psychology has much to contribute to the medical school curriculum. However, there are several barriers to integrating psychology in medical schools, such as irrelevant course objectives to medical practice and the predominance of the biomedical model. Overcoming these barriers requires integrating psychology in healthcare to improve outcomes, such as increasing patients' healthy behaviors and treatment adherence. This chapter presents a brief history of psychology in medical schools, barriers to integrate psychology into medical education, and recommendations to overcome these barriers and integrate psychology into the medical curriculum. It proposes contributions from psychology to medical education based on the different roles played by physicians.

R. Gorayeb (✉)
School of Medicine, São Paulo University, Ribeirão Preto, Brazil

M. C. Miyazaki
School of Medicine, FAMERP, São José do Rio Preto, Brazil
e-mail: cmiyazaki@famerp.br

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The role of behavioral and social variables in the etiology, prevention, evolution, treatment, and rehabilitation of diseases with high prevalence rates is now well established in the literature (Braveman & Gottlieb, 2014; U.S. Department of Health and Human Services, 2020; Saunders, Barr, McHale, & Hamelmann, 2017). Behavioral and social variables also have an important role on other problems present in healthcare systems, such as healthcare disparities, errors, patient safety, and health professionals' mental health (Association of American Medical Colleges, 2011).

Medical students, therefore, must be prepared to deal with important challenges related to social and behavioral issues, including taking care of their own health, during and after training (Puthran, Zhang, Tam, & Ho, 2016). This concern is present in the Global Standards for Quality Improvement for Medical Education (World Federation for Medical Education, 2020), a guide to the development and evaluation of medical education that can be applied and modified to different settings. Some of the key questions regarding curriculum content, according to the Global Standards for Quality Improvement for Medical Education, are which components of behavioral and social sciences (BSS) should be included in the medical curriculum, why they should be included, and how much time is allocated for each component.

According to Harden and Carr (2017), BSS must be integrated into the medical school curriculum if future medical doctors are to provide integrated biopsychosocial care. The use of the biopsychosocial model, proposed in the late 1970s (Engel, 1977), remains a challenge for the expansion of the biomedical model, still widely used in health. Despite criticisms, the biopsychosocial model has significantly influenced teaching, practice, research, and public policies in health in different countries (Farre & Rapley, 2014; Wade & Halligan, 2017). Thus, it is important to understand how social and behavioral components have been included in medical education.

An adapted definition of Behavioral and Social Sciences, based on the National Institutes of Health Office of Behavioral and Social Sciences Research (OBSSR), is provided by the Association of American Medical Colleges (2011):

> The Behavioral and Social Sciences are defined as the sciences of behavior, including individual psychological processes and behavioral interactions, and the sciences of social interaction, including familial, cultural, economic, and demographic. The core areas focus on the understanding of behavioral or social processes and on the use of these processes to predict or influence health outcomes or risk factors (p. 6).

Psychology, therefore, is one of the subjects often included in medical school curricula. A brief history of the teaching of psychology in medical schools is given below.

History of Psychology in Medical Schools

Reports on the relevance of psychology in medical education date from the end of the nineteenth century and beginning of the twentieth century. According to Dearborn (1901), from the Tufts Medical School, physicians need to take psychology during medical school since medical practice is concerned with individuals having body and mind. The first departments of medical psychology in medical schools around the world date from the early 1950s (Cripa, 2019; Matarazzo, 1994; Robiner, Hong, & Ward, 2020).

The Flexner Report published in 1910 – with a critique of medical education in America and taking the German model as an example – greatly improved medical schools in America and placed scientific knowledge at the center of medical education. However, despite its benefits, excellence in science was not balanced with excellence in clinical care. Quoting Edmund Pellegrino, Duffy (2011) points out that "doctors had become neutered technicians with patients in the service of science rather than science in the service of patients" (p. 275).

The publication of the Flexner Report was followed by intense debate over the medical curriculum. Despite psychologists' efforts, psychology was not included as a basic course in the medical curriculum at the time (Pickren, 2007). According to psychologist Fred Wells (1913, p. 177) "... if psychology is to be successfully taught to medical students, it must afford them something they can use." Moreover, psychologists' partners at the time – psychiatrists and neurologists – were not included among the leaders of medical education (Pickren, 2007).

In the second half of the twentieth century, psychology was increasingly included in medical education in the United States (Matarazzo, Carmody, & Gentry, 1981). The development of solid clinical skills in the field, research data showing the contribution of psychology in the prevention, treatment, and rehabilitation of health problems, as well as the development of health psychology, strongly contributed in showing the important role of psychology and psychologists in healthcare (Pickren, 2007).

In Europe, higher education reform, through the Bologna Declaration, 1999, aimed to achieve greater compatibility and comparability among higher education systems, eliminating obstacles to the free mobility of students, teachers, and scientists. An analysis of 32 European medical schools from 18 countries, during the reform implemented after the Bologna Declaration, concluded that "about two-thirds of the curriculum included Psychology as a separate course, although this was recommended by the Advisory Committee on Medical Training of the European Union" (Dušek & Bates, 2003, p. 28).

According to Visser (2009) "to practice evidence-based medicine, doctors must know how psychological and behavioral factors influence health and illness: medicine should be taught from a biopsychosocial perspective. However, this does not appear to be the case. The hidden curriculum makes a separation between the 'need to know' biomedical sciences, and the 'nice to know' behavioural and social sciences" (p. 20).

Although teaching psychology has advanced since its insertion in medical schools, many obstacles are still present.

Barriers to Integrating Psychology in Medical Schools

Despite evidence about the relevance of behavioral or psychological factors to health and illness, psychology is not yet a fundamental component of the medical curriculum. Different schools still choose which aspects of psychology to include in their curriculum and how. In addition, the acceptance and appreciation of psychology by medical students is still low, and the discipline is seen as "soft and fluffy" (Galagher, Wallace, Nathan, & McGrath, 2015, p. 91).

Identifying the barriers to integrating psychology in medical schools is relevant, since this identification enables outlining strategies to overcome them. Table 1 shows some of these barriers.

Overcoming Barriers to Teaching Psychology in Medical Schools

If psychology is to be properly integrated into the medical curriculum, its relevance for the practice of medicine must be acknowledged by managers and educational policy makers – those responsible for allocating time for psychology into the curriculum. To achieve this goal, psychology must be integrated into medical practice, and clinicians and psychology faculty members must learn to cooperate (Tabatabaei et al., 2016).

Table 1 Barriers to integrating psychology into the medical curriculum

1. Little knowledge about the role of psychology in the medical curriculum
2. Discipline objectives are not relevant to medical practice
3. Inefficient leadership
4. Resistance to change and to curriculum change
5. Lack of:
   - Qualified teachers
   - Adequate financial resources
   - Consensus between medical and psychology professors
   - Power by psychology professors
   - Space assigned to the discipline
   - Well-defined objectives
   - A systematic integration of psychology in all stages of medical education (vertical integration)
6. Predominance of the biomedical model in medical education and practice
7. Existence of a hidden curriculum with inadequate role models during clinical courses
8. Students' negative attitude towards the discipline (e.g., unhelpful, subjective, "soft and fluffy," "nice to know" but not "need to know," not agreeable to medicine, does not have a big role like other disciplines)

Note: Data are from Daltro, Jesus, Bôas, & Castelar, 2018; Galagher et al., 2015; Institute of Medicine, 2004; Litva & Peters, 2008; Ouakinin, 2016; Russell, Teijlingen, Lambert, & Stacy, 2004; and Tabatabaei, Yazdani, & Sadeghi, 2016.

Professionals from several areas are part of healthcare teams and able to show how different professions – including psychology – can contribute to better patient care. The growth of health psychology, as a field of practice and research, has provided an excellent opportunity for psychologists to work with other healthcare professionals, including physicians from different areas (Duarte, Miyazaki, Blay, & Sesso, 2009; Gorayeb, Borsari, Rosa-e-Silva, & Ferriani, 2012; Lutfiyya, Chang, McGrath, Dana, & Lipsky, 2019; Ward, Shaffer, & Testa, 2018).

Interprofessional work can show the relevance and contribution of different professions to improved care, effective treatment, and cost reduction in healthcare systems. Although research about benefits of team-based work in the area is still needed, healthcare systems in several countries advocate for it (Lutfiyya et al., 2019; Nguyen et al., 2020; Robiner et al., 2020). A medical professor who sees the benefits of interprofessional work in their practice will advocate for this kind of collaboration and is an adequate (and good) role model for medical students.

The term "hidden curriculum," also known as "informal curriculum," "medical culture and enculturation," and "institutional values," is frequently highlighted as one possible cause why "psychology as a discipline continues to struggle for space and acceptance against the biomedical sciences in the medical curriculum," regardless of when it is taught during the course (Galagher et al., 2015, p. 98). Psychology must show its relevance to the practice of medicine to change from a low status subject and become accepted and valued in medical education. Thus, some important questions must be answered: What psychology should medical students learn? How should it be taught? And when?

Helping medical students integrate psychology content to their medical practice is central since there is growing evidence that psychological and social factors are relevant for health and disease. However, a more practical approach has been recommended in place of teaching psychological theories, which often make little sense to students (BeSST, 2010; Galagher et al., 2015).

Clinical teaching scenarios may help medical students understand how several disciplines can significantly contribute to patient care.

- Example: A woman with recently diagnosed breast cancer seeks a physician to help her deal with the situation and develop a "health strategy." She complains to a medical student that she is receiving treatment options instead of health strategies.
- How can psychology contribute with the case?
  - Identifying the emotional, cognitive, and social consequences of the diagnosis
  - Recognizing the influence of those consequences on clinical outcomes
  - Determining which important decisions concerning treatment the patient must make and how these decisions will impact the patient's coping style (AAMC, 2011)

Besides knowledge on behavioral sciences, faculty must adopt new teaching methodologies, like moving from lectures to small group problem-based learning. Career development programs must be established to promote strong leadership and

competent faculty, necessary for the advancement of behavioral sciences in medical education (e.g., time away from other commitments to focus on improving skills) (Institute of Medicine, 2004).

Several reports (e.g., AAMC, 2011; BeSST, 2010; Institute of Medicine, 2004) and scientific literature from around the world (Benbassat, Baumal, Borkan, & Ber, 2003; Cordingley et al., 2013; Harden & Carr, 2017; McKinley & Ghaffarifar, 2021; Robiner et al., 2020) have advocated for the relevance of social and behavioral sciences on medical education. According to Daltro et al. (2018), psychology should promote competence for a reflexive, ethical, and humanistic practice, especially in patient-physician interactions.

The Behavioral and Social Science Matrix (AAMC, 2011) – based on the Canadian Medical Education Directions for Specialists or CanMEDS (Frank, 2005; Frank, Snell, & Sherbino, 2015) and the Institute of Medicine's (IOM), 2004 document for behavioral and social sciences knowledge and skills – helps assess medical students and physicians on their clinical approach of patients (Table 2). Thus, it follows that psychology faculty in medical schools should be familiar with the matrix.

Physicians' roles and behavioral and social knowledge shown on Table 2 (AAMC, 2011; Frank, 2005; Frank et al., 2015) indicate several necessary skills and competences to practice medicine that may be developed during medical school. Medical education accreditation requires similar skills and competences approved by WHO member states. Several organizations have endorsed the relevance of behavioral and social knowledge among physicians (WHO, 2016; World Federation for Medical Education, 2020).

One of the objectives of the WHO (2016) Global Strategy on Human Resources for Health: Workforce 2030 is that "by 2020, all countries will have established accreditation mechanisms for health training institutions" (p. 17). This will facilitate "global labour mobility and the international recruitment of health workers from low-resource settings" (p. 12).

Teaching Psychology in Medical Schools

According to the American Association of Medical Colleges (AAMC, 2011), "A complete medical education must include, alongside physical and biological science, the perspectives and findings that flow from the behavioral and social sciences" (p. 4). Several organizations in different countries have recommended the inclusion of behavioral and social sciences in the medical curriculum to improve patient care and public health (e.g., AAMC, 2011; General Medical Council – GMC, 2015). Psychology contributions to medical education can be grouped in several categories, as presented in Table 3. Indications of material regarding each topic will be briefly presented to complement Table 3.

An evidence-based consensus behavioral sciences curriculum was developed by Cordingley et al. (2013) with the participation of medical practitioners, psychologists, and medical educators. It is important to note that those experts agreed that medical

Table 2 Physicians' competency according to CanMEDS and IOM

Physician roles according to CanMEDS
Medical expert: Integrates "all of the CanMEDS roles, applying medical knowledge, clinical skills, and professional values in their provision of high-quality and safe patient-centered care" (p. 14)
For example, clinical reasoning, compassion, medical expertise, patient safety
Communicator: Establishes "relationships with patients and their families that facilitate gathering and sharing information for effective healthcare" (p. 16)
For example, active listening, attention to psychosocial aspects of illness, empathy
Collaborator: Conducts effective work "with other healthcare professionals to provide safe, high quality, patient-centered care" (p. 18)
For example, constructive negotiation; respect for other physicians and members of the healthcare team
Leader: Contributes with others "to a vision of a high-quality health care system and takes responsibility for the delivery of excellent patient care" (as clinician, administrator, scholar, teacher) (p. 20)
For example, effective committee participation; negotiation; personal leadership skills
Health advocate: Commits to improve health
For example, "work with patients and their families to increase opportunity to adopt health behaviors"; "work with a community or population to identify the determinants of health that affects them" (p. 23)
Scholar: Commits to excellence in practice through lifelong "learning, teaching others, evaluating evidence, and contributing to scholarship" (p. 24)
Professional: Commits "to the health and well-being of individual patients and society ethical practice, high personal standards of behaviour, accountability to the profession and society, physician-led regulation, and maintenance of health" (p. 26)
IOM behavioral and social sciences knowledge domains with examples
Patient behavior: Patients' verbal and nonverbal clues about feelings
Mind-body interactions: Psychosocial aspects of pain
Physician role and behavior: Convey HIV results without assumptions that could endanger the therapeutic relationship
Physician-patient interaction: Establish rapport to build a partnership
Health policy, economics, and systems (including population health): Address issues of patients' access to care
Social and cultural context: Identify community resources useful to patients

Note: Data are from AAMC, 2011; Frank, 2005; Frank et al., 2015; Harden & Carr, 2017

students needed only "to achieve sufficient understanding of a topic to inform their practice and decision making," and not to become psychology specialists.

– **Core Knowledge**
  - ***Biopsychosocial approach*:** The biopsychosocial approach clarifies the link between psychological and social factors on health and illness, which are determined by multiple factors at different levels. Using the biopsychosocial model requires the inclusion of psychological and social factors on medical education and should lead to better healthcare training. Ayers and de Visser (2021) discuss how to teach and use the biopsychosocial model on medical and healthcare education, using clinical cases as examples.
  - ***Concepts of health, illness, and disease*:** By discussing several definitions of health, its implication for treatment, and different clinical cases, Ayers and de

Table 3 Psychology contributions to medical education

Core knowledge
• Biopsychosocial approach
• Concepts of health, illness, and disease
• Psychological or behavioral factors that contribute to health and illness
• Psychological responses to illness
• Psychosocial development across the lifespan
• Stress and coping
• Cognitive functions in health and illness
• Behavioral change and treatment adherence
• Management of patients with dependence issues
• Psychosocial aspects of pain
Professional practice
• Effective communication skills
• Self-care (e.g., stress management)
• Personal values and attitudes
• Teamwork skills

Note: Data from AAMC, 2011; Ayers & de Visser, 2021; Cordingley et al., 2013; General Medical Council, 2015; Ouaquinin, 2016

Visser (2021) show the importance of psychology for treating the person, not just the disease.

- ***Psychological or behavioral factors that contribute to health and illness*:** These factors are discussed by Taylor (2017), who also presents an overview of health promotion, changing health habits, and several approaches to health behavior change (cognitive-behavioral approach to health behavior change; the transtheoretical model, changing health behaviors through social engineering, and venues for health habit modification).
- ***Psychological responses to illness*:** People hold individual beliefs (which may or may not be accurate) about Illness that will shape the way they respond to it (e.g., information they give to health professionals, choice of treatment, treatment adherence). Known as the self-regulation model of illness behavior, the five dimensions of illness representation include identity (symptoms, label), timeline (time to develop and duration), consequences, causes, and controllability (Petrie & Weinman, 1997). Ayers and de Visser (2021) present all five dimensions of illness representation and present cases to illustrate their influence on how people manage their illness according to their beliefs (see also Martin, Haskard-Zolnierek, & DiMatteo, 2010).
- ***Psychosocial development across the lifespan*:** Cognitive and social development from conception to death and its influence on health and illness (e.g., Center on the Developing Child at Harvard University, 2016)
- ***Stress and coping*:** Definition and physiology of stress, chronic stress, coping, social support, resilience, and coping strategies. This is an important topic to medical students (medical education and practice are related to high levels of stress) and may be also used to teach them to identify their own stress and to use coping strategies to manage it in a positive way (Taylor, 2017).

- ***Cognitive functions in health and illness*:** Memory, learning, sleep and consciousness, attention, perception, and language (e.g., cognitive aspects of aging, effects of sleep deprivation). Sleep deprivation is also an important topic for medical students who have a high prevalence of sleep problems (Azad et al., 2015). The discussion about sleep is also an opportunity to identify students at risk for sleep disorders and refer them to professionals.
- ***Behavioral change and treatment adherence*:** These are important aspects of healthcare. Helping patients to change behaviors that compromise health and promoting treatment adherence are important parts of a physicians' work. Ayers and de Visser (2021) and Taylor (2017) comprehensively present the behavioral and social factors associated with the main causes of morbidity and mortality (WHO, 2020). These authors also discuss strategies to understand and improve patient adherence. Martin et al. (2010), especially Chaps. 6 (Relationships and communication between caregivers and patients) and 7 (Effective collaboration with patients – on a tight schedule), are of particular interest for future physicians.
- ***Managing dependent patients*:** Substance use is an important and prevalent health issue. Substance users seek healthcare services for several problems, and physicians can identify and refer those patients for adequate care. The "Mental health professionals' guide to understanding harmful substance use," in Schumacher and Williams (2020), written for mental health professionals working in medical settings, is useful to understand the distinction between "substance use and harmful substance use as well as the signs and symptoms of substance use disorders" (p. 11).
- ***Psychosocial aspects of pain*:** Although pain is one of the most common reasons to see a physician, it remains undertreated. Rosenberg (2012) provides a comprehensive paper on the subject, which may help medical students understand the complexity of the problem, the strategies used to assess pain, and the need to refer many patients to pain specialists.

– **Professional Practice**
  - ***Effective communication skills*:** Healthcare practice occurs through social interaction, so effective communication is essential for all healthcare professionals. In most medical schools, teaching communication skills is centered on the doctor-patient relationship and uses roleplaying (Skelton, 2017). Several good books have been published on this subject (e.g., Silverman, Kurts, & Draper, 2013). Skelton (2017) offers many suggestions of readings, relevant websites, and online teaching resources. When psychologists teach communication skills, it would be useful to partner-up with physicians who can be role models for students. Other issues like family interviewing, interviews with patients on different stages of development (e.g., children, adolescents), angry patients, breaking bad news, talking with grieving families, and discussing advanced directives should also be included in communication skills training. When teaching communication skills, one must also include (when not already included on other sections of the curriculum) other types of communication, such as relationship with colleagues, other healthcare professionals, community, critical reading, writing (e.g., reports), and self-presentation (e.g., clothes).

- ***Self-care*:** Stress, anxiety, and depression among medical students and physicians are well documented (Institute of Medicine, 2004). In medical school, students should learn stress management strategies to reduce psychological distress and anxiety; to recognize risk factors and signs of depression, anxiety, burnout, and substance abuse; and to know when to seek professional help. Medical students should also learn "to adopt wellness strategies that promote . . . wellbeing, . . . to create healthy, intimate relationships, to clarify personal values, and to openly discuss realistic strategies for creating balance in their lives" and include this in their professional lives (Institute of Medicine, 2004, p.71). Psychologists, because of their training, are in a good position to promote, as part of the medical school curriculum or as extra-curriculum activities, the well-being and emotional health of students.
- ***Personal values and attitudes*:** The personal values of medical students and physicians play an important role in their attitudes towards and interactions with others and influence their clinical decisions (Moyo, Goodyear-Smith, Weller, Robb, & Shulruf, 2016). Students should have opportunities to reflect and discuss (e.g., support groups) their difficult experiences during training and express their feelings, as well as learning from the experience of other students.
- ***Teamwork skills*:** Effective teamwork and interpersonal communication skills are essential for patient safety. Characteristics of effective teams include common purpose, measurable goals, effective leadership, effective communication, good cohesion, and mutual respect (WHO, 2012). Some of the necessary skills to be an effective team member (e.g., effective communication skills) may be taught by psychologists during medical school. However, teamwork skills training is often learned in multidisciplinary learning environments that include other healthcare students and/or professionals (e.g., nurses, social workers), active learning strategies, and feedback (Chakraborti, Boonyasai, Wright, & Kern, 2008). Interprofessional education is advocated by the World Health Organization (2010) as a key step to improve healthcare services. If health professionals learn to work collaboratively while they are still students, they will "enter the workplace as a member of the collaborative practice team" (WHO, 2010, p. 10). Psychologists in medical schools can help other faculty members train future generations of healthcare professionals in a collaborative and interprofessional way (Miyazaki, Gorayeb, Santos Junior, & Nakao, 2017).

Conclusions

Behavioral sciences are an important component of medical education, and psychology can contribute to ensure that medical students develop relevant skills to become effective practitioners. However, psychologists teaching in medical schools must ensure they include contents that will be useful to medical practice. Health psychology contributes greatly to medical practice by helping future physicians develop

skills that benefit patients, for example, how to improve adherence to medical regimens, and themselves, for instance, how to effectively manage the stress associated to the practice of medicine. This will lead to more efficient professionals and improve patients' quality of life.

References

Association of American Medical Colleges. (2011). *Behavioral and social science foundations for future physicians. Report of the Behavioral and Social Science Expert Panel.* Retrieved form: https://www.aamc.org/system/files/d/1/271020-behavioralandsocialsciencefoundationsforfuturephysicians.pdf

Ayers, S., & de Visser, R. (2021). *Psychology for medicine and healthcare* (3rd ed.). London: Sage.

Azad, M. C., Fraser, K., Rumana, N., Abdullah, A. F., Shahana, N., Hanly, P. J., & Turin, T. C. (2015). Sleep disturbances among medical students: A global perspective. *Journal of Clinical Sleep Medicine, 11*(1), 69–74. https://doi.org/10.5664/jcsm.4370

Behavioural & Social Sciences Teaching in Medicine (BeSST) Psychology Steering Group. (2010). *A core curriculum for psychology in undergraduate medical education.* Available at: https://s3.eu-west-2.amazonaws.com/assets.creode.advancehe-document-manager/documents/hea/private/core-curriculum-for-psychology-undergrad-medical-education_1568036673.pdf

Benbassat, J., Baumal, R., Borkan, J. M., & Ber, R. (2003). Overcoming barriers to teaching the behavioral and social sciences to medical students. *Academic Medicine: Journal of the Association of American Medical Colleges, 78*(4), 372–380. https://doi.org/10.1097/00001888-200304000-00009

Braveman, P., & Gottlieb, L. (2014). The social determinants of health: It's time to consider the causes of the causes. *Public Health Reports, 129*(Suppl 2), 19–31. https://doi.org/10.1177/00333549141291S206

Center on the Developing Child at Harvard University. (2016). *From best practices to breakthrough impacts: A science-based approach to building a more promising future for young children and families.* Retrieved *from* https://developingchild.harvard.edu/resources/from-best-practices-to-breakthrough-impacts/

Chakraborti, C., Boonyasai, R. T., Wright, S. M., & Kern, D. E. (2008). A systematic review of teamwork training interventions in medical student and resident education. *Journal of General Internal Medicine, 23*(6), 846–853. https://doi.org/10.1007/s11606-008-0600-6

Cordingley, L., Peters, S., Hart, J., Rock, J., Hodges, L., McKendree, J., & Bundy, C. (2013). What psychology do medical students need to know? An evidence based approach to curriculum development. *Health and Social Care Education, 2*(2), 38–47. https://doi.org/10.11120/hsce.2013.00029

Cripa, J. A. (2019, February 6). USP é pioneira na criação do Departamento de Psicologia Médica [University of São Paulo in Ribeirao Preto is a pioneer in the creation of the Department of Medical Psychology]. *Jornal da USP.* Retrieved from: https://jornal.usp.br/artigos/usp-e-pioneira-na-criacao-do-departamento-de-psicologia-medica/#:~:text=O%20Departamento%20de%20Psicologia%20M%C3%A9dica,do%20ensino%20m%C3%A9dico%20no%20Brasil

Daltro, M. R., Jesus, M. L. S., Bôas, L. M., & Castelar, M. (2018). Ensino da psicologia em cursos de medicina no Brasil [Teaching psychology in medical schools in Brazil]. *Arquivos Brasileiros de Psicologia, 70*(2), 38–48. http://pepsic.bvsalud.org/pdf/arbp/v70n2/04.pdf

Dearborn, G. V. N. (1901). Psychology and the medical school. *Science, 14*(343), 129–136. https://doi.org/10.1126/science.14.343.129

Duarte, P. S., Miyazaki, M. C., Blay, S. L., & Sesso, R. (2009). Cognitive behavioral group therapy is an effective treatment for major depression in hemodialysis patients. *Kidney International, 76*, 414–421. https://pubmed.ncbi.nlm.nih.gov/19455196/

Duffy, T. P. (2011). The flexner report – 100 years later. *Yale Journal of Biology and Medicine, 84*, 269–276. https://pubmed.ncbi.nlm.nih.gov/21966046/

Dušek, T., & Bates, T. (2003). Analysis of European medical schools' teaching programs. *Croatian Medical Journal, 44*(1), 26–31. https://pubmed.ncbi.nlm.nih.gov/12590425/

Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science, 196*(4286), 129–136. https://pubmed.ncbi.nlm.nih.gov/847460/

Farre, A., & Rapley, T. (2014). The new old (and old new) medical model: Four decades navigating the biomedical and psychosocial understanding of health and illness. *Healthcare, 5*(4). https://doi.org/10.3390/healthcare5040088

Frank, J. R. (Ed.). (2005). *The CanMEDS 2005 physician competency framework. Better standards. Better physicians. Better care*. Ottawa: The Royal College of Physicians and Surgeons of Canada. Retrieved from: http://www.ub.edu/medicina_unitateducaciomedica/documentos/CanMeds.pdf

Frank, J. R., Snell, L., Sherbino, J, (Eds). (2015). *CanMEDS 2015 physician competency framework.* Ottawa: Royal College of Physicians and Surgeons of Canada. Retrieved from: http://www.ub.edu/medicina_unitateducaciomedica/documentos/CanMeds.pdf

Galagher, S., Wallace, S., Nathan, Y., & McGrath, D. (2015). 'Soft and fluffy': Medical students' attitudes towards psychology in medical education. *Journal of Health Psychology, 20*(1), 91–101. https://pubmed.ncbi.nlm.nih.gov/23988684/

General Medical Council. (2015). *Outcomes for graduates (Tomorrow's Doctors).* Retrieved from: https://www.gmc-uk.org/-/media/documents/outcomes-for-graduates-jul-15-1216_pdf-61408029.pdf

Gorayeb, R., Borsari, A. C. T., Rosa-e-Silva, A. C. J. S., & Ferriani, R. A. (2012). Brief cognitive behavioral intervention in groups in a Brazilian assisted reproduction program. *Behavioral Medicine, 38*, 29–35. https://pubmed.ncbi.nlm.nih.gov/22676628/

Harden, J., & Carr, J. E. (2017). Social and behavioural sciences in the medical school curriculum. In J. A. Dent, R. M. Harden, & D. Hunt (Eds.), *A practical guide to medical teachers* (pp. 180–187). Edinburgh: Elsevier. https://core.ac.uk/download/pdf/35276612.pdf

Institute of Medicine. (2004). *Improving medical education: Enhancing the behavioral and social science content of medical school curriculum*. Washington, DC: The National Academies Press. https://doi.org/10.17226/10956

Litva, A., & Peters, S. (2008). Exploring barriers to teaching behavioral and social sciences in medical education. *Medical Education, 42*, 309–314. https://onlinelibrary.wiley.com/doi/10.1111/j.1365-2923.2007.02951.x

Lutfiyya, M. N., Chang, L. F., McGrath, C., Dana, C., & Lipsky, M. S. (2019). The state of the science of interprofessional collaborative practice: a scoping review of the patient health-related outcomes based on literature published between 2010 and 2018. *Plos One, 14*(6), e0218578. https://doi.org/10.1371/journal.pone.0218578

Martin, L. R., Haskard-Zolnierek, K. B., & DiMatteo, M. R. (2010). *Health behavior change and treatment adherence. Evidence-based guidelines for improving healthcare*. Oxford: OUP. https://psycnet.apa.org/record/2010-03911-000

Matarazzo, J. D. (1994). Psychology in a medical school: A personal account of a department´s 35-year history. *Journal of Clinical Psychology, 50*(1), 7–36. https://www.ohsu.edu/sites/default/files/2019-06/Matarazzo-1994-PDF.pdf

Matarazzo, J. D., Carmody, T. P., & Gentry, W. D. (1981). Psychologists on the faculties of United States schools of medicine: Past, present and possible future. *Clinical Psychology Review, 1*, 293–317. https://www.sciencedirect.com/science/article/pii/0272735881900088?via%3Dihub

McKinley, D. W., & Ghaffarifar, S. (2021). The necessity of examining patients' social behavior and teaching behavior change theories: Curriculum innovations induced by the COVID-19 pandemic. *BMC Medical Education, 21*(1), 150. https://doi.org/10.1186/s12909-021-02582-2

Miyazaki, M. C., Gorayeb, R., Santos Junior, R., & Nakao, R. (2017). O trabalho do psicólogo em equipes de saúde [Psychologists' working in healthcare teams]. In: Sociedade Brasileira de Psicologia, R. Gorayeb, M. C. Miyazaki, & M. Teodoro (Orgs.). *PROPSICO Programa de*

Atualização em Psicologia Clínica e da Saúde: Ciclo 1 (pp.43-76). Porto Alegre: Artmed Panamericana.

Moyo, M., Goodyear-Smith, F. A., Weller, J., Robb, G., & Shulruf, B. (2016). Healthcare practitioners' personal and professional values. *Advances in Health Sciences Education, 21*, 257–286. https://link.springer.com/article/10.1007/s10459-015-9626-9

Nguyen, K. H., Chien, A. T., Meyers, D. J., Li, Z., Singer, S. J., & Rosenthal, M. B. (2020). Team-based primary care practice transformation initiative and changes in patient experience and recommended cancer screening rates. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing, 57*, 1–8. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7453437/

Ouakinin, S. (2016). Teaching psychology in medicine: The context, methodologies, and doctor's professional identity. *Acta Médica Portuguesa, 29*(12), 869–874. https://doi.org/10.20344/amp.8384

Petrie, K. J., & Weinman, J. A. (1997). *Perceptions of health & illness*. Amsterdan: Harwood Academic Publishers.

Pickren, W. (2007). Psychology and medical education: A historical perspective from the United States. *Indian Journal of Psychiatry, 49*, 179–181. https://doi.org/10.4103/0019-5545.37318

Puthran, R., Zhang, M. W. B., Tam, W. W., & Ho, R. C. (2016). Prevalence of depression amongst medical students: A meta-analysis. *Medical Education, 50*(4), 456–468. https://doi.org/10.1111/medu.12962

Robiner, W. N., Hong, B. A., & Ward, W. (2020). Psychologists' contributions to medical education and interprofessional education in medical schools. *Journal of Clinical Psychology in Medical Settings.* https://doi.org/10.1007/s10880-020-09730-8

Rosenberg, M. (2012). Undertreated pain epidemic: Multi-modality approach to pain management. *Journal of Managed Care Medicine, 15*(1), 30–37. https://www.namcp.org/journals/jmcm/articles/15-1/Undertreated%20Pain.pdf

Russell, A., Teijlingen, E., Lambert, H., & Stacy, R. (2004). Social and behavioural science education in UK medical schools: Current practice and future directions. *Medical Education, 38*, 409–417. https://pubmed.ncbi.nlm.nih.gov/15025642/

Saunders, M., Barr, B., McHale, P., & Hamelmann, C. (2017). *Key policies for addressing the social determinants of health and health inequities.* Copenhagen. WHO Regional Office for Europe (Health Evidence Network (HEN) Synthesis report 52). Retrieved from: https://www.who.int/publications/i/item/9789289052658

Schumacher, J. A., & Williams, D. C. (2020). *Psychological treatment of medical patients struggling with harmful substance use*. Washington, DC: American Psychological Association. https://doi.org/10.1037/0000160-002

Silverman, J., Kurts, S., & Draper, J. (2013). *Skills for communicating with patients* (3rd ed.). London: Radcliffe.

Skelton, J. R. (2017). Clinical communication. In J. A. Dent, R. M. Harden, & D. Hunt (Eds.), *A practical guide to medical teachers* (5th ed., pp. 188–194). London: Elsevier.

Tabatabaei, Z., Yazdani, S., & Sadeghi, R. (2016). Barriers to integration of behavioral and social sciences in the general medicine curriculum and recommended strategies to overcome them: A systematic review. *Journal of Advances in Medical Education and Professionalism, 4*(3), 111–121. https://pubmed.ncbi.nlm.nih.gov/27382578/

Taylor, S. E. (2017). *Health Psychology* (10th ed.). New York: McGraw-Hill.

The Bologna Declaration of 19 June 1999: Joint declaration of the European Ministers of Education. Retrieved from: https://www.eurashe.eu/library/bologna_1999_bologna-declaration-pdf/

U.S. Department of Health and Human Services (2020). *Healthy people 2030.* Retrieved from https://health.gov/healthypeople

Visser, R. (2009). Psychology in the medical curriculum: "need to know" or "nice to know". *The European Health Psychologist, 11*, 20–23. https://www.ehps.net/ehp/index.php/contents/article/view/ehp.v11.i2.p20/942

Wade, D. T., & Halligan, P. W. (2017). The biopsychosocial model of illness: a model whose time has come. *Clinical Rehabilitation, 31*(*8*), *995–1004*. https://doi.org/10.1177/0269215517709890

Ward, W., Shaffer, L. A., & Testa, E. G. (2018). Pediatric psychologists' collaboration in a National Pediatric Obesity Initiative: A case study in interprofessional collaboration. *Journal of Clinical Psychology in Medical Settings, 25*(4), 367–389. https://doi.org/10.1007/s10880-018-9540-4

Wells, F. L. (1913). The advancement of psychological medicine. *Popular Science Monthly, 82*, 177–186.

World Federation for Medical Education. (2020). *Basic medical education WFME global standards for quality improvement. The 2020 Revision.* Retrieved from: https://wfme.org/standards/bme/

World Health Organization – WHO. (2010). *Framework for action on interprofessional education & collaborative practice*. Retrieved from: http://apps.who.int/iris/bitstream/handle/10665/70185/WHO_HRH_HPN_10.3_eng.pdf;jsessionid=5D00FD42D9C26B3B3154CCE77009253E?sequence=1

World Health Organization – WHO. (2012). *Being an effective team player*. Retrieved from:https://www.who.int/patientsafety/education/curriculum/course4_handout.pdf

World Health Organization – WHO. (2016). *Global strategy on human resources for health: Workforce 2030.* Retrieved from: https://www.who.int/hrh/resources/global_strategy_workforce2030_14_print.pdf?ua=1

World Health Organization – WHO. (2020). *World health statistics 2020: Monitoring health for the SDGs, Sustainable Development Goals*. Geneva: WHO. Retrieved from: https://apps.who.int/iris/bitstream/handle/10665/332070/9789240005105-eng.pdf?sequence=1&isAllowed=y

Psychology of Art

41

Lia da Rocha Lordelo

Contents

Abstract

This chapter presents an introductory overview on the psychology of art, a field of expertise almost as old as Psychology itself. The first theoretical section outlines classic contributions for the area, like psychoanalysis, analytical psychology, Gestalt theory, and the contribution of the soviet cultural-historical school of psychology, represented by Lev S. Vygotsky. The second part briefly highlights more recent

L. da Rocha Lordelo (✉)
Federal University of Recôncavo of Bahia, Santo Amaro da Purificação, Brazil
e-mail: lialordelo@ufrb.edu.br

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contributions widely disseminated in several theoretical approaches within current Psychology; these last contributions appear closely connected to historic transformations in the art world as from the end of the nineteenth century. It is our goal, with this chapter, to provide psychology teachers with a more sophisticated understanding of artistic human experience – however broad that phenomenon might seem.

Keywords

Art · Psychology · Artists · Aesthetic experience · Art appreciation · Aesthetics

Introduction

Psychology of art is a field of expertise almost as old as Psychology itself, as it can be seen through one of its pioneers´ contribution on the subject. In 1876, Gustav Fechner published on Aesthetics (Fechner, 1876), and this is one of his early works in Psychology. Another classic contribution comes from Sigmund Freud's *Delusion and Dream in Jensen's Gradiva* (1907), one of his most important analyses of literary works. However old – in relation to scientific psychology – psychology of art might be, its relevance is still up for discussion, as scholars argue (Dickie, 1962; Reber, 2008; Lindel & Mueller, 2011). Recent research in the field has attempted, mainly from different theoretical perspectives, such as cognitive, cultural, neuropsychological, phenomenological, and evolutionary ones, to integrate art theory/aesthetics and psychological findings in order to have a more sophisticated understanding of artistic human experience – however broad that phenomenon might seem. The scope of that definition – artistic experience – will be defined according to each specific theoretical and methodological perspective – which is a common procedure in many branches of psychology itself.

However unique all these approaches in psychology of art are, in terms of definition of their main object, their most usual methods of research and practical application, they seem to be united by a few common points: first, that art is a controversial, but unique and crucial feature of human experience (Leder, Gerger, Dressler, Schabman, 2012), dating back from human species´ first traces on the planet. Second, is that, as much as artists, also philosophers, economists, and anthropologists, psychologists can and must appreciate, study, and try to understand art from their own point of view. Third, neither psychologists nor any of these scholars will be ever able to give full, definite explanations on what art is, under the risk of deflating or simply wearing out its value and meaning.

Purposes and Rationale of the Curriculum in Psychology of Art

Considering that psychology of art is not a mandatory course in Psychology undergraduate curriculums in general,[1] learning about it must go beyond the acknowledgment of different psychological theories. There are naturally a great number of

[1] That is the reality in most Psychology undergraduate, graduate, and postgraduate courses in my country of origin, Brazil.

questions formulated by these branches: how does art give meaning to our lives? More specifically, how does being an artist interfere in people's attitudes and their coping with professional or health issues? And yet, which psychological processes are involved in the appreciation of a work or art (be it a song, a poem, or a painting)? How do factors such as artistic experience or expertise, economic status or cultural background influence that appreciation process? Which specific parts of the brain are responsible for that? Are there significant differences in the process of appreciation of art pieces as distinct from each other as, let's say, a Renaissance painting by Italian artist Michelangelo and a large-scale light installation by Danish artist Olafur Eliasson? Are famous, genial artists simply born with their talents?

The list of questions is endless. Psychology students interested in psychology of art will be able to formulate adequate (although partial) answers to these questions in light of the specific theories that address these issues. But perhaps more importantly, they should also be able to appreciate art works in a less naive, more careful way, precisely because they are able to think of the questions described above. In the end, all these questions come down to a simple statement: relating to a work of art (watching, listening to it, making it with one's own hands) is mainly an act of interest (Coli, 2011), and psychologists can help this uniquely human act to be cultivated, cherished, and enriched. Psychology of art can and must be extremely useful in the art education field, reminded that artists are being formed in independent art academies and institutes, as well as in undergraduate courses at universities,[2] since the middle of the last century. Besides contributing to developing artists, psychology of art is decisive in artistic mediation processes in general, which includes art teaching for children and teenagers in elementary and high school educational levels, and above all aesthetic and educational programs in art museums and institutions, as well as less formal contexts of art appreciation.

Classic Approaches to the Intersection "Art" and "Psychology"

Psychoanalysis and Its Outspreads

Psychoanalysis, although remaining a somewhat controversial approach in scientific psychology, particularly in some countries, constitutes one of the first and most significant contributions to the psychology of art. It is actually sintomatic that, on the verge of the twentieth century in central Europe, one could trace connections between psychoanalysts and artists from several expressions. The admiration was mutual. Sigmund Freud would write to famous Austrian writer Arthur Schnitzler, who he greatly admired: "I have gained the impression that you have learned through intuition – though actually as a result of sensitive introspection – everything that I have had to unearth by laborious work on other persons"

[2] The "institutionally accredited artist" (Firunts, 2016) first appeared on the scene, in the USA, in the 1960s. This is an important landmark for the professionalization in the arts field: artists starting to be formed, trained, and doing research in formal, academic settings.

(Kupper & Rollman-Branch, 1959). French author Anaïs Nin, another great admirer of psychoanalysis, wrote a preface to Otto Rank's Art and Artist (Nin, 1968). Although Freud had initially analyzed psychopathic personality types on a theatrical stage a year before,[3] he definitely devoted more efforts torward the analyses of literary and visual works (Freud, 1970, 2012). Apart from his historical analysis of Jensen's Gradiva (Freud, 1907), one of his most important works is about the day-dreaming of creative writers (1908). In that analysis, Freud shows himself intrigued by the fact that writers usually can't explain to themselves or the audience how they come up with the material with which they work, or which are their sources. He then parallels the creative writer with the child at play; probably because the imaginary processes at stake in doing literature are initially present in childhood. "The creative writer does the same as the child at play. He creates a world of phantasy which he takes very seriously – that is, which he invests with large amounts of emotion – while separating it sharply from reality" (Freud, 1908, p. 421). In the next excerpt, one can see the principles of psychoanalysis more clearly expressed in the mechanism of day-dreaming, which would explain artistic creation:

> As people grow up, then, they cease to play, and they seem to give up the yield of pleasure which they gained from playing. But whoever understands the human mind knows that hardly anything is harder for a man than to give up a pleasure which he has once experienced. ***Actually, we can never give anything up; we only exchange one thing for another. What appears to be a renunciation is really the formation of a substitute or surrogate.*** [emphasis added] In the same way, the growing child, when he stops playing, gives up nothing but the link with real objects; instead of playing, he now phantasies. He builds castles in the air and creates what are called day-dreams. (Freud, 1908, p. 423)

The basic difference between the child's play and the adult's phantasy, which are determined by desires, is that the child wishes he or she were a grownup; and the adults fantasize for unfulfilled desires, of which they are usually ashamed.

There is one last exciting comment in Freud's work. He claims that these products of imagination are changing throughout a person's life. These phantasies and day-dreams must fit reality, which means there is a strong connection between phantasy and time – the individual in the course of his or her development.

Otto Rank, a psychoanalyst colleague who eventually distanced himself intellectually (and personally, later on) from Freud's emphases on the Oedipal complex, is also known for contributions to the psychology of the artist. He claimed that scientific psychology had failed to explain artistic creativity and that would have led us to dismiss psychological contributions to the study of art. In opposition, he was deeply interested in art, but strictly related to the problem of personality development, and believed that the urge to create did not find expressions only in works of art, but also in mythology and religion (an idea that would be also explored by Jung) (Nin, 1968): "In any case we can say of all artistic creation that the artist not

[3] This work remains unpublished to the present day.

only creates his art, but also uses art in order to create" (Rank, 1989, p. 7). In his most important book on the subject, *Art and the Artist* (Rank, 1989), he especially dedicated himself to changes on the meaning of art forms, analyzing primitive art collections as much as abstract modern art.

Ernst Kris, a trained psychoanalyst but historically connected to the ego psychology school, along with names such as Anna Freud, Erik Erikson, and Carl G. Jung, was also an art historian who became renowned by his book *Psychoanalytic explorations in art* (Kris, 1968). His analysis of German sculptor Franz Messerschmidt remains famous to present days, as he links aspects of the artist's schizofrenic personality to features of his natural-sized busts, with strong facial expressions inspired by his own.

Psychoanalysis is probably the first important and popular theoretical contribution, within Psychology, to art theory. However, that theoretical force was heavily supported by clinical, psychopathological studies – as is the case of sculptor Messerschmidt. In his case, for instance, Kris would say that that childhood experiences influenced all the artist's thoughts, dreams, and artistic creations. For Brazilian art theorist Ostrower, traumas and past experiences can, of course, influence, but not determine overall a creative situation (Ostrower, 1999). In her opinion, to believe in that assertion is to ignore art's own language and standards; to use or apply psychoanalytic concepts and methods to the art world is to reduce that world. That constitutes a relevant issue in the psychology of art, for, we mentioned earlier, it is not reasonable for Psychology to give full, definite explanations on what art is. Nonetheless, psychoanalysis´ insights into the minds of creative artists and how these people constitute their motivations for creation still stand as exciting contributions to the field of artistic creation.

The Contribution of Carl Gustav Jung

The cooperation and mutual admiration between Freud and Jung has been widely documented – particular through their personal correspondence (Freud & Jung, 1976), as have been their disagreement and estrangement. Jung would object to the necessary sexual nature of traumas advocated by Freud, and would, within time, develop his own psychological concepts, such as collective uncounscious, archetypes, which are central for when analytical pscyhology studies art.

One of Jung's major disagreements in relation to Freud's approach to the analysis or works of art, according to Quiroga Mendez (2010), was his reductionist view on that analysis.

> Neuroses and psychoses are likewise reducible to infantile relations with the parents, and so are a man's good and bad habits, his beliefs, peculiarities, passions, interests, and so forth. It can hardly be supposed that all these very different things must have exactly the same explanation, for otherwise we would be driven to the conclusion that they actually are the same thing. *If a work of art is explained in the same way as a neurosis, then either the work of art is a neurosis or a neurosis is a work of art.* [emphasis added] (Jung, 1978a, p. 67)

The collective unconscious, manifested through archetypes, would be a source from which all artistic experience would be generated, but it is important to pay attention to art's symbolic nature. Art is symbolic because, like other phenomena such as myths and spiritual beliefs, it is a human experience capable of putting someone in contact with his or her collective unconscious, which generates between conscious and unconscious dimensions a process of connection or communication that engenders a third, necessary and common element for both (Mendez, 2010, p. 57). It is also important to stress that Jung believed that a pathological condition could not explain the quality or success of a work of art. His analytical approach to art, although centered on psychological processes of integration of unconscious and conscious experiences, did not try to lay down the artist on the psychoanalytic couch, but was rather interested on art in a transpersonal, transgenerational scale (Gaillard, 2010): art is mainly linked to the progressive transformations of a culture within time, through successful generations:

> The normal man can follow the general trend without injury to himself; but the man who takes to the back streets and alleys because he cannot endure the broad highway will be the first to discover the psychic elements that are waiting to play their part in the life of the collective. Here the artist's relative lack of adaptation turns out to his advantage; it enables him to follow his own yearnings far from the beaten path, and to discover what it is that would meet the unconscious needs of his age. (Jung, 1978a, p. 83)

Lev. S. Vygotsky and His Legacy on Psychology of Art

If Vygotsky's approach to art is not his most important legacy to psychological studies, it is certainly crucial to his own entrance in Psychology (Van der Veer & Valsiner, 1996). His academic training was in Law and History, but the years working as teacher in his hometown made him interested in psychological and pedagogical issues that led to building a research program that later became known as the Cultural-Historical Psychology school, along with other fundamental Soviet scholars, such as Alexis Leontiev and Alexander Luria. Vygotsky received his doctoral degree with a dissertation on the psychology of art (Vigotski, 2001), which was based on a previous essay on William Shakespeare's Hamlet, written when he has 19 years old (Vigotski, 1999). And while it is true that his approach, as Freud's (Ostrower, 1999) can be considered quite logocentric (Smagorinsky, 2011), focusing for the most part on literature, Vygotsky's attention to theater – which is a practice also traditionally focused on language – is uncommon among psychologists interested in art. This is understandable in part because visual arts and literature are more popular artistic languages in general; but that also points to some of Vygotsky's very original contributions: he showed interested in the psychology of the actor, that is, the process of constructing a theatrical character and how to express these emotions on stage. These concerns are strictly linked to Konstantin Stanislavski's (2013a, b) system of interpretation; specifically, Vygotsky referred to *perezhivanie*, a concept roughly translated as "emotional experience," in several of his writings (1994, 1999,

2001). If on a certain level *perezhivanie* was described as an emotional state of the creating artist, explaining the intrinsic emotional character of a work of art, on a deeper level Vygotsky's notion intended to define a set of emotions inherent to human performance, highlighting the understated role of emotions in human development and building a connection between emotion and imagination (Smagorinsky, 2011; Gonzalez Rey, 2018). "This means that, in essence, all our fantastic experiences take place on a completely real emotional basis. We see, therefore, that emotion and imagination are not two separate processes; on the contrary, they are the same process" (Vygotsky, 1971, p. 210).

It is also important to notice one significant feature of Vygotsky´ contribution to art that distinguishes it particularly from the psychoanalytic approach. In what can be considered a highly developmental approach, he envisioned art as a method for building life, claiming that "(a)rt is the organization of our future behavior. It is a requirement that may never be fulfilled but that forces us to strive beyond our life toward all that lies beyond it" (Vygotsky, 1971, p. 253). That orientation toward the future was very different from classic psychoanalytic views, which attempted to understand connections between artistic practices of artists and their personalities, linking the formation of those to experiences that had happened in their past.

This developmental view we are referring to will grow into psychological approaches to art, imagination, and creative processes within contemporary cultural psychology, as we will see in the reading references.

Gestalt Psychology: Art and Perception

As the history of Psychology teaches us, Gestalt theory came along as a kind of third force in a context where the first behavioral psychologists were confronting idealistic approaches in the field, in the very beginning of the twentieth century. The very basic notion of Gestalt theory – that the whole is different from the sum of its parts – turned out to be, from the very beginning, extremely appealing for those willing to understand how we appreciate art. The theoretical system developed by German/Austrian[4] psychologists Wolfgang Köhler, Max Wertheimer, and Kurt Koffka understood perception in a holistic, integrated manner that would not, for that matter, completely decompose a painting in order to analyze it. Instead, according to its most basic tenet, the whole picture would be more important than its elements – texture, color, spatial composition, and so on. The laws of perception, initially proposed by Wertheimer (1923), but further developed by the others, such as proximity, continuity, similarity, etc., could be found very clearly especially in the case of visual works; and also in music, which was the object of investigation of one other seminal

[4] Although the three scholars were trained in universities in Germany and Austria, Köhler was originally born in Estonia; and Wertheimer was born in Prague, in Austro-Hungary at the time. And eventually, with after the First World War, all of them went to the United States and constituted their lives there.

research paper by von Ehrenfels (1890) for constituting Gestalt psychology. Interestingly, by stating that "(t)he Gestalt-Theorie is more than a theory of perception; it is even more than a mere psychological theory" (Koffka, 1922), gestaltists believed there was more to Gestalt than to only identify and describe basic psychological processes. Rudolf Arnheim (1986), who became a central figure in Gestalt psychology applied to the study of art, made reference to that singular theoretical undertaking within Psychology, which at the same time, tried to make sense of phenomena outside the realms of traditional psychological science:

> Finally, although gestalt psychologists in what may be called their polemical period had to concentrate many of their demonstrations and discussions on the organizational and self-regulatory aspects of gestalt structure, they were very much concerned from the beginning with the biological, cognitive, and aesthetic reward of gestalt processes, namely the creation of well-functioning, stable, and clarifying patterns in nature, science, and art--a perfection difficult or impossible to obtain otherwise. (Arnheim, 1986, p. 823)

It is from Arnheim, one of the most influential books on art and visual perception (Arnheim, 2005), widely used in university courses, especially in visual arts. As an art theorist, in his studies, he was concerned with showing that Gestalt was not only a theory of perception of form, but that the qualitative aspect of what was being perceived was extremely linked to the degree of internal articulation of stimuli patterns and conditions of actualization of the perceptive field (Ferraz & Kastrup, 2010). "Rather than limiting itself to offering a method of combining and segregating perceptual shapes, gestalt theory is concerned primarily with the complex dynamics of organization in field situations, be they physical or psychological" (Arnheim, 1986, p. 823). This is probably the reason why Gestalt became so central for analyzing visual works of art.

Beyond the Classics: Recent Approaches Interfacing Psychology and Art

The theoretical contributions listed above are not, of course, the only ones existing in Psychology's first 70 years of existence – that is, mainly from its origin in 1870s until the 1950s. But they certainly stand out as the ones that became most popular within Psychology – and especially in the case of Psychoanalysis, outside it, to a wider audience constituted by artists, art critics, and art enthusiasts. These contributions are enrooted in specific epistemological and methodological orientations that refer to the very constitution of Psychology – the first schools of thought that appeared in European countries in the end of the nineteenth century. But since these first efforts, other ways to explore the psychology of art have emerged from distinct theoretical points of view, from predominantly philosophical psychological approaches to approaches that integrate scientific fields such as neurology and theory of evolution, viewing human artistic experiences as an interdisciplinary object of investigation.

One important thing that needs to be addressed is that what we call "psychology of art" is actually a field as diverse as is the field we have learned to call "psychology." Aesthetic appreciation; artistic experience; artistic behavior; aesthetic orientation torward artifacts; passive and active exposure to artworks; creative processes are some of the terms or phenomena addressed to within this field, and we can say that they can all be, for different reasons, included as possible topics when studying psychology of art.

A Shift in Focus: From Objects to People

Art as an autonomous field was well established until the nineteenth century, as an object *par excellence* studied by Art History or Aesthetics – a branch of Philosophy. Nonetheless, the creation of psychology of art as a field might have been a consequence of the insertion of the person in that equation, whether as a passive audience or a creative artist. This means there was a shift in focus: while art historians and philosophers would focus on the work or art and built frameworks and criteria of analysis based on it – constituting and identifying art schools, periods, recurring motives and styles; psychologists began to try to understand how people related to these motives and styles, how they experienced them and how or if these impacted in their lives.

This is how, for instance, psychologists connected to phenomenology have attempted to provide with a psychological perspective such a philosophical tradition as art appreciation with contributions from Martin Heidegger (2007) and Maurice Merleau-Ponty (1962; 2013). For authors interested in this approach (Roald, 2008), the emphasis on phenomenological psychology is on actual, lived human experience; they also stress that "(t)he questions of the nature of art and of its appreciation cannot, however, exist independently" (Roald, 2008, p. 190). So, experience is crucial. Live, dynamic, concrete experiences in the life-world. Other experiential accounts evoke contributions of John Dewey (1934), Mikhail Bakhtin (1984, 1990), and Vygotsky, already mentioned here, to focus on "embodied, felt, emotional, intellectual, and intersubjective" sense-making processes (Sullivan & McCarthy, 2009). Another distinctive feature of these experiential approaches to appreciation of art is their preference for qualitative methodologies and their sensitivity to single variations of human experience, instead of looking at patterns of appreciation that constitute generalizable, abstract scientific principles on the subject.

That methodological feature contrasts immensely with other contemporary approaches in the field, namely, evolutionary and cognitive neuroaesthetic ones. Nadal and Skov (2013) claim that it might be hasty to talk about art from the beginning of the history of humanity; but we might refer to neurobiological substrates of aesthetic experience as a field of inquiry existing for a couple of centuries now. They define neuroaesthetics as "experimental studies of brain mechanisms involved in the appreciation of art and aesthetics" (Nadal & Skov, 2013, p. 2). Moreover, it can be defined as

> the study of the neural processes [underlying] the psychological processes that are evoked in the creator or the viewer of the object in the course of interacting with it. These psychological processes may involve perceptual, sensory, cognitive, emotional, evaluative, and social

> aspects among others, all of which are presumed to have a biological—neural— basis. (Skov & Vartanian, 2009, p. 3)

Researchers in the field of neuroaesthetics believe that the boundaries between art and not art, as well as focusing on art objects specifically, go against the proper understanding of aesthetic experience, for, as they say, "notions of art, artist, and artwork are culturally and historically contingent, as are the criteria used to distinguish what is an artwork from what is not, or what is an art form from what is not" (Nadal & Skov, 2013, p. 5). Evolutionary approaches contribute to that discussion reminding us that art in non-Western societies, or what we call art, are not exclusively (sometimes, not at all) centered on objects and permeate a much broader range of activities – celebrations, rituals, and other events (Zaidel, Nadal, Flexas, and Munar, 2013). That distinction and other significant archaeological evidence suggest a biological ancestral origin for these reactions we call aesthetic appreciation. According to De Smedt and Cruz (2010, p. 697), these current scientific investigations on art reflect recent theoretical and conceptual developments in psychology, in particular the decline of behaviorism and the growing influence of evolutionary theory. Another example of recent theoretical contribution within that tendency is the cognitive models of art appreciation developed by Leder, Belke, Oeberst, and Augustin (2004), in which authors propose an influential framework of aesthetic experiences and aesthetic judgments, through a cognitive model of information-processing stages; there are, of course, other contributions within that theoretical orientation, especially dedicated to connecting artistic creation and reception (Tinio, 2013).

That change in the object of inquiry and also in theoretical frameworks might situate another subtle change when it comes to the majority of investigations in the psychology of art: if, in the first classic theoretical endeavors, psychologists tended to focus almost exclusively in world famous works and artists – from Freud's analysis of Michelangelo's Moses (Freud, 1955), for instance, but also in several other analyses which explore the works of artists like Pablo Picasso and James Joyce (Jung, 1978b) or Paul Cezanne (Arnheim, 2005); the most recent theoretical efforts have replaced that interest in artists and works that constitute landmarks in the history of Western art for an interest in more anonymous creators. In a sense, to be interested in anonymous – that is, not recognized by wide audiences and prestigious critics – artists is a consequence of that already mentioned shift in focus (from objects to people) as well as a clear recognition that the standards for defining what is (good, worthy of analysis) art and what is not are culturally, economically, and historically defined.

Psychology of Art's Focus on People: A Performative Turn

Focusing on how people are and act in the world using an aesthetic perspective is a recent, exciting development in the psychology of art. That change has probably also been guided by what we must ackowledge as a performative turn in the arts in general, according to Fischer-Lichte (2008). Throughout the twentieth century,

> (. . .) the dissolution of boundaries in the arts, repeatedly proclaimed and observed by artists, art critics, scholars of art, and philosophers, can be defined as a performative turn. Be it art, music, literature, or theatre, the creative process tends to be realized in and as performance (Fischer-Lichte, 2008, p. 22)

That performative turn, as I stated before (Lordelo, 2018), is conceptually linked to the linguistic turn that took place in Philosophy as well as in Linguistics in the beginning of the twentieth century. Scholars working under that framework would start to claim there could be no radical distinction between language and the world, for it is the words and symbols we use that establish the reality as we live it. One of the most relevant contributions in that field comes from John Austin (1962) and his speech acts theory. To sum up, the theory set the grounds to understanding that speaking always involves acting; the performative, as theorized by Austin and other seminal authors such as Judith Butler (1988), also has the ability to destabilize and even collapse binary oppositions – speaking X acting, world X language, etc. Fighting against these dichotomies has substantial implications for a new understanding not only in the arts in general, but especially in the way we, psychologists, might view human aesthetic experience – but not only. Scholars in this field such as Schechner (2006) explain that we can find performances in many situations (seen separately or intertwined): in daily life, sports, sex, in rituals, business situations, etc., and also in art itself. From this claim, it is possible to conclude that performance is a broad concept that includes art, but does not limit itself to it. In a way, for Schechner, not everything is meant to be performance, but virtually everything can be seen as performance.

These contributions from Philosophy and Performance Studies are crucial for new, integrated ways of approaching psychology of art, mainly because it becomes virtually impossible for psychologists to ignore the changes through which artistic languages have gone. Artists like Allen Kaprow (1993), part of the influential Fluxus Group,[5] have written on the subject, saying that art cannot be seen as something people do – separately from their lives and how they understand themselves. Within that logic, art becomes a diffuse activity, completely linked to life. In one of his essays, he defends the idea of a lifelike art, as opposed to artlike art. Art ceases to be seen as something we do, for it constitutes who we are. In a very broad sense, performance can exist only as actions, interactions, and relationships, continuously marking and changing our identities (Goffman, 1959; Schechner, 2006). For instance, the notion of performativity, which became so seminal for Gender Studies, refers, somehow, to that: these scholars state that gender is not a fact, but a construction, and the "body becomes its gender through a series of acts which are renewed, revised, and consolidated through time" (Butler, 1988, p. 523).

[5] Fluxus was a group founded in New York City in the 1960s, by influential artists such as Allen Kaprow, Nam Jum Paik, John Cage, Joseph Beuys, Yoko Ono, and others who were interested in experimental, interdisciplinary art projects.

It is an exciting but challenging turn for the psychology of art to deal with such vibrant theoretical contributions, which come directly from transformations in our understandings of artistic works and processes.

Some Teaching, Learning, and Assessment Resources

As we have seen throughout this chapter, psychology of art is a wide, heterogeneous field filled with classic psychological references. Nonetheless, it has recently not only been injected with theoretical approaches that call for an interdisciplinary attitude within the area, but also been challenged with contributions from outside of Psychology that are connected to paradigmatic changes in the understandings of artistic practices that took place in the twentieth century. Considering that overview, we present some recommendations for psychology of art teachers in their daily study and practice:

Articulate Theoretical Interests Within Psychology to Contents in Classroom

We have mentioned before that theoretical diversity in the psychology art refers to a great extent to the diversity in Psychology itself. It is also worth reminding that this is not a mandatory set of theories of course for a Psychology degree. That means that each course in psychology of art might reflect the theoretical inclinations and, most of all, interests and curiosities among the students taking that class.

Consider the Profile of the Classroom

Contents and discussions in the psychology of art can be of interest not only for psychology students, but also for artists or art students – in literature, music, performing arts, etc. It is important, then, to adjust contents of the course. We know there is a great contribution for visual arts within Gestalt Psychology, as there are important psychoanalytical, junguian concepts that raise important issues concerning creative processes for literary artists, for example. These choices are worth making, for the benefit of the course.

Work with Seminal Texts Using Visual/Audio/Literary "Resources"

We have become acquainted, throughout this chapter, with several classic texts within psychology of art. These should be definitely present in a psychology of art course. In addition, paintings, installations, plays, and songs are more than aid resources; they are integral part of the theoretical content of the class, mainly because they constitute one of the objects of interest in the field. So it is highly

important that art works and artists, their profiles or biographies, permeate the classes; not only those who are quoted in the texts that are read and discussed, but also some that look similar – and sometimes, for an analytical contrast – and radically different.

Stimulate Fruition

There is hardly any point in teaching about the psychology of art if one does not show any interest in an art piece, whichever it is. Therefore, as teachers, it is part of our task to estimulate that interest – whether through showing art works in the classroom, or drawing attention to specific artists that relate to the contents in the course, or maybe even drawing attention to an exhibition or dance piece that is being shown in town. That act of interest and engagement is crucial for any good learning in the psychology of art.

Reading References

These texts and books are other references that might be interesting to get to know, for they are not mentioned in this introductory chapter; the references within Psychology represent new, exciting ways to articulate psychological issued with artistic ones; and the ones outside it help us comprehend more clearly transformations in the arts, especially since the last century, as well as contemporary debates they generate:

From within

1. May, R. (1980). The courage to create. New York: Bantam Book.

Humanist psychologist, artist, and theologist Rollo May is the author of this small gem in which he gives a sensitive account of how human courage and creation are interconnected throughout the course of our existence, beginning with some core definitions of these concepts and, in a second moment, using his experience with clinical cases.

2. Abbey, E. (2007). Perceptual uncertainty of cultural life: becoming reality. In: J. Valsiner & A. Rosa (Eds.) The Cambridge Handbook of Sociocultural Psychology. Cambridge: Cambridge University Press.
3. Abbey, E. (2012). Ambivalence and its transformations. J. Valsiner (ed.) Oxford Handbook of Culture and Psychology. Oxford: Oxford University Press.

Emily Abbey's theory of poetic motion derives from cultural psychological new theoretical contributions on human development, which is here described as a

movement of constant overcoming of uncertainties not only between the past and the present, but also between the present and the future, through a continuous process of meaning construction. Poetic motion is the movement to make sense of this dynamic tension between literal and imagined domains.

4. Freeman, M. (1993). Finding the muse: a sociopsychological inquiry into the conditions of artistic creativity. New York: Cambridge University Press.
5. Freeman, M. (1999). Culture, narrative and the poetic construction of selfhood. Journal of Constructive Psychology, 12, 99–116.

After writing a book in which he explores conditions under which artists create, Mark Freeman went on other topics such as the poetic construction of selfhood. Through defining poiesis as the process of recreation via imagination (Freeman, 1999, p. 15), the author proposes a concept that serves art as well as psychology.

From Outside Psychology

6. Gombrich, E. (2006). The story of art. London: Phaidon Press.

First published in 1950, this book is a comprehensive treatise by one of the most influential art critics of the twentieth century. Although mainly centered in visual works, Gombrich's book covers thousands of years of works of art in Western societies and it still is an unavoidable introductory reference on art appreciation.

7. Benjamin, W. (2010). *The Work of Art in the Age of Mechanical Reproduction.* North Charleston: Createspace Independent Publishing Platform.

This seminal text by philosopher and critical theorist Walter Benjamin, written in the 1930s, is crucial for understanding the transformations in the arts that began to take place in the end of the nineteenth century, starting with the invention of photography.

8. Bourdieu, P.; Darbel, A.; Schnapper, D. (1997). *The Love of Art: European Art Museums and Their Public.* Cambridge: Polity Press.

French sociologist Pierre Bourdieu, besides having written on other important subjects, developed highly relevant analyses of how people learn, for instance, to attend museums, and then to appreciate art. His sociological lessons also teach us that social and economic backgrounds are strictly related to people's artistic tastes and judgments.

9. Schechner, R. (2006). *Performance studies: an introduction*. New York & London: Routledge.

This introductory book by performance director and theorist Richard Schechner, already quoted in the chapter, is a great initial presentation on what performance is. This helps us understand why such a concept and practice became such a major artistic paradigm in dance, visual arts, poetry, and virtually any other arts.

10. Bourriaud, N. (2002). *Relational aesthetics*. Paris: Les Presses du réel.

Bourriaud's book presents a highly original contribution to the once traditional field of aesthetics. Relational aesthetics takes into account people's – artists and audience – personal, affective relation to works of art; and once we understand that, it becomes easier for us not only to see how contemporary artists create their works, and to realize we are part of these works somehow.

Cross-References

- ▶ Community Psychology and Psychological Distress
- ▶ Cultural Psychology
- ▶ Developmental Psychology: Moving Beyond the East–West Divide
- ▶ Epistemology of Psychology
- ▶ Qualitative Methodology
- ▶ The Methodology Cycle as the Basis for Knowledge

References

Abbey, E. (2007). Perceptual uncertainty of cultural life: Becoming reality. In J. Valsiner & A. Rosa (Eds.), *The Cambridge handbook of sociocultural psychology*. Cambridge: Cambridge University Press.

Abbey, E. (2012). Ambivalence and its transformations. In J. Valsiner (Ed.), *Oxford handbook of culture and psychology*. Oxford: Oxford University Press.

Arnheim, R. (1986). The two faces of gestalt psychology. *American Psychologist, 41*(7), 820–824.

Arnheim, R. (2005). *Arte e percepção visual: uma psicologia da visão criadora. Nova versão*. São Paulo: Pioneira Thomson Learning.

Austin, J. (1962). *How to do things with words*. Oxford: Oxford University Press.

Bakhtin, M. M. (1984). *Problems of Dostoevsky's poetics.* (C. Emerson, Ed. and Trans.). Minneapolis: University of Minnesota Press. (Original work published 1929).

Bakhtin, M. M. (1990). *Art and answerability: Early philosophical essas by M. M. Bakhtin.* (M. Holquist, Ed., V. Liapunov, Trans). Austin, TX: University of Texas Press.

Benjamin, W. (2010). *The work of art in the age of mechanical reproduction*. North Charleston: Createspace Independent Publishing Platform.

Bourdieu, P., Darbel, A., & Schnapper, D. (1997). *The love of art: European art museums and their public*. Cambridge: Polity Press.

Bourriaud, N. (2002). *Relational aesthetics*. Paris: Les Presses du réel.

Butler, J. (1988). Performative acts and gender constitution: An essay in phenomenology and feminist theory. *Theatre Journal, 40*(4), 519–531. (Dec., 1988).

Coli, J. (2011). *O que é arte*. São Paulo: Editora brasiliense.

De Smedt, J., & Cruz, H. D. (2010). Toward an integrative approach of cognitive neuroscientific and evolutionary psychological studies of art. *Evolutionary Psychology, 8*(4), 695–719.
Dewey, J. (1934). *Art as experience*. New York: Perigree Books.
Dickie, G. (1962). Is psychology relevant to aesthetics? *Philosophical Review, 71*(3), 285–302.
Fechner, G. T. (1876). *Vorschule der Ästhetik [Primary school of aesthetics]*. Leipzig: Breitkopf & Härtel.
Ferraz, G., & Kastrup, V. (2010). Coexistência de formas e forças: a atualidade das contribuições Gestaltistas ao campo da arte. *Psico, Porto Alegre, PUCRS, 41*(4), 423–431.
Ficher-Lichte, E. (2008). *The transformative power of performance: A new aesthetics*. Abingdon: Routgledge.
Firunts, M. (2016). Staging professionalization lecture-performances and para-institutional pedagogies, from the postwar to the present. *Performance Research, 21*(6), 19–25. https://doi.org/10.1080/13528165.2016.1240924
Freeman, M. (1993). *Finding the muse: A sociopsychological inquiry into the conditions of artistic creativity*. New York: Cambridge University Press.
Freeman, M. (1999). Culture, narrative and the poetic construction of selfhood. *Journal of Constructive Psychology, 12*, 99–116.
Freud, S. (1907). Delusions and dreams in Jensen's 'Gradiva'. Standard edition 9:7–95. *Gesammelte Werke, 7*, 31–125.
Freud, S. (1908). Creative writers and day-dreaming. *Standard Edition, 9*, 143–153.
Freud, S. (1955). The Moses of Michelangelo. (1914). In *The standard edition of the complete psychological works of Sigmund Freud* (Vol. XIII). London: The Hogarth Press and the Institute of Psychoanalysis.
Freud, S. (1970). *Leonardo Da Vinci e uma lembrança de sua infância (1910). Obras Completas* (Vol. XI, pp. 55–124). Rio de Janeiro: Imago.
Freud, S. (2012). O Moisés de Michelangelo (1914). In *Totem e tabu, contribuição à história do movimento psicanalítico e outros textos (1912–1914)*. São Paulo: Companhia das Letras. Tradução de Paulo César de Souza. (Sigmund Freud, Obras Completas, v. 11).
Freud, S, & Jung, C. G. (1976). *Correspondência completa.* McGuirre, W. (Org.). Trad. Leonardo Fróes e Eudoro Augusto Maciera de Souza. Rio de Janeiro, Brazil: Imago.
Gaillard, C. (2010). Jung e a arte. *Pro-Posições, Campinas, 21*(2), 121–148. maio/ago. 2010.
Goffman, E. (1959). *The presentation of self in everyday life*. New York: Anchor Books.
Gombrich, E. (2006). *The story of art*. London: Phaidon Press.
González Rey, F. L. (2018). Vygotsky's "the psychology of art": A foundational and still unexplored text. *Estudos de Psicologia (Campinas), 35*(4), 339–350. https://doi.org/10.1590/1982-02752018000400002
Heidegger, M. (2007). *A origem da obra de arte* (p. 70). São Paulo: Edições.
Jung, C. G. (1978a). On the relation of analytical psychology to poetry. In C. G. Jung (Ed.), *The spirit in man, art and literature* (4th ed.). Princeton: Princeton University Press.
Jung, C. G. (1978b). *The spirit in man, art and literature* (4th ed.). Princeton: Princeton University Press.
Kaprow, A. (1993). *Essays on blurring art and life*. Berkeley/Los Angeles: University of California Press.
Koffka, K. (1922). Perception: An introduction to the Gestalt-theorie. *Psychological Bulletin, 19*, 531–585.
Kris, E. (1968). *Psicanálise da arte*. São Paulo: Editora Brasiliense.
Kupper, H. I., & Rollman-Branch, H. S. (1959). Freud and Schintzler – (Doppelgänger). *Journal fo the American Psychoanalytic Association, 7*(1), 109–126.
Leder, H., Belke, B., Oeberst, A., & Augustin, D. (2004). A model of aesthetic appreciation and aesthetic judgments. *British Journal of Psychology, 95*, 489–508.
Leder, H., Gerger, G., Dressler, S. G., & Schabmann, A. (2012). How art is appreciated. *Psychology of Aesthetics, Creativity, and the Arts, 6*(1), 2–10.

Lindell, A. K., & Mueller, J. (2011). Can science account for taste? Psychological insights into art appreciation. *Journal of Cognitive Psychology, 23*(4), 453–475. https://doi.org/10.1080/20445911.2011.539556

Lordelo, L. d. R. (2018). Poetics within performance art: The developmental nature of artistic creative processes. In O. Lehman, N. Chaudhary, A. C. Bastos, & E. Abbey (Eds.), *Poetry and imagined worlds: Creativity and everyday experience*. Palgrave MacMillan.

May, R. (1980). *The courage to create*. New York: Bantam Book.

Merleau-Ponty, M. (1962). *Phenomenology of perception*. London: Routledge & Keagan Paul. (Original work published 1945).

Merleau-Ponty, M. (2013). *O olho e o espírito*. São Paulo: Cosac Naify Portátil.

Nadal, M., & Skov, M. (2013). Introduction to the special issue: Toward an interdisciplinary neuroaesthetics. *Psychology of Aesthetics, Creativity, and the Arts, 7*(1), 1–12.

Nin, A. (1968). Foreword. In O. Rank (Ed.), *Art and artist: Creative urge and personality development*. New York: Norton Paperback.

Ostrower, F. (1999). *Acasos e criação artística*. Rio de Janeiro: Editora Campus.

Quiroga Mendez, P. (2010). Arte y psicología analítica, una interpretación arquetipal del arte. *Arte, Individuo y Sociedad, 22*(2), 49–62.

Rank, O. (1989). *Art and artist: Creative urge and personality development*. New York: Norton Paperback.

Reber, R. (2008). Art in its experience: Can empirical psychology help assess artistic value? *Leonardo, 41*(4), 367–372.

Roald, T. (2008). Toward a phenomenological psychology of art appreciation. *Journal of Phenomenological Psychology, 39*, 189–212.

Schechner, R. (2006). *Performance studies: An introduction* (2nd ed.). New York/London: Routledge.

Skov, M., & Vartanian, O. (2009). Introduction: What is neuroaesthetics. In M. Skov & O. Vartanian (Eds.), *Neuroaesthetics* (pp. 1–7). Amityville: Baywood.

Smagorinsky, P. (2011). Vygotsky's stage theory: The psychology of art and the actor under the direction of Perezhivanie. *Mind, Culture, and Activity, 18*(4), 319–341. https://doi.org/10.1080/10749039.2010.518300

Stanislavsky, K. (2013a). *An actor prepares*. London: Bloomsbury.

Stanislavsky, K. (2013b). *Building a character*. London: Bloomsbury.

Sullivan, P., & McCarthy, J. (2009). An experiential account of the psychology of art. *Psychology of Aesthetics, Creativity, and the Arts, 3*(3), 181–187.

Tinio, P. P. L. (2013). From Artistic Creation to Aesthetic Reception: The Mirror Model of Art. *Journal for Aesthetic, Creativity and the Arts, 7*(3), 265–275.

Van der Veer, R., & Valsiner, J. (1996). *Vygotsky: uma síntese*. São Paulo: Edições Loyola.

Vigotski, L. S. (1999). *A tragédia de Hamlet: o príncipe da Dinamarca*. São Paulo: Martins Fontes.

Vigotski, L. S. (2001). *Psicologia da Arte*. São Paulo: Martins Fontes.

von Ehrenfels, C. (1890). Uber 'Gestaltqualitäten'. *Vierteljahrsschrift für wissenschaftliche Philosophie, 14*, 249–292.

Vygotsky, L. S. (1971). *Psychology of art*. New York: MIT Press.

Vygotsky, L. S. (1994). The problem of the environment. In R. V. Veer & J. Valsiner (Eds.), *The Vygotsky reader* (pp. 338–354). Cambridge, MA: Blackwell.

Vygotsky, L. S. (1999). On the problem of the psychology of the actor's creative work. In *The collected works of L. S. Vygotsky* (Vol. 6: Scientific legacy) (R. Rieber, Ed.; M. J. Hall, Trans.; pp. 237–244). New York: Plenum.

Wertheimer, M. (1923). Untersuchungen zur Lehre von der Gestalt, II [Investigations on the gestalt theory]. *Psychologische Forschung, 4*, 301–350.

Zaidel, D. H., Nadal, M., Flexas, A., & Munar, E. (2013). An evolutionary approach to art and aesthetic experience. *Psychology of Aesthetics, Creativity, and the Arts, 7*(1), 100–109.

Psychology and Social Work Through Critical Lens

42

Maria Cláudia Santos Lopes de Oliveira and Tatiana Yokoy

Contents

Abstract

Psychology around the world has undergone important changes along last decades. One of the most salient transformations has impacted both the science and psychologists' self-images as practitioners and researchers and provoked the slow displacement of the discipline's focus, from isolated individuals to individuals within groups and communities. Psychology today left the closed rooms of offices and clinics, and has gone outdoors, to work with community members and through the participation in communities' daily life. As a consequence of this empirical shift, theoretical novelties were required. Psychologists represent now

M. C. S. L. de Oliveira (✉)
Institute of Psychology, University of Brasília, Brasília, Brazil

T. Yokoy
School of Education, University of Brasília, Brasília, Brazil
e-mail: yokoy@unb.br

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even more active agents within health, educational, social care system, and governmental and non-governmental programs. In this chapter we present and discuss the historical process of this sociocultural and epistemological rupture in Psychology and consider its impacts over applied social sciences today. We elaborate on contemporary challenges concerning social work and discuss the contribution critical psychological approaches can provide to enhance its impacts and outcomes in face of the very complex issues dealt by social policies in a globalized world.

Keywords

Sociocultural turn in psychology · Social work · Psychological care · Institutional psychology

Introduction

Psychology around the world, as an applied and as a theoretical field, has undergone important changes along the two or three last decades, mainly. One of the most salient transformations has impacted both the social representations of this science and the self-images of psychologists as practitioners and researchers, and it refers to the slow displacement of the discipline's major focus, from isolated individuals to individuals within groups and communities.

While general psychology's main professional setting formerly used to be, and to a certain extent still is, the private locus of psychological therapy rooms, and psychologists' main subjects were psychiatric patients and individuals with mental illness or disorders, an important part of psychology today left the closed rooms of offices and clinics, and the cognitivist and behaviorist straight jacket has gone outdoors, to work with community members and participate in the community daily life. As a consequence, instead of the former solitude of an isolated practice, psychologists have now acquired a growing importance as social care professionals, members of multi/interdisciplinary teams engaged in a practice that aims at empowering people and changing their living conditions.

In its move to the side out of the most traditional settings, applied psychology seems to have expanded its influence and penetration as well. In these diverse settings psychologists now work together with different groups in both urban and rural contexts, and in multiple, innovative institutional settings and collective arrangements, such as community centers, after-school projects, workers unions, political movements, sports leagues, among other human collectives. As a consequence of this empirical shift, theoretical novelties were needed as well.

While psychologists represent now even more active agents within health, educational, social care system, within governmental and non-governmental programs, their insertion in public policies and community activism demanded a more interdisciplinary stance. The borders between psychology and other professions engaged in social care seem to have blurred, and psychological knowledge has now proved to

play an important role not only within its own professional practice but also as part of the general theoretical and practical framework of other applied sciences and social care practitioners' education, especially as a source of important subsidy for their critical and ethical daily practice. Taking this dual aspect into consideration, we elaborate on contemporary challenges concerning social work and discuss the contribution critical psychological approaches can provide to enhance its impacts and outcomes in face of the very complex issues dealt by social policies in a globalized world. We also elaborate on what is (or should be) specific to psychologists participation in social work practices in collective settings, and the general contribution psychology as a science can provide to social care as a whole.

We present and discuss the roots of this historical, sociocultural, and epistemological rupture in Psychology and consider their impacts over applied social sciences today. We draw an overview of the relationships between psychology and social work in a more traditional view, considering their implicit values, theoretical basis, and practical implications. Then we focus on critical approaches in Psychology, analyzing their contribution to enhance social work current trends and practice. The last part of the chapter is dedicated to elaborate on some pedagogic implications of contemporary psychological trends in social work to teaching and learning psychology. We provide some illustrations based on cases and examples of good practices in social work, in order to illustrate its potential to induce development, personal and social transformations in contexts of health care; family-centered social assistance, and educational settings, in which creative ways of dealing with everyday challenges are analyzed in order to inspire practitioners who already work in this field and those who intend to develop a career in it.

Teaching and Learning Objectives of the Chapter

In this chapter students are expected to:

- Understand the contribution of applied psychology to social work practice
- Identify similarities and differences between Psychology and Social Work, concerning their historic, philosophical and epistemological hallmarks
- Distinguish between traditional and critical psychological frameworks in social work

Social Work in a Liquid Era

We should understand that the role played by social sciences and social care professions have significantly changed around the world in recent times. In fact, the world as a whole goes through important changes in terms of cultural, political, and economic distribution of resources, and understanding these changes is essential in terms of correctly interpreting their effects upon subjectivities. Nations that led important democratic achievements in the past are now dominated by conservative, populist, and moralist political trends. Few hands detain the major parcel of the

wealth of the world and a vast parcel of the values-system nurtured by modern era – instrumental rationality, progress, rule-following, social order, etc. – have proved unsustainable, giving space for a new social era in which following Marx, together with Bauman, "all that is solid melts into air" (Bauman, 2000). The liquid modernity describes the condition of constant mobility and change imposed to identities, relationships, and economics in contemporary societies.

Social sciences are deeply affected by complex realities that have increased in the liquid modernity and are interconnected in a globalized world. Critical issues as international migration, interreligious conflicts, political conservatism, deeper socioeconomic inequalities, lack of access to healthcare and educational deficits are worldwide problems, and they demand of social scientists a critical stance before they intervene upon vulnerable social groups and individuals based on scientific goals, as well as on ethics and responsibility. Therefore, because capitalism is more wicked than ever and social inequalities are higher and higher around the world (Bauman, 2011), there is a growing interdependence between socioeconomic and political issues, for one side, and psychological suffering in its diverse facets, for the other side. It is recognized today that sociocultural and economic factors can affect individuals, families, and groups so profoundly that they should be necessarily included in the interpretive framework that will guide our practice as psychologists in social work teams. In this context, the various psychiatric disorders, the licit and illicit drugs abuse, the burnout syndrome, suicidal ideation, etc., cannot be interpreted just as effects of individual difficulties or solely related to intraindividual causes. Such problems are currently considered as symptoms of an intricate network of sociopolitical, cultural, economic, and personal factors deeply ingrained in the history of modern societies and aggravated in face of the paradoxical contemporary times. World Health Organization [WHO] (2018) recognizes that good mental health today as a basic human right (Puras & Gooding, 2019) and the access to mental health policies, which included psychological care, should be universally accessible. In line with international health policies, Psychology is currently recognized as a social resource people can use toward liberation (Sloan, 2002), which means that psychological knowledge and practice is expected to overcome the status of a "neutral" corpus of scientific knowledge and to perform a core role in societal development, promoting, together with other social care professions, vulnerable peoples' development, low income groups' empowerment, religious minorities' inclusion, the cultural development of communities and nations, and other relevant social outcomes, coherent with the objective of enhancing ethic, justice, and democracy in all societies.

We begin by briefly considering the history of social assistance in the Western world. Concerning this topic, an important epistemological turn occurred in social assistance, both as a profession and as a theoretical corpus, and this shift took place in Europe and the USA at some moment along the second half of the twentieth century, after worldwide wars.

Social assistance origin is located in Europe, marked by a very conservative stance, due to the weird fusion of scientific aspirations and Christian philanthropy. In search of a scientific and a moral basis, social assistance is influenced by the functional positivism, the primacy of professional neutrality, and the verticalism, objectivism, and the a-politicism of social actions, together with the impact of the religious moral order and confessionalism, related to Christian assistentialism. After

the worldwide counter-hegemonic social movements in the sixties, a process during which social assistants' self-images suffered a deep conceptual reconfiguration, the original epistemological hallmarks of the discipline were rejected, giving birth to new perspectives in the field. As the main effect of this historical process, a more critical reflexive stance is assumed by scholars and professionals in the field, especially concerning its own ontological foundations and the recognition of its non-neutral role as part of the construction of a contradictory society, in which social assistants are, at the same time, social policing agents that intervene upon social relations and part of the society in which they intervene (Martins, 2016).

As for Psychology, we notice a very similar self-reflexive process of criticism taking place, especially by the mediation of emergent critical trends. Thanks to the dialogue of social psychology with feminism, post-structuralism, and decolonial studies coming from philosophy and other social sciences, it is now fully recognized the historical role played by mainstream psychological knowledge in the normalization, hierarchization, and moral regulation of individuals, by following the modern science trends of categorization, classification, and ordering, the most important side effect of which was the exclusion of individuals and groups and the expansion of social inequalities throughout the world.

In Brazil, for instance, since the colonial period (1500–1808), many groups (ex: native indigenous and African populations) were subjected to enslavement, disciplined and exploited by means of Christian evangelization, and other acculturation strategies (Lopes de Oliveira, 2019). This colonialist rationale is still present as part of the reality faced by social workers in our country (Alberto et al. 2014). Those who work in the social care facilities, for instance, deal with huge tensions between, on one side, the social protection constitutional principles, whose main focus is ensuring rights, fighting social inequalities and, on the other side, the charitable, clientelist and philanthropic institutional inheritances still operating within these facilities, together with the demands of a neoliberal zeitgeist, in which unfair and unhealthy work conditions, although illegal and unacceptable, are often found.

Although affected by critical ideas as it is, differently from other social and applied disciplines, in contemporary Psychology such ideas have not acquired a dominant status in the epistemological arena nor had a definitive role in transforming mainstream theoretical approaches. Indeed, critical epistemologies in Psychology today share with traditional epistemologies the landscape of psychological theory and practice and oddly occupy a disadvantageous position in it. Despite this, we understand that as our goal is to enhance a reflexive stance on social work, in which individuals and groups in contemporary societies are approached through ethical, responsible, and technical means at a time, a critical psychological standpoint is essential.

Social Work: A Kaleidoscopic Concept

Social work is a wide sphere of human activity but there is not yet one well-accepted meaning concerning its scope, importance, and goals throughout the world. A brief analysis of the available literature coming from different countries shows that the concept "social work" is linked to, at least, three semantic fields. They are:

1. In the more general sense, *social work* refers to a broad set of actions and interventions different professionals perform together with individuals, groups, peoples, and communities, which intends to minimize social risks and vulnerability, and promote social change and/or the improvement of their living conditions and future achievements. These professionals are either representatives of the Government or non-governmental organization stakeholders. In this sense, social work is *a particular sphere of human activity* that is part of public social policies, implemented either by government or nongovernment programs.
2. The second perspective follows a French tradition inaugurated by authors as M. Foucault, F. Guatarri, P. Bourdieu, among others (cf. Donzelot, 1997; Jeaninne Verdès-Leroux, 1986). In this sense, *social work* is described as a by-product of Modern Age, which is intimately related to the birth of European Nation States and the consolidation of capitalism as a global mode of production. According to this perspective, the changes in the dynamics of economic production and the functioning of societies during the eighteenth century represented an important shift that impacted social life. Industrialism was an expensive social experiment that demanded efficiency and outcomes, based on the continuous supervision, control, and regulation of social activities and individuals, mainly upon scientific bases. Social sciences and social care practices emerged at that time in order to *prevent and control idleness and procrastination, social maladjustment, and rebellions, ensuring the full use of each individual's vital energy in service of keeping social order,* and promoting economic reproduction, at a time.
3. Finally, the third context of use of the term *social work*, the more specific one, refers to *a particular actor, the social worker* or "social assistant," a registered professional whose practice is regulated by the state. In this perspective, the scientific debate around social work is usually presented together with topics concerning their professional education, daily practices, challenges and social outcomes. Illustrative of this perspective, Ingleby (2010) refers to six roles attributed to social workers:
   - Preparing for and working with individuals, families, carers, groups, and communities.
   - Planning, carrying out, reviewing and evaluating social work practices.
   - Supporting individuals to represent their needs, views and circumstances.
   - Managing risks to individuals, families, carers, groups, community, self and colleagues.
   - Managing and being accountable, with supervision and support for social work practice within individual organizations.
   - Demonstrating professional competence in social work practice.

The three views referred above can dominate the different national contexts, depending on historical, epistemological, legal, and institutional aspects that guide social work everyday practice. In the sections of this chapter, considering contextual differences, we move between the three aforementioned perspectives. At times, we will set the focus on the changes applied Psychology has undergone after its emergence in the late years of the nineteenth century and will highlight its slow

transition from an exclusive individualistic stance to a collective-oriented set of epistemologies, theories, and practices. At other times, we will emphasize the importance of Psychology scientific architecture, in special some branches of critical psychological approaches, and its role in feeding the development of professional competences of social workers and enhancing an ethical and emphatic stance on cared individuals and groups by social care agents (social assistants[1], pedagogues, psychologists, healthcare professionals, law agents, and others) (Conselho Federal de Serviço Social/Conselho Federal de Psicologia, 2007).

Psychology and Social Work in Contemporary Societies: Overcoming a Traditional Stance

Social work attends different functions in contemporary societies, and social workers themselves share polysemic or even contradictory understandings of their role as social agents, not all of them committed to social empowerment and human development. For instance, Curado and Menegon (2009) interviewed social workers regarding their professional role. The results they achieved in the study were organized into four categories concerning social workers' practice: (a) offer an occasional aid to people whose incomes are below the federal poverty threshold (APA's 2021) and those in need of any social support at critical moments; (b) promote human rights and foster societal changes targeting at achieving social equality; (c) improve the strategies for social management; and (d) use care as an instrumental resource for seeking vote and reproducing patronage, the dependence of disadvantaged groups on charity and aid.

In professionals' conceptions, as we can see above, authors found out critical conceptions together with conservative, old-fashioned positions, as in categories (a) and (d). Furthermore, these more conservative categories do not meet the guidelines of the International Federation of Social Workers (2014, online), in which the important role of social work in promoting social justice and empowerment, is highlighted

> Social work is a practice-based profession and an academic discipline that promotes social change and development, social cohesion, and the empowerment and liberation of people. Principles of social justice, human rights, collective responsibility and respect for diversities are central to social work. Underpinned by theories of social work, social sciences, humanities and indigenous knowledge, social work engages people and structures to address life challenges and enhance well being. The above definition may be amplified at national and/or regional levels.

[1] In this chapter, we use the term "social worker" in reference to the set of social care professionals, while "social assistant" is exclusively adopted to refer to those graduated in this career and registered as professionals, even though this differentiation is not universally adopted in different national contexts.

One of the core features of social work is that its goals rarely would be translated into material acquaintances, mostly because the State, through social policies, is incapable of providing all the needs, which are demanded by vulnerable groups. Instead, its aimed effect involves intangible outcomes such as cared groups' improved autonomy, better strategies to cope with their own challenges, and the ability to find creative solutions to their daily problems and precariousness of material resources (Brazil, 2018). Accordingly, McLaughlin (2014, p. 1811) sums up social work as an endeavor

> to help people to live more successfully within their local communities by helping them find solutions to their problems. In doing so, social workers deal not only with individuals but with their families, neighbors, and friends, as well as with other organizations such as the police, medical professions, and schools. While predominantly concerned with the care and protection of those in need or at risk, it often involves the use of statutory powers over individuals, for example, in the removal of a child from its parents due to it being considered to be at risk of significant harm or the detention of someone against his or her will under mental health legislation.
>
> The exact forms such interventions take, and the values that underpin them, will vary both historically and from country to country as sociopolitical and other cultural factors influence attitudes to, and provision for, the distressed and disadvantaged within a given society.

The historic development of social work as a practice points to the emergence of an interdisciplinary field whose scientific and practical fundamentals have been the object of intense political and epistemological dispute. Such disputes have opposed not only social scientists, but policy-makers, stakeholders, entrepreneurs, employers, and social care professionals, along the time. The first disputed topic concerns the very definition of social work, in face of the absence of a consensual definition of the scope of the social work agreed upon by different nations. In France, for instance, Rulac (2014) refers to the existence of an intense tension between social assistants and social scientists. The French practitioners are resistant to recognize the scientific basis of their practice and they prioritize the situated professional knowledge as the basis of a good intervention. Social sciences are perceived by them as excessively theoretical, and they would bring the marks of the divorce between theory and situated practice. One of the consequences of this skepticism regards science was the absence of a university degree in Social Work in that country until the year 2013.

In fact, France is not alone in this position. In different countries beyond in Europe (cf. Olivares, 2012, analyzing Chile) this specific profession has been lately institutionalized, or keep a blurred border with social sciences, even though these countries had social policing going on for long. They counted on specific agents in charge of the policies that targeted the social regulation and protection of vulnerable groups, families, and communities and one of the social care professions that will be required to perform this function is Psychology itself.

While social sciences are blamed for their scarce amount of empirical knowledge produced, concerning traditional Psychology the major problem is not the volume of empirical knowledge, but the excessive focus on individuals and on experiments conducted within artificial settings. Aspects associated with the occurrence of the two world wars, along the twentieth century, caused the transference of an important

parcel of Psychology research groups from Europe to USA. For the one side, the scientific enterprise yielded in US laboratories had a superlative importance in the development and visibility of this science as a whole. For the other side, the seclusion of psychological knowledge within laboratories has pushed Psychology away from social reality and, particularly concerning this field's contribution to social work; at least US psychological major paradigms based on experimental behaviorism and cognitivism are definitely limited.

According to the traditional social division of sciences, Psychology was considered as the science of the psychological realm, no matter how many different and contrasting definitions of psychological realm we will find out within it. That is why for long time psychologists were kept apart from social work teams, even though these professionals continuously applied psychological concepts and instruments as resources, even though in a fragmented and superficial way. Psychological concepts (personality, attitudes, beliefs, motivation, etc.) and instruments (psychological tests, for instance) would help them to deal with supposedly subjective, intra-psychological dimensions of the conduct that interfered in one's social life. In other words, traditional Psychology helped social workers to deal with supposedly individual issues by using loose psychological categories, split notions of human development, and empirical instruments detached from theories (cf. Ingleby, 2010). We now recognize that the consumption of Psychological knowledge by traditional social assistants corroborated their own beliefs and prejudice, in special the idea that social problems were mostly associated with individual traumas, mental illnesses, deficits, etc. (Jensen, 2015) and/or moral dysfunctions, such as procrastination, laziness, and lack of goal-orientation.

Prado (2014) follows this path. The scholar argues that the main feature of the contribution historically provided by Psychology to social work was reductionism. The political basis of social phenomena was oversimplified by mainstream Psychology, interpreted as if caused by individual psychopathological traits, accordingly to classificatory and discriminatory agendas. Just recently, by the end of the twentieth century, Psychology really engaged in the debate and practice of social work in a more dialogical, interdisciplinary, and relevant manner. This novel stance brought fresh air to psychological practice within facilities such as prisons, asylums, hospitals, and schools.

As a consequence of this long-lasting reductionism, Afonso et al. (2012) highlights that social work still lacks a robust theoretical-methodological framework that go beyond both the psychologization of social problems and the objectivist views that usually offer weak practical solutions to everyday problems. Ahead of the complex social problems we deal with nowadays, the mere incorporation of psychology into social work without a deeper self-reflexive stance fuels in social workers these days the fear of a return to the "psychologization of the social question" (Afonso et al., 2012, p. 190). Taking the opposite way to this feared scenario, contemporary approaches in Psychology put under suspicious its own traditional individualistic and moralist vein, and search for new epistemologies that qualify services and support an empowering and inclusive perspective on social work.

Toward a Critical Stance on Social Sciences and Social Work: The Importance of the Sociocultural Turn

The construction of a critical psychology requires clarification concerning the philosophical and epistemological standpoints of critical thinking. In a broad sense, critical humanities and social sciences imply the commitment with alternatives to traditional scientific perspectives in the interpretation of human beings and social problems. This means the de-naturalization of social issues and the adoption of an inquisitive stance toward conventional explanatory schemes that guided psychological interventions in the social world. Nissen (2012, p. 12) explains the three core aspects usually shared by critical psychological approaches:

(a) The "progressivist" use of psychology in social critique
(b) The "reflexivist" critique of psychology itself
(c) The "reconstructionist" building of alternatives to traditional psychology

According to Teo (2018)

> the term *critical* [original author's emphasis] itself has different meanings. For natural-scientific psychologists, the idea of critical thinking refers to the application of scientific process and practices to the world. Critical psychologists who understand themselves as following a political-economic analysis challenge psychology on the background of power, politics, and society (pp. vi-vii).

Critical scientists share a focus on social sustainability, foreseeing a society that rejects the hegemony of the Western neoliberal and capitalist market models. They search for the collective well-being and for a meaningful life for all, mediated by distributed economy, democracy, and justice (Natale et al. 2016). According to these authors, in order to be considered as a critical approach, an epistemology should include some core features, such as:

- The primacy on ecology
- The rejection of economic utilitarianism and developmentalism per se
- The commitment with human rights
- Listening the voices of minority groups
- The suspension of well-established truths and beliefs

Finally, critical scientific approaches lead an active effort to overcome exclusive Euro-American mainstream epistemologies and insert universal theoretical and empirical assumptions into brackets. By this attitude, they leave room for questions and interrogations; their attention is directed to those formerly unknown, or disregarded, "epistemologies of the South" (Santos, 2016, p. x), and to the knowledge produced in Africa and Latin America. Within a critical epistemology, these sites are increasingly recognized as producing interesting theoretical models, considered as valid not only to nourish the interpretation of their intricate local

problems, but to guide innovative ways of analyzing other contexts' social phenomena as well, in a globalized world (Nwoye, 2014).

As a consequence, psychological critical perspectives impose a shift in the way we interpret and intervene upon human beings. Mental life is now conceived not as a universal, objective, steady state phenomenon (Valsiner, 2017). Instead, as far as human subjectivity is socially, historically, and culturally embedded, the psyche emerges in relation with humans unique experiences guided by, and oriented to, the complex network of semiotic relations, in the irreversible flux of time of a given society.

Critical psychology is based on questioning, "asking questions about psychology and raising questions about the questions that are asked has been identified as a process of reflexivity and interference" (Teo, 2018, p. 2). Inquiring, raising questions for which one has no simple answer is a trend that has been totally abandoned by traditional psychology. Nevertheless, according to a critical psychology, questioning the basis of a given scientific field is part of recognizing its sociocultural and historical basis *instead of* assuming it as a definitive corpus of true statements.

The sociocultural shift in Psychology articulated a set of theoretical, philosophical, and epistemological perspectives coming from humanities and social sciences. Such a shift did not give rise to a single or hegemonic theoretical model, but instead it generated a kaleidoscope of more or less articulated complementary perspectives, which have in common ideas concerning the inseparability of mind and culture; and the core role performed by sociocultural contexts in the production of subjectivity (Kirshner & Martin, 2010)**.**

Together with classic thinkers, as the Italian philosopher Gianbattista Vico, who rejected this passive and responsive view of human beings and argued that humans' main hallmark is the *ingegno*, that is, their ability to be intentional and creative, imaginatively introducing new elements in pre-established relationships with others and with reality (Tateo, 2015), an important epistemological trend supporting sociocultural turn comes from constructionist approaches. Constructionism is a broad and diverse umbrella indeed, which common ground is the assumption that human knowledge and development are a shared experience, co-constructed upon social interaction. This umbrella covers, among other epistemological perspectives, the social constructionism, post-structuralism, discursive psychology, and feminist psychology (Harré, 2010).

Constructionist ideas have had an important impact on scientific thinking in psychology by radically problematizing the biological determinism of mental functioning and offering elements to defend the sociocultural and collective origin of the emotions, values, beliefs, and meanings that populate the human mind and give rise to psychological functions. These functions develop as part of social interaction patterns and are progressively incorporated and internalized, giving birth to the sense of personal identity.

Therefore, socioculture – in the form of historically constituted and socially assumed founding schemes, conventions, rules, myths, and narratives – is responsible for the form, the mode of organization (Shotter, 2010), as well as the hierarchical

content of mental life. Constructionism avoids every possible use of internal categories to investigate the psychological world and embraces the idea that human conduct is organized in the form of stories or narratives, texts through which each subject constitutes a sense of continuity of the self in the timeline (Sarbin, 1986). Here, the sociocultural turn in psychology offers an important clue to social work: the storied nature of human conduct and the healing potential of dialogical settings in which intentional beings will construct a sense of selfhood, belonging, and historicity.

As we have already emphasized earlier in this chapter, for political reasons, the formation of the human and social sciences was characterized by the divorce of culture and subjectivity, turning the two into parts of distinct scientific fields (Sato & Valsiner, 2010). Cultural psychology makes an effort to reinsert subjectivity within culture. By bringing the concept of culture into the current debate on psychological processes, Cultural Semiotic psychology highlights the importance of meaning processes as guiding the co-construction of subjects and the social world.

In epistemological terms, the adherence to a cultural semiotic perspective suggests the union of approaches from the general psychology of dynamic phenomena with semiotics in order to understand how human systems (including the individual system, as well as groups, communities, nations, etc.) can position themselves proactively (and not just reactively, as some psychological approaches considers) in face of objects that become worthy of attention and semiotic elaboration, based on specific meanings previously created by communities and actively recreated by the subjects in their concrete interactions.

Cultural Semiotic psychology is considered as a branch of general psychology, and it provides analytical and empirical insightful ideas that favor a broad understanding of how human beings develop upon activity and semiotic movements within and between different layers of the sociocultural world. Cultural psychology suggests that the study of the psyche should adopt a idiographic perspective and highlight the (trans)formation of the person along unique developmental trajectories.

The historic role played by mainstream Psychology in its eagerness to desubjectify the subject, reducing it to static categories – focused on "being" rather than "becoming" and depriving it of its gestalt properties-, is problematized in Valsiner et al. (2016). According to authors, the main challenge general Psychology needs to face in order to improve its relevance as a critical science for social praxis are:

- Need for *a generic unit of analysis in psychology*, *which is a synthesis of the mutual oppositions* in a system
- Escape from harmony, repetition, and equilibrium and accept crisis, novelty, and tension as inherent moments of living systems
- The constant (re)generation of the psyche in the processes of acting, counteracting, and constructing a self-reflexive structure, mediated by signs that constantly produce new phenomena

In other words, both scientific and applied Psychology are being increasingly pushed to give up the bourgeois normative features that used to define its core principles as a liberal science. Psychology is currently demanded to assume a new frame based on situated knowledge, on practice-based competences developed within concrete spheres of living experience. A critical corpus of knowledge emerges that allows for Psychology's active participation in the construction of collective projects committed with the transformation and emancipation of groups and communities.

We understand that the ethos of critical psychology approaches offers important clues that should be considered by those implied in a contextualized, situated, practice in social work. In this new scenario, we must ask ourselves: which contribution critical psychology offers to social work?

Applied Psychology and Contexts of Practice in Social Work

For a long time, the debate concerning social work and its distinct contexts of practice was led by social assistants, whose professional identity is related to their participation in the construction of social policies and their growing commitment with an ethical and empathic anchoring of daily practice. Later on, other applied social disciplines, including Psychology, pedagogy, laws, etc., were included in this debate and they participated in the organization of a new field of empirical and situated knowledge constructed around community-based interventions. However, this emergent field has never been a calm sea. Instead, social work is an arena of deep tensions derived from theoretical and methodological issues emerging in the intersection of its multiple founding and adjacent disciplines, as well as related to the intricate network of social problems that affects human beings in a globalized world (Brazil, 2015).

In democratic societies, social work plays a strategic role as a bridge between the state and citizens, by expanding the reach and impact of social policies while inducing social protagonism and citizenship. Considering the features of this complex panorama of social demands within the contemporary world, no solution is enough in itself. Instead, diverse integrated actions are necessary and their common ground is to connect the goods and services offered by public policies and their beneficiaries. Thus, the core function of social work is to trigger developmental processes that, starting from a diagnosis of local problems, needs, and contexts, enhance their living conditions and increase locals' social participation, authorship, and networks, by means of multiple, intersectoral actions, and different forms of intervention in the public's own territory.

These processes will certainly vary according to the context, the targeted public, and the issues participants understand as relevant at a given moment. Projects aiming at intervening on community relations, for instance, will focus on collective goals, such as preventing prejudice and power unbalance while strengthening co-authorship, community autonomy, political engagement, and socio-relational links within groups and individuals.

Psychologists in social work can follow many different epistemological and methodological orientations in face of the challenges related to service user's demands as well as those associated with the multidisciplinary and multi-professional character of the work, in which psychologists, social assistants, pedagogues, health professionals, lawyers, and others are engaged (Yokoy, 2021). Concerning just psychology, theoretical and practical knowledge comes from different sources as well, such as social psychology, community psychology, developmental psychology, institutional psychology, clinical psychology, organizational psychology, psychoanalysis, systemic theories, psychodrama, etc. Still, Yokoy (2021) presents some principles for social policies and indicates the emergence of new psychological practices that are convergent with the collective catalization of novel subjective, family, and community developmental trajectories. In this sense, Psychology today moves from individualism toward a culturally contextualized praxis that transforms and promotes people's concrete living conditions and the quality of social, ethnic-racial, gender, religious, and/or age relations. Institutional-based interventions by contemporary psychologists focus on diverse relevant topics and specific features of the territories.

Projects developed by multi-professional teams within educational, socio-educational, security, or healthcare facilities will share some goals and differ with regard to others. In a way or another, different strategies will be needed to achieve desired outcomes. Thus, methodologies in social work should be developed in terms of co-created projects that consider the history of that given territory, aiming at empowering people to face daily life issues and more and more complex future individuals and collective existential challenges (Brazil, 2015). This means a continuous construction in which both workers and the subjects attended by the work creatively participate and are collaboratively benefited by the outcomes they reach.

In the next section, we present the three main areas in which Psychologists have contributed to the achievement of social policies' aims and goals, especially those related to social inclusion, citizenship, and protection of human rights. They are: healthcare; family-centered social assistance; and educational settings.

Healthcare and Social Work

Healthcare is a broad system of integrated activities related to the organization, financing, and delivery of health services at the primary, secondary, and tertiary levels (WHO, 2018). Promoting a healthy society is an increasingly expensive and complex undertaking. Sociopolitical factors – such as the increase in the world population, the greater longevity of people, and the new technological stuff necessary to support the Medical practice – together with behavioral factors – world population physical inactivity, incorrect eating habits, daily stress, etc. – turn healthcare into something necessary, but unattainable sometimes.

Countries in the world follow different trends concerning health system financing. The first category includes countries in which health assistance is universally government-funded, which means that healthcare is available to all citizens regardless of their income or employment status. In the second group are included those countries in which some people receive healthcare via primary private insurance, while people who are ineligible for it, from the government. In the third model, the universal public insurance system, health costs are usually divided among the government, employees, and employers. This means that people who don't have a legal contract of employment and/or can't register as unemployed may be ineligible for free healthcare. Finally, in a small albeit growing scope of nations, health is an exclusive private enterprise, converted into a very profitable business, of which most people are excluded, what risks not only their own lives but the community as a whole. Moreover, some countries included in the three other categories by WHO currently undergo political reforms that will soon result in a transition to models in which the government will have smaller participation in healthcare costs.

In this very contrasting scenario, the citizens' right to access healthcare policies in its different levels of action is under threat, which is a major issue for social work attention and psychologists. From the consequences of one's total exclusion of healthcare assistance to the support needed to deal with chronicle diseases and permanent impairments, for instance, the importance of inclusive social policies is undeniable, by means of ethical policies and engaged social workers. Furthermore, social workers are needed not only in the direct care of people, they should be integrated within different points of the health system, including the participation into health councils; in the elaboration, management, and evaluation of health policies; in the development of research projects that assess innovative care practices held within healthcare facilities, and others. As for psychologists in social work, they are expected to go far beyond an individualistic outpatient care limited to psychodiagnosis and individual/group psychotherapy. Although individual approaches are necessary in specific circumstances, psychologists are encouraged to have a growing participation in the solution of broader problems that impede the healthcare systems to being efficient and inclusive (Dimenstein, 2014; Spink et al. 2014), what involves getting out of the box, adopting different, creative context-sensitive, culturally inclusive strategies.

Principles as community participation, comprehensiveness, humanization, complexity, and interdisciplinarity are core aspects of the activities carried out by multi-professional teams, psychologists included, which work within healthcare systems (WHO, 2018). While social assistants pre-grad education is clearly attuned with these principles, psychology students' professional training is impacted by the challenge of surpassing historically rooted individualism in this field and having the opportunity to participate in and collaborate with multi-professional teams and community leaders in situated contexts of practice. Health promotion and healing practices deal with a diverse scope of situated knowledge, both scientific and non-scientific ones. The co-construction of collaborative interventions that lead to positive outcomes, from the standpoint of the users themselves, need considering

the multiple, divergent realities in which health services operate. Culture-sensitive psychological techniques will add an important contribution to social work in healthcare contexts.

The National Health System in the authors' home country (Unified Health System-SUS, Brazil) is universally government-funded, what is considered as a great social achievement, considering our enormous territory, and the tremendous sociocultural and economic divergences within the cared population. Following WHO, the SUS is guided by principles as universality, integrality, and equity; therefore the same principles guide the social work of psychologists in healthcare. While universality refers to ensuring to all citizens the right of access to public health services, integrality speaks of the coordination of the diverse dimensions of health-disease process, including health promotion and protection, cure and rehabilitation, in equal conditions to different persons, regions, or communities, so that differences are not transformed into inequalities (Spink et al. 2014).

In search of good practices 1:

Applying Integral Health Principles in Improving a Child's Adherence to Treatment

A psychologist who works in a given health care service is requested to develop – together with nurses and the doctor – specific actions to improve a diabetic child´s adherence to treatment. Considering the principle of integrality, it is essential to comprehend that infant diabetes is much more than an organic condition; diabetes implies in a set of life-long commitments, affecting the child's whole life trajectory and future horizons. Dealing with diabetes in childhood and adhering to treatment will probably involve difficulties as possible side effects of medication or parents' guilt in social settings such as birthday parties, for instance. Above all, team intervention will certainly interfere in family history, dynamics, affects and values, and in its participation in the sociocultural context, as a source of community support that can make lighter the load of the disease.

Hence, even if the initial focus of the team is this specific demand around the child´s difficulties with adherence to treatment, social workers are expected to open their lens in order to include the whole family in their strategies, considering its integrality and in a contextualized way. Appropriately planning healthcare actions in this direction will certainly reduce psychosocial impacts of chronic illness; improve the child´s quality of life; minimize undesirable effects of the health condition upon schooling; and help the family to strengthen its own coping strategies against the stressors associated with the illness *per se*. In sum, social workers should not ignore protocols, but they should also be aware of the impacts of human beings' uniqueness on social work and, as a consequence, that each case will probably require of the team specific solutions.

Family-Centered Social Care and the Active Participating Beneficiaries

Psychologists in social assistance services are supposed to participate in interdisciplinary teams, the main goal of which is promoting subjective and collective changes, helping beneficiaries in overcoming social risks, as well as strengthening community bonds and families´ potentialities. In sum, enhancing individuals, families, groups, and communities' autonomy and protagonism (Conselho Federal de Serviço Social/ Conselho Federal de Psicologia, 2007).

A family-centered social care, as most of the social work practice based on a critical approach is not usually performed by an isolated professional and the client – this was the main feature of a clientelistic approach, indifferent to users autonomy and the community development. In critical social care, discussed earlier in this chapter, individuals, families, and communities are considered as social-historical agents that find in sociocultural concrete settings semiotic resources to develop in a bidirectional manner, by participating in social practices. So, to be effective, social work must articulate this network of intersectoral services in order to approach families in its integrality and complexity, and strengthen both its inner bonds and its sense of belonging in the community.

In contemporary times, we share a plural panorama of family arrangements, quite distinct from the bourgeois nuclear family structure typical of the Modern Age: extended families; couples with adopted kids; second partners with their own kids living together; intercultural religious families; families headed by grandparents, by single parents, by Same-assigned sex couples (APA's 2021), for instance. Following institutional reports (Brazil, 2012a), and academic works (Soares, 2012), all groups of people that recognize in each other's ties of blood, affection, and solidarity are considered as a family. Hence, a protective family dynamics can exist regardless of the specific features of its inner arrangements, and even independent of its socioeconomic features. Even so, social policies should intervene in order to prevent, to approach, and help to find an adequate solution whenever families face some crisis, mostly if this problem represents a possibility for victimization of women, children, and the Older population (APA's 2021).

These three groups are considered as prioritized groups by social policies due to the fact that they have specific material, legal, and emotional demands concerning social support. As for children and older people, their peculiar developmental conditions, and as for women, their struggles facing gender inequalities and violence. For these reasons, in most democratic countries, children are totally sheltered by the law, and their rights regarding public health, education, and social assistance are considered as the most relevant ones. In capitalist societies, for instance, children and adolescents suffer in a sharper way than adults the effects of the culture of consumption and also the impacts of the mechanisms of social exclusion that affect those families deprived of means for consumption. In fact, the earlier in life a person is exposed to deteriorated socioeconomic conditions, the longer she/he will remain affected by the perverse effects of poverty and its consequences on his/her development trajectories and that of the following generations, unless she/he is reached by the arms of protecting public social policies.

Children and adolescents can be condemned to social exclusion by many factors, other than the ones rooted in family's and community's scarcity of material resources.

Cultural features such as the prevalence of conservative values and beliefs that support parents' unquestionable authority upon their kids can also deprive children and adolescents of the chance to participate in the decisions that concern their lives and disturb their physical, cognitive, moral, or emotional developmental outcomes. Some examples are early school dropouts due to early adolescence marriage or child labor.

Taking these factors into account, families are one of the most important contexts of social work that, according to Brazil (2012b), involves the following principles:

(a) Critical awareness and research spirit on the part of professionals dealing with families.
(b) Knowledge of the territory, its potentials, resources, and vulnerabilities, in order to carry out preventive and proactive action.
(c) Knowledge about life cycles; ethnic, racial, and sexual orientation issues, as well as other specific topics that may define relations in the territory.
(d) Interdisciplinary and interprofessional approach, which makes it possible to understand families and territories according to sociological, anthropological, economic, psychological approaches, among others.
(e) Participation of service beneficiaries in the planning and evaluation of actions implemented with families.

It is important to highlight that everyone assisted by social work has their own rights: the right to learn how public policies services work; to express his/her interests and expectations; to participate in decision-making processes concerning the solution of their own problems; and – exception made to specific conditions determined by law – to decide about their own lives, including the alternative of not taking part in a given intervention or activity proposed by social workers, if she/he understands that the proposal violates or ignores his/her interests.

Social workers and psychologists should create together with service-users opportunities to democratic and protecting relations – within the family and with the staff – and prevent the proliferation of problems as segregation, subordination, and undervaluation. Below, we illustrate the importance of family-centered social work by means of two initiatives that focused upon the family system. They accomplished encouraging the collaborative participation of both direct beneficiaries (older people, people without housing (APA's 2021)) and their families.

In search of good practices 2:

Reducing Violence Against older people in the Territory: A Family-Based Intervention

The first case refers to an initiative held in a special social protection service for older people and their families in the south region of Brazil aiming at reducing statistics of victimization of older population in the territory (Appio & Tramontin,

(continued)

2012). One hundred and twenty-four older adults and 332 family members were accompanied in this social care facility and the multi-professional team had noticed in the months before an expressive increase in the number of reported episodes of violence against older people (mainly neglect, abuse, and abandonment by family members), followed by legal measures to ensure the victims' rights what, in most cases, meant their transference to nursing homes.

The team started by doing home visits and inviting family members to talking-meetings in the social care facility. They constructed together with each family group an "Individual Plan" that settled the main points to be approached and the main goals to be collaboratively achieved. Along the meetings with the families the staff could figure out that not only older adults but also the family members were exposed to harsh vulnerable conditions as well and endured concrete difficulties to cope with taking care of the older people, for example, when they retained the bank card what had a negative impact upon the whole family who would not count on his/her contribution to household expenses. According to the team, their option to dealing with issues of intra-familiar violence through approaches that engaged the whole family, instead of individual-oriented techniques, led to positive outcomes, especially because the strategy favored a sensitive look both to the victim and to the other family members' perspectives. This way the older adults' rights were protected and relations of care within the family context were favored, turning older people less vulnerable and preventing the aggravation of the episodes, which would probably lead to the future transference of the victimized member to nursing homes, on the expense of the government.

In search of good practices 3:

Culture and the Inclusion of People Without Housing: An Aesthetic Approach of Reality

This example portrays an innovative social project that combines information, local culture, and the purpose of socially including people living in the streets or under extreme social vulnerability. This project resulted in a serial magazine named "Traços Magazine," initiated in 2015 in Brasília, Brazil. Since then the magazine has won many awards and is part of the International Network of Street Papers (Street Publications). The idea was to unite local artists – poets, writers, musicians, designers, actors, directors, and photographers – invited to collaborate in the production of the reports, and the so-called "culture spokesperson," people without housing, whose function is to, after proper training, publicize and sell the magazine in places such as restaurants, bars, cinemas, and theaters. Together with this professional activity, spokesmen are offered personal care related to health issues (dental care, testing for sexually transmitted infections), mental health care (mostly related to alcohol

(continued)

and illicit drugs abuse, anxiety, depression, etc.), educational mentoring, and have the opportunity to participate in distinct cultural activities. This aspect favors the development of an aesthetic approach to reality, besides turning them more accurate in the paper of culture spokesperson. All these initiatives demand a huge intersectoral articulation of public and private efforts that engage social assistance, health care, education, and cultural profitable organizations: 100% of the magazine sales revenue is destined to beneficiaries. The agreement followed by partners is that at least 30% of the profits will mandatorily be used by spokesmen to acquire new magazines, so that she/he can start a new cycle of income generation, to finance future life plans and to support self-care and self-esteem individual projects.

After living in the streets for sometime, human beings experience negative social stigma and develop weak self-images and low self-esteem. Being ignored by other people or even being targeted by unpleasant, offensive attitudes will cause self-defensive and hostile conducts. Participants in the project showed a tendency to self-isolate and avoid social contact. The fact that each volume of the magazine dedicates few pages to portray the life history of one of them help spokesperson to voice their life and to position themselves as protagonists of the life and culture of the city, thus providing them visibility and social recognition. Lopes (2019) argues that the discursive line of the magazine functions as a counter-discourse that questions participants' marginalization processes, their social exclusion, and the social stigmas they are exposed to, expanding personal and professional perspectives, promoting social visibility, and community bonds. After participating in the Traços Magazine project for sometime, most participants not only experienced changes in their appearance and attitudes, many managed to get fixed housing, jobs, would pay for their own food, and maintain self-care initiatives. In some cases, family bonds were restored and they went back to the family home. Mental health treatment helped many of them to overcome substance use disorders (APA's 2021). Those who needed legal assistance obtained it with the project help as well.

Social Work in Educational Settings

Psychology has constructed a long-lasting relationship with the educational environment. The demands posed by schools and the wide scope of problems related to teaching and learning have contributed to the development of psychological instruments – like intelligence and personality tests – and to the psychological science as a whole. However, especially at first, this relationship was characterized by an individualized, remedial and curative emphasis (Guzzo et al. 2014). School difficulties lived by children were approached by mainstream Psychology in terms of cognitive, mental problems, and the solutions for these problems were searched inside their

mind. We now understand that all human beings are equipped with a natural ability to learn, no exception made. Learning is a complex mental function and it is so essential for the survival and development of human beings, so necessary to cope with the threats and challenges faced along one's life course, that in the absence of a hard brain injury or a severe intellectual disability, the fact that some children just do not succeed in school tasks should be necessarily put under suspicion. Hence, learning problems at school should be necessarily interpreted together with other factors, such as family issues, social vulnerabilities, economic hierarchies, and other concrete difficulties lived by young apprentices in daily life. And this is where school social workers come in. For instance, in regions with lower Human Development Indexes (HDI), school dropouts are a bigger problem than it is in higher HDI, in an intimate relation with problems such as child labor, domestic and community violence, drug trafficking, etc. These professionals have important roles within schools, supporting teachers and pupils, as policy-makers, and in the administration of educational policies.

In democratic societies, at least, schooling is a universal opportunity, a basic experience shared by most of the population at a certain interval of the life course. Considering this aspect, each school represents in itself a knot in the educational policies system and, at the same time, a context in which children, adolescents, and their families can be accessed by other social policies. Thus, the longer the school career and the more qualified the educational experiences children and young people are exposed to in schools, the less they will depend on other social policies and the government, in the future. Hence, social workers are demanded to intervene both within schools and in permanent dialogue with schools, especially when these professionals take part in intersectoral policies, which are by their nature related to education, health, social assistance, justice, etc., at once.

Considering the vast literature existing on educational psychology focusing on regular schools and the role of school social workers (Dupper, 2008; Openshaw, 2008), in the remaining of this section we will focus on a particular educational context in which social workers, psychologists included, perform a core role in achieving desired goals: juvenile justice. Juvenile justice in the international context is an intersectoral policy, intrinsically related to many other social policies, as education, healthcare, social assistance, public security, and justice (Watts & Hodgson, 2019).

The core aspects and principles guiding juvenile justice in the world nowadays mentions humanitarian treatment to young people who violated the law, emphasizing the importance of school opportunities and professional training, together with the efforts to strengthen family and community bonds and their growing commitment with the problems of their immediate sociocultural context, in a participatory, emancipatory perspective (Decker & Marteache, 2017).

Thus, to cohere with these principles, local policies should guarantee that school opportunities have a central importance within juvenile justice, if they expect young people to reach innovative developmental trajectories as a consequence of the legal sanction, uniting the physical, mental, moral, spiritual, and social dimensions of subjectivity (Lopes de Oliveira, 2003, 2014, 2016; Paiva and Cruz, 2014).

One of the greatest challenges countries face regarding juvenile justice today involves a creative solution for reaching the best equilibrium between the effectiveness of the legal measures imposed to young offenders as a consequence of their criminal act, for a side, and the high costs and the many undesired psychosocial side effects of custodial legal measures, for the other. The imbalance between the two plates of the scale pushes young people in the opposite direction of the humanitarian principles enumerated before. Whenever legal measures fail, young people not only practice novel offenses, but these offenses tend to be more serious and involve even more violence, demanding even more severe penalties as a consequence (Lopes de Oliveira & Yokoy, 2012).

A second big issue endured by social workers in juvenile justice refers to the racial and socioeconomic selectivity within the socio-educational system, a visible effect of the deep tension installed in it between promoting human rights and reproducing criminalization, poverty, and stigmatization of minority groups. For instance, in most Western developed and developing countries, the number of black people in jail is higher than in Caucasian ones. Social workers deal with negative social representations about young people and should work to overcome this condition, preventing the effects of these negative representations on the social evaluation of young people's behaviors and attitudes. Thanks to a racial selectivity, more often than whites, black young people are usually interpreted in association with criminality, even when they are just expressing joviality and joy (Paiva & Cruz, 2014).

Social work multi-professional teams, psychologists included, have as their main role to construct together with their peers and the adolescents they attend, novel developmental trajectories that exclude adolescents' dependence on criminal activities and promote their living in healthy and secure conditions. Social workers accomplish different functions in juvenile justice, some of which will target the adolescents themselves; others will engage different actors within the system, such as security agents and management personal. Concerning the adolescents, there are custodial and noncustodial legal measures, and professionals are responsible for supervising and going along with them during the time they comply with the legal measure, and define – together with adolescents and their parents – a set of goals for an individualized socio-educational plan, based on the elements previously investigated and the character of the offense itself. This includes the following steps:

(a) Learn about his/her legal process, and stay up to date with any novelties or required reports concerning the measure itself and the protection of the adolescents' rights.
(b) Gather information about the adolescent and his/her family system, their intergeneration history, inner structure, and emotional links.
(c) Check if the adolescent is already assisted by the healthcare and educational system and, if necessary, refer them and their families to the proper social policies.
(d) Supervise adolescents along with planned educational, cultural, sports, and professional training activities, and evaluate in collaboration with them the reached and not yet reached outcomes.

(e) Observe school frequency and academic performance, in dialogue with teachers and school counselors.
(f) Make it clear what are the adolescents' rights and duties and construct with them a commitment with following rules. Inform him/her about the consequences of rule-breaking.
(g) Evaluate, together with security agents, issues of misbehavior, indiscipline, and other occurrences along custody, based on general rules and sensitive to each unique case, choosing the most effective attitude to take in each case.
(h) Monitor peer relations within the institution, to prevent rebellions and other circumstances that may risk adolescents' safety and life.
(i) Highlight the adolescents' main achievements, and whenever legally allowed, indicate his/her release, or the transference to a less severe penalty, in order to favor better results with less harm on their subjectivity.
(j) Collaborate with the institutional effort to follow the adolescents after release until they are fully inserted in a context of minimum social protection, preventing thus the occurrence of new episodes that may lead them back to custody.

As for other actors in the juvenile justice system, social workers intervene in issues of organizational climate, promoting mutual collaboration within the teams and preventing/intervening in issues of competition, individualism, or lack of empathy; they can lead permanent education workshops to construct with the staff symbolic resources and competences necessary to work and discuss other issues that may compromise the quality of service and the effectiveness of collaboration between professionals working in different points of socio-educational care, or the attachment with the adolescents.

In the authors' home country, research projects conducted by Yokoy and Rengifo-Herrera (2020), Andrade (2017), and Cunha (2019) show that, after a long history of oppression and discrimination regarding juvenile offenders within local juvenile justice, some meaningful changes are taking place within it, and this transformation is feeding better expectations regarding the future outcomes of socio-educational system.

First of all, they noticed a slow renewal of the staff after the retirement or the dropout of tougher educators, whose self-images were more aligned with that of security agents. The profile followed by the recently recruited educators, which coexists with the more traditional ones, is attuned with human rights principles so that they aim not only to blame and punish offenders, but they are sensitive to the adolescents' social needs and educational and professional expectations. Moreover, they seem motivated to engage in initiatives aiming at their professional development, which is essential in order to improve socio-educational achievements.

Secondly, they found that social workers within juvenile justice are unsatisfied with more traditional approaches and they are more and more in search of alternative practices in justice that help them intervene in a more effective way. Techniques related to Restorative justice (Aertsen & Pali, 2017; Marshal, 2018), nonviolent communication (Rosenberg, 2005), and peace culture (Branco & Lopes de Oliveira, 2018) are among the new tendencies adopted. Although far from generalized

throughout the system, the successful results obtained through pilot-experiences based on such alternative practices, are encouraging a growing number of social workers to follow the direction of this innovative field of practice.

Finally, we notice a slow but significant cultural transition within the socio-educational system concerning the preference for noncustodial, instead of custodial sanctions. For a long time, depriving freedom was considered as the best alternative in cases of a juvenile offense. Around 20 years ago, fortunately, the many undesired consequences of long-term imprisonment (cf. Goffman, 2009), such as stigma, social isolation, emotional disorders, and the worsening of violent behavior, were finally considered, and the sentencing of noncustodial sanctions grew and overcame the custodial ones.

Social workers, psychologists included, together with recognizing adolescents agency and autonomy, are expected to adopt cultural-inclusive practices that take into account the severe sociocultural constraints endured by juvenile offenders and the impact of these constraints over their own developmental trajectories, as well as their families and peers. Cultural sensitivity is necessarily co-constructed in the context of collaborative activities and projects that engage not only the adolescents but their families and meaningful community members as well, besides schools, health services, and other equipment within the territory.

According to Paiva and Cruz (2014), cultural sensitivity and inclusiveness are the most important parts of a radical shift in juvenile justice, which means overcoming traditional socio-educational perspectives, based on controlling or punishing the body in order to change the mind of the offenders, and meet a novel perspective based on coexistence, empathy, collaboration, and mutual recognition. This perspective coheres with the idea that adolescents have the right to access socialization settings that contribute to improve reflexivity, autonomy, citizenship, and prepare them to transform their living conditions.

We are not arguing that provoking such a shift in the way juvenile offenders position themselves and are positioned by society and the justice system is an easy task. It is hard to genuinely touch their heart; difficult to develop discursive forms that not only grasp their minds but stir up their motivational system and engage them in a vivid dialogue with social workers as well. It is almost impossible to make them focus on their future, mainly if the horizon is beyond a few months. Most have negative self-representations and denote a great difficulty to imagine and project alternative futures to the "thug life." For most, violence has turned into their main source of identity and social acknowledgment. Thus, social workers who intend to be helpful to adolescents in the construction of new existential possibilities need to be able to find out in the adolescents the potentialities they are unable to see in themselves, a possible first step in the way along which they will reinterpret their role in the family, proximal community, and in society.

The example below illustrates the effort made by a group of social workers to co-construct with offenders and community members a community-based project to improve adolescents' participation and citizenship. The social workers work in a noncustodial sanctions (community services and supervised probation) facility, part of the juvenile justice system of the Federal District, Brazil.

In search of good practices 4: **"Soccer of the Hood"**[2]

The social workers dealt with a huge difficulty to construct, together with the adolescents they attended, a genuine engagement and responsibility regarding the fulfillment of the legal sentence, after their have committed a light infraction. How to overcome families' concrete difficulties (ex: unemployment, school dropout, discrimination) and community precariousness while taking into account adolescents' desires, dreams, and affections, transforming all of this into a meaningful project, from the standpoint of the cared adolescents? Since long adolescents complained of the scarcity of sportive, cultural, and leisure activities in the community. The team decided to innovate supervised probation in that facility, uniting soccer practice and social protagonism with the main goals of socioeducation.

The "soccer of the hood" project includes a set of activities around soccer playing (training, practicing, organizing, and participating in community championships). Adolescents under probation participate in all the project's activities, which involve the steps of planning, executing, evaluating, sharing decisions, and searching for means to improve the project itself. The project engages them in democratic and collective experiences, together with the other adolescents of the community, social workers, and other community leaders, in a respectful and responsible way.

The fact that they are recognized as trustworthy subjects, full of potentialities to be explored instead of useless, unrecoverable offenders gets to slowly change their self-images. Participants offer each other mutual support, exchange other personal experiences than criminal ones, and discuss about their idols and models with which they identify (for instance, Brazilian national team soccer players *versus* well-known drug dealers of the neighborhood). As a consequence they get to foresee social alternatives to gather social acknowledgment if not by the ostentation of guns, or expensive tennis shoes.

Concluding Remarks

In this chapter we explored the historical, conceptual, and theoretical challenges posed to the interaction of psychology and social work, when they are part of institutional-based, or community-based programs. We argued that in a globalized, interconnected world, social work should be informed by critical approaches in social sciences and humanities, meaning the endless effort to use psychological

[2] To other informations about the "Soccer of the Hood" project, please access: https://www.instagram.com/uamaparanoa (Instagram); https://www.facebook.com/uamaparanoaitapoa/ (Facebook); or, search in Youtube "Soccer of the Hood: a project that makes a difference" (Futebol da Quebrada: um projeto que faz a diferença), a video produced by adolescents and social workers (https://www.youtube.com/watch?v=BmxI9SA2cW4)

knowledge as a tool for the social critique, for the critique of psychology itself, and the critique as the main pillar in the construction of a different building to psychological science.

Having these three points in mind, we presented a general overview of the branch of the critical thinking that guides our epistemological framework, which follows the track of the sociocultural turn and, more specifically, is based on the cultural-semiotic psychology. In a few words, this approach offers a broad understanding of how human beings develop upon activity and semiotic movements within and between different layers of the sociocultural world. Individuals are considered as social-historical agents that find in cultural settings the semiotic resources to their own development and the cultural recreation, by their active co-participation in social practices in which meanings can be negotiated.

The three contexts of practice herein described are illustrative of the different possibilities for social workers, psychologists included, insertion in institutions, groups, and collective settings. Beyond their specific features, the three spheres of activity pose common challenges to multi-professional teams in social work, such as: to face the complexities of social work as a collective, multi-professional enterprise; to construct democratic and creative work processes and sensibilities; and recognizing diversity of individual, family, and community cultures. Besides, it is important to collaborate in a network of services that promotes social protection, significant experiences to enhancing the exercise of citizenship, assuring human rights and favoring psychosocial changes in individuals, families, and communities.

In order to deal with the challenges inherent to social work, a critical, ethical, and political formation for psychologist is demanded, as well as an ethical-political analysis of contemporary societies. We hope this chapter has contributed to provide literature for the formation in Psychology, departing from sociocultural and critical perspectives, and articulated to the empirical contexts in which the social work develops.

References

Aertsen, I., & Pali, B. (2017). *Critical restorative justice*. Bloomsbury.

Afonso, M. L. M., Vieira-Silva, M., Abade, F. L., Abrantes, T. M., & Fadul, F. M. (2012). Psychology in the unified system of social welfare. *Pesquisas e Práticas Psicossociais, 7*(2), 189–199.

Alberto, M. de F. P., Freire, M. L., Leite, F. M., & Gouveia, C. N. N. A. (2014). As políticas públicas de assistência social e a atuação profissional dos(as) psicólogos(as) [Public social assistance policies and the professional performance of psychologists]. In I. F. de Oliveira, & O. H. Yamamoto (Eds.), *Psicologia e políticas sociais: Temas em debate* (pp. 127–174.). Editora da Universidade Federal do Pará.

American Psychological Association. (2021). Inclusive language guidelines. https://www.apa.org/about/apa/equity-diversity-inclusion/language-guidelines.pdf

Appio, M., & Tramontin, V. G. (2012). Serviço de proteção social especial para pessoas idosas e suas famílias [Special Social Protection Service for elderly people and their families]. *EntreLinhas- Conselho Regional de Psicologia do Rio Grande do Sul, 57*, 10–10.

Bauman, Z. (2000). *The liquid modernity.* Polity Press.

Bauman, Z. (2011). *Collateral damage: Social inequalities in a global age*. Polity Press.
Branco, A. U., & Lopes de Oliveira, M. C. S. (2018). *Alterity, values and socialization: Human development within educational contexts*. Springer.
Brazil. (2012a). *Norma Operacional Básica do Sistema Único de Assistência Social- NOB/SUAS* [Basic Operating Standard of the Unified Social Assistance System- NOB/SUAS]. Ministério do Desenvolvimento Social e Combate à Fome. https://www.mds.gov.br/webarquivos/public/NOBSUAS_2012.pdf
Brazil. (2012b). *Trabalho social com famílias do Serviço de Proteção e Atendimento Integral à Família– PAIF* [Social work with families of the Service of Protection and Integral Assistance to the Family– PAIF]. Ministério do Desenvolvimento Social e Combate à Fome. http://www.mds.gov.br/webarquivos/publicacao/assistencia_social/Cadernos/Orientacoes_PAIF_2.pdf
Brazil. (2015). *Documento técnico orientador para subsidiar o seminário nacional sobre trabalho social com famílias na Política Nacional de Assistência Social* [Guiding technical document to support the national seminar on social work with families in the National Social Assistance Policy]. Ministério do Desenvolvimento Social e Combate à Fome. https://aplicacoes.mds.gov.br/sagirmps/ferramentas/docs/Produto%203%20-%20TSF_MIOTO.pdf
Brazil. (2018). *Contribuições para o Aprimoramento do PAIF- Gestão, família e território em evidência* [Contributions to the Improvement of PAIF- Management, family and territory in evidence]. Ministério do Desenvolvimento Social. http://www.mds.gov.br/webarquivos/arquivo/assistencia_social/consulta_publica/Contribuicao%20para%20o%20Aprimoramento%20do%20PAIF%20final.pdf
Conselho Federal de Serviço Social, & Conselho Federal de Psicologia (2007). *Parâmetros para atuação de assistentes sociais e psicólogos(as) na Política de Assistência Social* [Parameters for the performance of social workers and psychologists in the Brazilian Social Assistance Policy]. Conselho Federal de Serviço Social, & Conselho Federal de Psicologia.
Curado, J. C., & Menegon, V. S. M. (2009). Gênero e os sentidos do trabalho social [Gender and the meanings of social work]. *Psicologia & Sociedade, 21*(3), 431–441.
Decker, S. H., & Marteache, N. (2017). *International handbook of juvenile justice*. Springer.
Dimenstein, M. (2014). A Psicologia no campo da saúde mental [Psychology in the field of mental health]. In I. F. de Oliveira, & O. H. Yamamoto (Eds.), *Psicologia e políticas sociais: Temas em debate* (pp. 75–125). Editora da Universidade Federal do Pará.
Donzelot, J. (1997). *The policing of families*. John Hopkins.
Dupper, D. (2008). *School Social Work: Skills and interventions for effective practice*. Wiley.
Goffman, E. (2009). *Asylums: Essays on the social situation of mental patients and other inmates*. Aldine Transaction. (Original work published 1961)
Guzzo, R. S. L., Mezzalira, A. S. da C., & Moreira, A. P. G. (2014). Desafios, ameaças e compromissos para os psicólogos: As políticas públicas no campo educativo [Challenges, threats and commitments for psychologists: public policies in the educational field.]. In I. F. de Oliveira, & O. H. Yamamoto (Eds.), Psicologia e políticas sociais: Temas em debate (pp. 215–238). Editora da Universidade Federal do Pará.
Harré, R. (2010). Public sources of the personal mind: Constructionism in context. In S. R. Kirschner, & J. Martin (Eds.), *The sociocultural turn in Psychology: The contextual emergence of mind and self* (pp. 31–45). Columbia University Press.
Ingleby, E. (2010). *Applied Psychology for Social Work*. Learning Matters.
International Federation of Social Workers. (2014). *Global definition of Social Work*. https://www.ifsw.org/what-is-social-work/global-definition-of-social-work/
Jensen, M. (2015). Catalytic models developed through social work. Integrative *Psychological and Behavioral Science, 49*(1), 56–72.
Kirshner, S., & Martin, J. (2010). The sociocultural turn in Psychology: An introduction and an invitation In S. R. Kirschner, & J. Martin (Eds.), *The sociocultural turn in Psychology: The contextual emergence of mind and self* (pp.01–28). Columbia University Press.
Lima, A. C. (2019). *Futebol das quebradas: A promoção do desenvolvimento e a construção de práticas inovadoras de atendimento socioeducativo* [Soccer of the Hood: Promoting

development and the construction of innovative socioeducational care practices] [Trabalho de Conclusão de Curso, Universidade de Brasília]. Biblioteca Digital da Produção Intelectual Discente. https://bdm.unb.br/handle/10483/22662

Lopes de Oliveira, M. C. S. (2003). Inserção escolar no contexto das medidas socioeducativas: "Sem a escola, a gente não é nada" [School insertion in the context of socioeducational sanctions: "Without school, we are nothing"]. In M. F. O. Sudbrack, M. I. G. Conceição, & M. T. da Silva (Orgs.), *Adolescentes e drogas no contexto da justiça* (pp. 293–307). Plano.

Lopes de Oliveira, M. C. S. (2014). Da medida ao atendimento socioeducativo: Implicações conceituais e éticas [From socioeducational sanction to socioeducational care: Conceptual and ethical implications]. In I. L. Paiva, C. Souza, & D. B. Rodrigues (Orgs.), *Justiça juvenil: Teoria e prática no sistema socioeducativo* (pp. 79–100). Editora da Universidade Federal do Rio Grande do Norte.

Lopes de Oliveira, M. C. S. (2016). A ação socioeducativa no contexto da justiça juvenil: Interlocuções com a psicologia escolar [Socioeducational action in the context of juvenile justice: Interlocutions with school psychology]. In M. N. Viana, & R. Francischini (Eds.), *Psicologia Escolar: Que fazer é esse?* (pp. 124–136). Conselho Federal de Psicologia.

Lopes de Oliveira, M. C. S. (2019, August 19-23). *Living by and despite violence and vulnerability: Contributions of semiotic cultural psychology to communities and subjectivities* [Panel oral presentation]. The International Conference in Theoretical Psychology, Copenhagen, DN. https://conferences.au.dk/istp2019

Lopes de Oliveira, M. C. S., & Yokoy, T. (2012). Education, peace or jail culture? What is promoted by institutions in charge of adolescents involved with criminal activities. In A. U. Branco, & J. Valsiner (Eds.), *Cultural psychology of human values* (pp. 239–264). Information Age.

Lopes, L. P. S. (2019). Análise discursiva da Revista Traços: Revista cultural e projeto social [Discursive analysis of Traços Magazine: Cultural magazine and social Project]. *VERBUM-Cadernos de Pós Graduação, 8*(2), 181–201.

Marshal, T. F. (2018). *Restorative justice: An overview*. Conventry Lord Mayor Committee for Peace and Reconciliation.

Martins, L. R. (2016). The thinking of Jeannine Verdès-Leroux and the social work: A critique rescue. *Serviço Social & Sociedade, 127*, 514–532.

McLaughlin, K. (2014). Social work. In T. Teo (Ed.), *Encliclopaedia of Critical Psychology* (pp. 1812–1815). Springer.

Natale, A., Matino, S., Procentese, F., & Arcidiacono, C. (2016). De-growth and critical community psychology: Contributions towards individual and social well being. *Futures, 78–79*, 47–56.

Nissen, M. (2012). *The subjectivity of participation: Articulating social work practice with Youth in Copenhagen*. McMillan.

Nwoye, A. (2014). African psychology, critical trends. In T. Teo (Ed.), *Encliclopaedia of Critical Psychology* (pp. 57–68). Springer.

Olivares, S. I. (2012). Challenges to social work in a field of labor with difuse professional limits. *Barbarói, 15*(2), 163–172.

Openshaw, L. (2008). *Social work in schools: Principles and practice*. Guilford Press.

Paiva, I. L. de, & Cruz, A. V. H. (2014). A Psicologia e o acompanhamento de adolescentes em conflito com a lei [Psychology and monitoring of adolescents in conflict with the law]. In I. F. de Oliveira, & O. H. Yamamoto (Eds.), *Psicologia e políticas sociais: Temas em debate* (pp. 175–214.). Editora da Universidade Federal do Pará.

Prado, M. A. M. (2014). Psicologia e Política: Entre preterições, críticas e resistências [Psychology and Politics: Between deprecations, criticisms and resistances]. In I. F. de Oliveira, & O. H. Yamamoto (Eds.), *Psicologia e políticas sociais: Temas em debate* (pp. 09–15). Editora da Universidade Federal do Pará.

Puras, D., & Gooding, P. (2019). Mental health and human rights in 21st century. *World Psychiatry, 18*(1), 42–43.

Rodrigues, C. D., Oliveira, V. C. de, & Rocha, R. L. S. (2017). Brazil. In S. H. Decker, & N. Marteache (Eds.), *International Handbook of Juvenile Justice* (pp. 71–89). Springer.

Rosenberg, M. (2005). *The Heart of Social Change: How You Can Make a Difference in Your World*. Puddle Dancer Press.

Rulac, S. (2014). Social work and social intervention in France: The state of the knowledge. *Cadernos de Pesquisa, 44*(154), 876–890.

Santos, B. de S. (2016). *Epistemologies of the South: Justice against epistemicide*. Routledge.

Sarbin, T. R. (1986). The narrative as a root metaphor for Psychology. In T. R. Sarbin (Ed.), *Narrative psychology: The storied nature of human conduct* (pp. 3–21). Praeger Publishers/ Greenwood Publishing Group.

Sato, T., & Valsiner, J. (2010). Time in life and life in time: Between experiencing and accounting. *Ritsumeikan Journal of Human Sciences, 20*(1), 79–92.

Shotter, J. (2010). Inside our lives together: A neo-Wittgensteinian Constructionism. In S. R. Kirschner, & J. Martin (Eds.), *The sociocultural turn in Psychology: The contextual emergence of mind and self* (pp. 45–67). Columbia University Press.

Sloan, T. (2002). Psicologia de la liberacion: Ignacio Martín-Baró. *Interamerican Journal of Psychology, 36*, 353–357.

Soares, R. P. (2012). *A concepção de família da política de assistência social: Desafios à atenção a famílias homoparentais* [The concept of family in social assistance policy: Challenges for the attention to homoparental families]. [Master's Dissertation, Universidade de Brasília]. Repositório Institucional da Universidade de Brasília. https://repositorio.unb.br/handle/10482/11113

Spink, M. J., Brigagão, J. I. M., & Nascimento, V. L. V. do. (2014). Psicológos(as) no SUS: A convivências necessária com as políticas de saúde [Psychologists in the SUS: The necessary coexistence with health policies]. In I. F. de Oliveira, & O. H. Yamamoto (Eds.), *Psicologia e políticas sociais: Temas em debate* (pp. 47–73). Editora da Universidade Federal do Pará.

Tateo, L. (2015). Gianbattista Vico and the psychological imagination. *Culture & Psychology, 21*(20), 145–161.

Teo, T. (2018). *Outlines of theoretical psychology: Critical investigations*. Palgrave Macmillan.

Valsiner, J. (2017). *From methodologies to methods in human psychology.* Springer.

Valsiner, J., Marsico, G., Chaudhary, N., Sato, T., & Dazzani, V. (2016). *Psychology as a science of human being: The Yokohama manifesto*. Springer.

Verdès-Leroux, J. (1986). *Trabalhador social: Prática, habitus, ethos, formas de intervenção* [Social worker: Practice, habitus, ethos, forms of intervention]. Cortez.

Watts, L., & Hodgson, D. (2019). *Social justice theory and practice for social work: Critical and philosophical perspectives*. Springer Nature.

World Health Organization (2018). *Mental health, human rights and standards of care. Assessment of the quality of institutional care for adults with psychosocial and intellectual disabilities in the WHO European Region*. https://www.who.int/europe/publications/i/item/9789289053204

Yokoy, T. (2021). Atuação do(a) psicólogo(a) na política de assistência social: Desafios enfrentados e práticas emergentes [Psychologist's role in social assistance policy: Reflections on the challenges faced and indicators for the construction of emerging practices]. In A. F. do A. Madureira, & J. Bizerril (Orgs.), *Psicologia & Cultura: Teoria, pesquisa e prática profissional* (pp. 271–304). Cortez.

Yokoy, T., & Rengifo-Herrera, F. J. (2020). Affective-Semiotic Fields and the Dialogical Analysis of Values and Interpersonal Relations in Socio-educational Contexts. In M. C. S. Lopes-de-Oliveira, A. U. Branco, & S. F. D. C. Freire (Eds.), *Psychology as a Dialogical Science: Self and Culture Mutual Development* (pp. 95–114). Springer Nature Switzerland.

Learning and Teaching Geropsychology

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Thomas Boll

Contents

T. Boll (✉)
Department of Cognitive, and Behavioural Sciences, Institute for Lifespan Development, Family, and Culture, University of Luxembourg, Esch-sur-Alzette, Luxembourg
e-mail: thomas.boll@uni.lu

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Abstract

This chapter presents a broad overview about the essential aspects of learning and teaching geropsychology in tertiary education. After an introduction to the scope of geropsychology and the need for geropsychology education, the objectives and basic principles of geropsychology curricula are discussed. Their overall goal is to qualify students and/or professionals to understand and solve psychological aspects of problems of older people in the contexts of practical application, research, and teaching. Specific teaching and learning objectives in geropsychology are described in terms of underlying content dimensions (e.g., areas of acting, functioning, and development of older people; basic components of practical geropsychological acting; target groups and settings) and levels of competency to be acquired (e.g., uni-, multi-structural, relational, and extended abstract level). This is followed by an overview of the core topics of geropsychology. These refer to theoretical (e.g., basic concepts of age, aging, and older population; action competence of older people; challenges in later life; resources for adaptation; problems of people providing services to older adults), normative (ethical and legal), and methodical foundations (research, assessment, evaluation, and intervention methods). This is followed by sections on linking main learning objectives and core topics of geropsychology to courses within study programs (psychological or non-psychological) and about the relations between teaching, learning, and assessment in geropsychology. This chapter concludes with information about resources for these issues including relevant URL links, tips for teaching, and annotated references to further reading.

Keywords

Aging · Older adulthood · Clinical practice · Geropsychology · Geropsychology training · Mental health services · Professional competence · Professional standards

Introduction

Geropsychology (also known as gerontopsychology, psychology of aging, or psychological gerontology) is still rather young compared to other subfields such as differential, social, organizational, and clinical psychology. Yet, it is already so well developed, distinct, and relevant that it deserves a chapter of its own in this International Handbook on Psychology Learning and Teaching. Its subject area is large enough and well definable. So, there is a consensus between both Anglo-American (*Society in Clinical Geropsychology)* as well as European geropsychological

organizations (*Standing Committee on GeroPsychology* by the *European Federation of Psychologists' Associations (EFPA)* that geropsychology addresses mental and behavioral phenomena of aging (as a change process), of older people (as a certain age group), and of old age (as a late stage of life) in research, applied fields, and teaching (https://geropsychology.org; http://geropsychology.efpa.eu/introduction/). The section on core contents of geropsychology later in this chapter will mention concrete topics more in detail. The tasks of the discipline are clear. As a subfield of psychology, geropsychology, like its parent discipline, aims at describing, explaining, and optimizing the phenomena that fall within its purview. Today, geropsychology has a strong research and a strong practice branch as indicated by several criteria.

Geropsychology Research

Numerous psychological university departments in the USA, Europe, Australia, and other parts of the world host specialized institutes or professorships for geropsychology often associated with or part of the institutes for lifespan developmental psychology which have provided and further provide important contributions to geropsychological research. In addition, there are geropsychology research groups at non-university research institutes (e.g., Max Planck Institute for Human Development in Berlin/Germany). Moreover, there are several specialized peer-reviewed journals of geropsychology (e.g., *GeroPsych – The Journal of Gerontopsychology and Geriatric Psychiatry*; *Psychology & Ageing*; *The Journals of Gerontology, Series B: Psychological Sciences*) and further gerontological journals that regularly publish articles with geropsychological research results. Multi-volume encyclopedias and handbooks further document the breadth and depth of the geropsychological knowledge that has been accumulated so far (e.g., *Encyclopedia of Geropsychology* edited by Pachana, 2017; *Oxford Encyclopedia of Psychology and Aging* edited by Knight, 2019). Additional relevant sources are mentioned in the annotated references to further reading near the end of this chapter. Finally, the existence of specific scientific and/or professional organizations in various parts of the world makes a strong case for geropsychology as a developed discipline. For instance, in the USA, this is the *Society in Clinical Geropsychology*, which is housed under the APA Division 12, Section 2 (https://geropsychology.org), in Europe the *Standing Committee on GeroPsychology* by the *European Federation of Psychologists' Associations (EFPA)* (http://geropsychology.efpa.eu/standing-committee-/), and in Australia the *Psychology and Ageing Interest Group (PAIG)* of the *Australian Psychological Society (APS)* (https://groups.psychology.org.au/paig/).

Professional Geropsychology and Geropsychology Teaching

Geropsychology has also been increasingly established as a field of professional psychology and teaching especially in the USA as indicated by the following developments or publications: (1) Recognition of the *American Board of*

Geropsychology (ABGERO) (https://abgero.org/) as a specialty within the *American Board of Professional Psychology (ABPP)*, which is the decisive committee for professional certifications within America; psychologists certified in geropsychology are called "specialist geropsychologist" *or* "ABGERO specialist" (55 people listed on the website in December 2021); (2) publication of *Pikes Peak Model for training in Professional Geropsychology* (Knight, Karel, Hinrichsen, Qualls, & Duffy, 2009); (3) development of a geropsychology training organization called *Council of Professional Geropsychology Training Programs (CoPGTP;* Hinrichsen, Emery-Tiburcio, Gooblar, & Molinari, 2018) (http://copgtp.org) with 71 member programs listed on the website in December 2021, many of which are in line with the *Pikes Peak Model for Training in Professional Geropsychology*; (4) publication of *Guidelines for Psychological Practice with Older Adults* (American Psychological Association, 2014); and (5) publication of *Psychologists in Long-Term Care (PLTC) Guidelines for Psychological and Behavioral Health Services in Long-Term Care Settings* (Molinari et al., 2021).

There is no comparable European-wide documentation of professionalization and teaching activities available yet. However, the programmatic position of the EFPA Standing Committee is already strikingly comprehensive: "Expertise and knowledge of geropsychology will be necessary for all fields of applied psychology since ageing represents a transversal dimension that is important for many if not all domains of individual functioning. Geropsychology should thus be an integral part of all psychological training throughout Europe. Knowledge in GeroPsychology should be provided for different target groups" (Standing Committee on GeroPsychology by the European Federation of Psychologists' Associations, 2021). In relation to teaching, however, a German survey with psychological and psychotherapeutic institutes (Kessler, Agines, Schmidt, & Mühlig, 2014) indicates that several bachelor programs of psychology offer a very low and master programs of psychology a moderate amount of geropsychological teaching content mostly as part of modules on life-span developmental psychology. In contrast, according to the same study and a study by Becker et al. (2020), psychotherapy training institutes offer a higher proportion of geropsychology courses or course content.

However, it is very likely that this situation will change soon, given the radical move in psychotherapy education in Germany in 2020 from a postgraduate format (which required a previous diploma or master's degree) to a *consecutive bachelor's* and *master's* format. This new mode will give geropsychological training much a higher weight than it had in the previous psychotherapy education and in previous bachelor and master programs in psychology. The new licensing and the associated bachelor's and master's regulations for psychotherapists state very clearly that they must acquire knowledge about mental disorders and the practice of psychotherapy (including preventive and rehabilitative measures) also *with older people*; the wording of the new regulation explicitly singles out this subgroup from the general group of adults (Approbationsordnung für Psychotherapeutinnen und Psychotherapeuten (PsychThApproO), 2020). This should increase the demand for geropsychology teaching in these highly attractive study programs. In view of the increasing discrepancy between the demand for geropsychologically well-trained professionals

and the supply, which is already too low now, more geropsychology teaching and learning is urgently needed (Moye et al., 2019).

Geropsychology is also taught in *non-psychological* bachelor and master programs. This is especially true for the study of gerontology, in which geropsychology is one of the central pillars along with geriatric medicine, sociology of aging, and nursing science (Kessler et al., 2014). There is also a need and a place for teaching geropsychology in social work and nursing science programs. Indeed, their graduates also provide services to older adults. Providers and recipients would both benefit from improved geropsychological training for this staff.

Purposes and Rationale of the Curriculum in Geropsychology

Qualification for Understanding and Solving Age-Related Problems

The core mission of geropsychology teaching in the tertiary sector is to qualify students to handle the challenging tasks in their future work with, for, or about seniors. These may be in the area of research, applied practice, teaching, or all three. The tasks usually arise in the context of professional work, sometimes also in a voluntary activity or purely on private initiative.

Geropsychological research, teaching, and application are interrelated in the following ways: Research provides the conceptual, methodical, and normative tools for solving (or preventing) problems in the experience and behavior of older people or of other persons providing services to older people (e.g., family members, professional caregivers). In general, the better the existing tools from previous geropsychological research (and practice), and the better these tools are conveyed to those who are or will be involved in senior-related work, the more effectively the problems of the older people and others affected can be solved or prevented. Standards and guidelines exist for both research and application practice in relation to older adults to assure quality work (American Psychological Association, 2014; Molinari et al., 2021). A guideline for teaching and learning geropsychology does not yet exist, but may emerge from this chapter.

Because geropsychology has a strong application focus, it is advisable to base proposals for teaching and learning geropsychology on a closer look at the structure of acting in geropsychological research and practical casework. Drawing on a praxeological model of applied developmental psychology (Montada, 1984), geropsychological acting can be described as including six basic questions and steps: What is the problem to be addressed (problem description)? How did the problem come about (analysis of problem conditions)? What will be the further development of the problem (prognosis of the problem course)? What is the desired outcome (goal setting and its justification)? How can the objectives be achieved (intervention)? Were the goals achieved (evaluation of intervention outcome)? These steps build on each other. For example, to analyze the conditions of a problem, the problem must first be identified. The prognosis of the problem course and the goals set may vary depending on the identified conditions of the problem. Interventions

often aim at modifying the previously identified problem conditions. Evaluation of interventions involves checking the extent to which the goals set in a previous step have been achieved.

The above structure of geropsychological action is amazingly simple and informative at the same time. If one fills its abstract elements with concrete content, it becomes clear that age-related problems are very diverse with regard to the target persons concerned and their areas of life, experiences, actions, functions and their development. The same is true for the conditions of these problems as well as the available and still to be developed possibilities of intervention. The settings of applied geropsychological work are also heterogeneous (e.g., private households, locations for paid work of older employees, care institutions, policy-making, and public administration). This complexity makes tertiary education in geropsychology a challenging task. It requires the teaching and learning of knowledge and skills for the appropriate, competent, and successful implementation of all six steps in relation to the various problems faced by the aforementioned people in different settings. With this in mind, the relevant geropsychological contents and competencies to be taught and learned will be outlined (see sections "Core Learning and Teaching Objectives in Geropsychology: Content Dimensions" and "Core Contents and Topics of Geropsychology").

Diversity of Study Programs: Challenge for Curriculum Development in Geropsychology

The organization of learning objectives must take into account the heterogeneity of the demands of the study programs in terms of amount and content of geropsychology learning and teaching. Some programs aim at training their students primarily to be *researchers* and others more to be *practitioners* who provide services to older people. Further, study programs differ in the *levels of qualification* (e.g., Bachelor, Master, PhD). Then, some study programs offer *initial training* in geropsychology or provide *additional training* for graduate psychologists (clinical or otherwise) who want to be better equipped to work with older people. Finally, some programs offer *major training* in geropsychology, whereas others offer *minor training* for students from other disciplines (e.g., gerontologists, social workers, nursing scientists). Rather than formulating a single list of learning objectives for all programs, an approach is used that allows for the flexible generation of different sets of learning objectives, depending on the purposes of the programs and the needs of the students.

To this end, a heuristic approach and mode of presentation are adapted here that have been used successfully in the development and presentation of a curriculum on educational psychology (Brandtstädter et al., 1974). This involves decomposing learning goals into underlying conceptual dimensions: Six basic *content* dimensions (Dimension A to F) and a 7th dimension (Dimension G) of *types and levels of competencies* to be acquired. Each dimension can take on several qualitative values. In a later step, the sets of learning objectives of specific geropsychological study

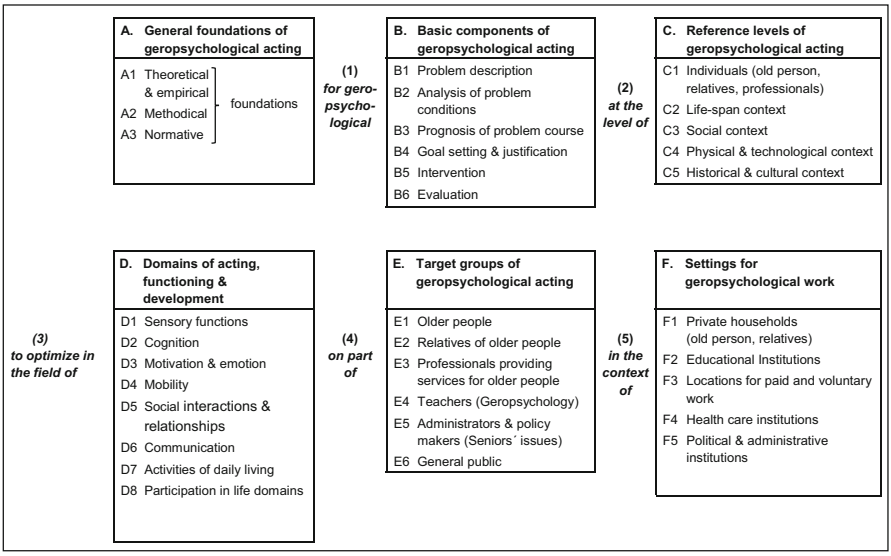

Fig. 1 Six dimensions and their links to organize the content areas of geropsychology learning and teaching objectives

programs can be generated by combining selected values on some or all of these seven dimensions, as will become clearer more below (see Fig. 1).

Core Learning and Teaching Objectives in Geropsychology: Content Dimensions

To specify the content of goals of geropsychology learning and teaching, (A) "General foundations of geropsychological acting" is used as initial dimension. These foundations are then further specified in the subsequent dimensions in relation to (B) "Basic components of geropsychological acting," (C) "Reference levels of geropsychological acting," (D) "Domains of acting, functioning, and development," (E) "Target groups of geropsychological acting," and (F) "Settings of geropsychological work."

Dimension A: General Foundations of Geropsychological Acting

This dimension results from the previously mentioned fact that geropsychological acting requires theoretical, methodical, and normative knowledge.

A1 Theoretical foundations: General theories of aging, theories and empirical findings on functioning, and development in various domains from sensory and cognitive functioning to activities of daily living and participation

A2 Methodical foundations: Major *research* methods (e.g., from hypothesis formulation, data collection, and analysis to interpretation and publication), strategies for

developing and using such methods, and methods of *applied* geropsychological acting (e.g., from problem description to … to intervention and outcomes evaluation)

A3 Normative foundations: Ethic, legal, academic, and professional standards for geropsychological acting in research and practice; norms of bodily and mental functioning and development of older adults, their relatives, and the professionals dealing with them

Theoretical, methodical, and normative knowledge, as just described, form the scientific basis for the various steps of geropsychological acting to be explained in the next section.

Dimension B: Basic Components of Geropsychological Acting

As indicated above, the general structure of geropsychological acting involves six interrelated steps, which build on each other:

B1 Problem description: Identification of is-ought-discrepancies in the acting, functioning, and development of the geropsychologically relevant target groups. This may refer to existing problems to be corrected or impending ones to be prevented. It can also refer to the optimal use or design of remaining potentials or newly emerged opportunities.

B2 Analysis of problem conditions: Construction of causal models of major kinds of age-related problems of acting, functioning, and development; case-specific analysis of the conditions of practical problems

B3 Prognosis of problem course: A prognosis is required to determine whether a given problem tends to endure or may even worsen (versus will diminish spontaneously) without intervention; a prognosis is also required as an estimation of risks for the future occurrence of certain problems and for considering the demand for preventive interventions of risk reduction.

B4 Goal setting and justification: Critical analysis of norms for functioning and development in old age in general (e.g., "positive aging"); case-specific goal setting and justification for dealing with problems of the relevant target groups in terms of attainability, desirability, and compatibility with other goals of the target persons and their relationship partners and possible negative side effects of pursuing envisioned goals

B5 Intervention: Development and evaluation of corrective and preventive interventions for major problems of the relevant target persons; case-specific application, adaptation, or new development of interventions for given practical problems

B6 Evaluation: Development of general evaluation criteria and strategies; case-specific evaluation of interventions in relation to previously set goals; negative results as a reason to return to previous steps of the geropsychological workflow (e.g., analysis of problem conditions, goal setting, intervention)

Dimension C: Reference Levels of Geropsychological Acting

The aforementioned steps of problem description, analysis of problem conditions, prognosis, goal setting, intervention, and evaluation can refer to five levels of the professional action space. These include three major kinds of individuals and four kinds of context (cf. Diehl & Wahl, 2020):

C1 Individuals (Older adults, relatives, professionals):
Geropsychological actions do not only refer to the older adults. In addition, they may also refer to their relatives and to professionals as relationship partners and/or support providers.

C2 Life-span developmental context: An individual's current functioning and development is linked to his/her past and (anticipated) future functioning and development.

C3 Social context: This includes different social environments such as family, work, civic organizations, communities, and social relationships with its relevant actors (e.g., family members, coworkers, friends, neighbors, co-residents in nursing homes).

C4 Physical and technological context: Various living and dwelling options as barriers or opportunities for functioning and development (that might provide different access to public services); access to communications media and to assistive devices compensating older people' declines and supporting other target persons work

C5 Historical and cultural context: Major historical events (e.g., wars, economic crises, epidemics); economic, legal, and administrative conditions (e.g., pension, health and long-term care systems); and "sociocultural trends" (e.g., changing values)

Dimension D: Domains of Acting, Functioning, and Development

Geropsychological acting is ultimately in the service of optimizing the acting, functioning, and development of the major target persons (e.g., older people, relatives, professionals) in several domains, as applicable. Eight ones are suggested here which are commonly considered in geropsychology and are much in line with the domains of functioning, activities of daily living, and participation included in the International Classification of Functioning, Disability, and Health (ICF) by the WHO (2001).

D1 Sensory functions: Basic seeing and hearing functions, pain, and conceptually guided perceptual functions (e.g., basic recognizing and interpreting)

D2 Cognition: Knowledge, memory and intelligence functions, problem-solving strategies, and orientation. These dimensions include both cognitive *content* (e.g., what is believed, desired, or intended) and underlying cognitive processes (e.g., storing and retrieving information).

D3 Motivation and emotion: Needs, desires, and goals (fulfilled and frustrated) as driving forces for acting, positive and negative emotions, and subjective well-being

D4 Mobility: Fine hand use; changing and maintaining body position; carrying, moving, and handling objects; walking and moving; and moving around using transportation and driving oneself
D5 Social interactions and relationships: Older adults' social interactions with people in general and particular social relations with "relatives" and with professionals working for older people
D6 Communication: Comprehending and producing verbal and nonverbal messages and use of communication devices
D7 Activities of daily living: Self-care and domestic life activities and activities of recreation and leisure
D8 Participation in major life domains: Education, work, economic, social, and civic life

Dimension E: Target Groups of Geropsychological Acting

Geropsychological actions may be directed at the following kinds of persons:

E1 Older people: This is the target group to whom attempts to optimize functioning and development primarily refers.
E2 Relatives of older people: The term "Relatives" is understood in a broad sense that includes family members as well as other close persons (e.g., neighbors, friends, colleagues) as relationship partners and/or support providers.
E3 Professionals providing services to older people: Geriatricians, geriatric nurses, speech therapists, occupational therapists, physiotherapists, social workers, geropsychologists, and geragogues/trainers for older people
E4 Teachers: Geropychology teachers for students of different qualification levels
E5 Administrators and policy makers (dealing with seniors' issues): People working at local, regional, or national levels who analyze the situation of older people, prepare reports, develop plans for seniors, and implement appropriate measures to improve their situation
E6 General population: Geropsychologists could research relevant phenomena (e.g., views about aging) and initiate campaigns to change problematic variants (e.g., age stereotypes).

Dimension F: Settings for Geropsychological Work

The contexts in which geropsychologists work towards optimizing the functioning, acting, and development of target persons are rather diverse. The starting points, requirements, and boundary conditions for geropsychological acting differ significantly depending on the respective setting.

F1 Private households (of older persons and of their relatives)
F2 Educational institutions: These may provide education for older people or for people living or working with older people
F3 Locations for paid and voluntary work of older persons: Industry, service companies, and public institutions

F4 Healthcare institutions: These institutions are diverse, too, and include general and geriatric hospitals, rehabilitation clinics and centers, day care facilities, retirement, and nursing homes

F5 Political and administrative institutions: Geropsychologists may contribute to the analysis of the situation of older people, their relatives, and relevant professionals (e.g., senior reports) at local, regional, or national levels and may be involved in deriving measures for improvement (e.g., senior plans for various societal levels).

Dimension G: Level of Competencies

Describing learning objectives only in terms of content areas such as "Methodological foundations of geropsychological assessment of older persons' cognitive performance" (e.g., A2/B2/C1/D2) is incomplete. This leaves open what a student should be "able to do" in relation to a given content (e.g., to list, to classify, to apply to a problem, to improve). Thus, an appropriate description of learning objectives must combine a *content area* with one or more types/levels of *competences* to be acquired.

Dimension G considers four levels of competence based on the well-known "Structure of Observed Learning Outcomes (SOLO)" by Biggs and colleagues (e.g., Biggs & Tang, 2011). Each level is characterized by a certain kind of understanding and performance.

G1 Unistructural level: One or a few aspects of the task are taken up and used (understanding as nominal). Student can identify, name, define, and list elements of a content domain and perform simple procedures.

G2 Multistructural level: Several aspects of the task are recognized but dealt with independently (understanding as knowing about). Student can classify; describe; talk about a reasonable amount of content, and perform more complex procedures. But they can not apply or transfer easily.

G3 Relational level: The components of a content domain are integrated into a whole, with each part contributing to the overall meaning (understanding as appreciating relationships). Student can explain causes, predict, apply a theory, etc. to a familiar problem or domain.

G4 Extended abstract level: The integrated whole at the relational level is re-conceptualized at a higher level of abstraction, which enables generalization to a new area, or is reflexively applied to oneself (understanding as far transfer, and as involving metacognition). Student can generalize, hypothesize, evaluate decisions, improve a practice, apply a theory to a new problem or domain, generate new approaches to . . ., and formulate a new theory.

In most cases, teachers in tertiary education want their students to finally reach the higher levels of this competence hierarchy (e.g., relational; extended abstract). A progression in the passage of a study program can be described as a progression in the levels of competencies, and this also applies to the gain of a master's over a bachelor's qualification (cf., Brabrand & Dahl, 2009).

Core Contents and Topics of Geropsychology

Theoretical Foundations

The following remarks on the theoretical foundations of geropsychological acting focus on older people as the most important target group. These are supplemented in subsection "Problems of Other Target Groups: Relatives of Older People and Professionals" with some comments on the basics of acting in relation to the other target groups (e.g., relatives of older people, professionals providing services for older people).

Basic Concepts of Age, Aging, and the Aged

- "Old age" as a phase in the life course: Major subcategories of old age: third, fourth, and fifth age (Diehl & Wahl, 2020)
- Descriptive concepts of age: Chronological age, biological age, functional age, psychological/subjective age
- Different age metrics: Distance from birth, distance from death (Schilling, 2017)
- Normative concepts of aging: Pathological, normal, and optimal aging (Gerok & Brandtstädter, 1992), positive (successful, productive, etc.) aging (e.g., Wahl, 2020), and cultural norms of positive aging (Kitayama, Berg, & Chopik, 2020)
- Aging as individual life-span developmental process (Baltes, 1987)
- Views on aging, aging stereotypes, and ageism (e.g., Kornadt & Rothermund, 2015; Pinquart & Wahl, 2021)

Action Competence of Older People

Acting in Everyday Life

- Narrow view: Confined to basic (BADL; self-care) and instrumental (IADL; household management) activities of daily living (e.g., Lawton & Brody, 1969); critique of this limited scope (Verbrugge, 2016)
- Broader view: Comprehensive scheme of activities in daily living and participation of the "International Classification of Functioning, Disability and Health (ICF") by WHO (2001)
- From biomedical model of ICD to biopsychosocial model of ICF: Role of personal and environmental factors for effect of diseases on activities of daily living and participation in life domains
- Applications of the ICF (e.g., geriatric assessment; rehabilitation; transdisciplinary communication, cooperation, and documentation; development of assistive technologies (ATs); analysis of use of ATs and their effectiveness

Personal self-Regulation of Development

- Basic action-theoretical concepts: desires, beliefs about means, actions (Brandtstädter, 2006)
- Major desires and goals of older people; major domains of older people's acting
- Experience and actions of older people in relation to major events and transitions in their life course such as retirement, illness, and death of close caregivers, as well as their own aging, becoming ill, functionally impaired, activity limited, participation restricted, disabled, and dependent on others, moving into a nursing home and facing their own finitude
- Models of intentional self-development and developmental regulation
  - Two process model of assimilation (tenacious goal pursuit) and accommodation (flexible goal adjustment) (e.g., Brandtstädter, 2009; Rothermund & Brandtstädter, 2019); basic assumptions and further extensions (e.g., explanation of depression and well-being paradoxes)
- Other models of developmental regulation:
  - Model of selection, optimization, and compensation (e.g., Freund & Baltes, 2000)
  - Motivational theory of life-span development (Heckhausen, Wrosch, & Schulz, 2010)
- Limits of intentional acting in old age (e.g., dementia) and its consequences: joint acting, supported acting, acting on behalf of old person (legal representative).

Challenges in Later Life: Demands for Adaptation

Age-related Diseases and Geriatric Syndromes (Including Causes and Risk Factors)

- Major bodily illnesses (e.g., diabetes, hypertension, heart insufficiency, stroke, arthrosis, cataract, macular degeneration, osteoporosis, Morbus Parkinson) and mental disorders (e.g., dementia, anxiety, depression)
- Chronicity and progression of diseases; multimorbidity
- Polypharmacy; physical, mental, and behavioral side effects of medication
- Impact of the aforementioned disorders on bodily and mental functioning, activities of daily living, and participation in important life domains (see ICF by WHO, 2001)
- Major "geriatric syndromes": immobility, instability, incontinence, cognitive problems, malnutrition, frailty, pressure ulcers, sleep disorders, depression and suicidality, isolation (Inouye, Studenski, Tinetti, & Kuchel, 2007)
- Psychological significance of geriatric disorders and syndromes:
  - Objects of evaluation, emotional responding and acting of patients and their relatives
  - Limitation of resources of older people

  - Influencing factor on geropsychological assessments
  - Influencing factor on goal setting and interventions: In addition to curing diseases (if possible), the main focus is on maintaining and restoring functional capacity, independence, and quality of life.
- Challenging behavior (e.g., aggressive, agitated behavior; resistance to nursing interventions)

Normative Life Transitions

(Lichtenberg & Mast, 2015, Vol. 2, Sect. II)

- Life domains with age-graded development
  - Work: (mandatory) retirement, post-retirement "work" (paid and unpaid); transition out of post-retirement work period
  - Family: empty nest, grandparent roles, death of relatives (e.g., parents, older siblings, spouse)
  - Community: Voluntary engagement and its motivation (e.g., altruism, generativity)
  - Self: One's leisure time, cultural activities, travelling, education; healthy lifestyle, preparation for illness and death (health and care proxy, advance directive, testament)

Historical Events and Changes

(Diehl & Wahl, 2020; Gerstorf et al., 2020)

- Definition and dimensions; role of birth cohorts for understanding life-span development and aging
- Major kinds of historical factors and changes
  (a) Extended access to resources (e.g., education, professional career, health care)
  (b) Changes in social and family life (e.g., larger and diversified social networks)
  (c) Proliferation of knowledge and technology (e.g., digitalization)
  (d) Changing Zeitgeist regarding societal definitions of social roles, attitudes, and age norms (e.g., age norms, views on aging)
  (e) Economic crisis
  (f) Wars, collapse, and reshaping of political systems, epidemias and pandemias
- Mode of operation of historical influences
  - Provide development opportunities and constraints
- Developmental outcomes of historical changes
  - Increase of life expectancy over last decades
  - Increased cognitive test performance
  - Subjective well-being and control beliefs
  - Change of dynamic personality constructs (e.g., life goals, concern for others, civic orientation)
  - Changing views on aging

Non-normative Life Transitions

(Cohen, Murphey, & Prather, 2019)

- General definition of critical life events and dimensions for describing them
- Examples of not necessarily age-related critical life events in the domains of social relationships (e.g., loss of family members and friends; late life divorce; accidents), work (e.g., loss of employment despite desire to continue), and health
- Demands resulting from confrontation with critical life events:
  - Adaptation to the event, its implications and consequences

Resources for Adaptation of Older People

Personal Resources

(Diehl & Wahl, 2020, Chap. 2)

Normal cognitive development in old age and its relation to competencies of everyday life

- Major theoretical perspectives:
  Age-related slowing, deficit in inhibition of irrelevant information, deterioration of working memory, reduction of attentional resources
- Conceptual distinctions among intelligence and memory constructs
  - Mechanics (fluid) versus pragmatic (crystalized) intelligence
  - Working memory, episodic vs. semantic memory, declarative vs. procedural memory; executive functioning;
  - Wisdom
- Empirical findings on age-related cognitive development:
  - Mechanic versus pragmatic cognitive performance
  - Episodic versus semantic memory
  - Wisdom
- Interindividual differences regarding cognitive aging and plasticity
- Relation between age-related cognitive decline and autonomous living
- Predictors of cognitive aging
- Effectiveness of cognitive trainings across age

Social Resources

(Sharifian, Sol, Zahodne, & Antonucci, 2022)

- Social relations theories:
  - Convoy model
  - Socioemotional selectivity theory
  - Strength and vulnerability integration model
- Differentiation of structural, functional, and evaluative dimensions of social relationships

- Differentiation based on relationship type
  - Family versus friendships in later life
  - "Weak" ties (church-related ties, neighbors)
- Means of communication
  - Benefits and costs of social technology use in older adults
- Clinical applications and recommendations

Physical and Technological Resources

(Diehl & Wahl, 2020, Chap. 1 and selected parts of subsequent chapters)

- Physical/living environments:
  - Goal of "aging in place" (aging in familiar private home environment and neighborhood)
  - Various new housing arrangements as new options (e.g., assisted housing, multigenerational housing, different long-term care solutions)
- Technological environments and tools of older people ("Gero-technology"): new assistive technologies (ATs) and new media
  - Definition of ATs, major variants, and examples
  - Use of ATs: promoting and inhibiting internal and external factors
- Effects of living environments and of (the use of) technology on maintaining health, physical and cognitive functioning, subjective well-being, safety, autonomous living, and social connectedness

Problems of Other Target Groups: Relatives of Older People and Professionals

Subsections "Basic Concepts of Age, Aging, and the Aged" to "Resources for Adaptation of Older People" referred to the theoretical foundations for geropsychological action towards the most important target group, i.e., older persons. In this subchapter, a few remarks follow on selected topics relevant to the other two important target groups.

Family Caregivers of Older People: For Example, Caregiver Burden and Gain

(Schulz, Beach, Czaja, Martire, & Monin, 2020)

- Stages from initial taking over of caregiver role to death of care recipient
- Caregiver burden and caregiver gain
- Impact of caregiving on health, work, private life, financial security, social relations of caregivers
- Risk factors for adverse outcomes
- Support structures for family caregivers
- Interventions for family caregivers

Professional Caregivers of Older People: For Example, Concerns of Long-Term Care (LTC) Staff

(Chenoweth & Lapkin, 2018)

- Job stress, burnout, and job turnover
- Lack of professional and societal recognition
- Threats to nursing leadership and disempowerment of nurses
- Factors associated with LTC staff satisfaction and retention
- Strategies for improving the supply and retention of LTC staff

Normative Foundations

Ethical Foundations

(Bush, Allen, & Molinari, 2017)

- Major ethical issues and challenges (e.g., respecting dignity, autonomy vs. beneficence; sharing confidential information with other family members and in interdisciplinary teams; conflict of interest between old person and other family members; consent in the context of assessment, goal setting, intervention, research; maintenance of one's professional competence)
- Resources for ethical decision-making (e.g., professional ethics codes, professional guidelines, position papers of professional organizations, ethics committees)
- Ethical decision-making model in geropsychology
- Application examples for ethical decision-making

Legal Foundations

(Klie, 2017, 2021; Pachana, 2017: selected articles)

The legal regulations relevant for geropsychological work may differ from country to country and change across time. Therefore, only those kinds of issues that present legal challenges and are often legally regulated are mentioned. Readers (teachers) can flesh this out, taking into account the specific regulations that apply in their country.

- Older persons as legal subjects (capacity to manage legal affairs, informed consent to assessment and treatment, advanced directives, legal guardianship, liberty rights, rights to privacy and confidentiality, legal entitlements to geropsychological and related services, and its reimbursement)
- Offenses against older people: Neglect, abuse, and exploitation (Pillemer, Burnes, Riffin, & Lachs, 2016)
- Legislation governing the major institutions and services for older people (e.g., hospitals, rehabilitation centers, long-term care institutions, mobile care services) and private care services to protect vulnerable older persons

- Regulations against age discrimination
- Legal obligations of geropsychologists (e.g., professional secrecy, documentation of professional work)
- Liability issues (e.g., malpractice and delegation errors by geropsychologists)

Methodical Foundations

Research Methods and Resources

(Knight, 2019, Section 2: Lifespan developmental methodology and analyses; Weil, 2017)

Overview of Research Process Related to Ageing and Older People

- Development of research question, theoretical conceptualization, method and design selection, data collection, data analysis, interpretation of results, reporting findings
- Specifics of research with older adults

Choosing a Research Method and a Design

- Qualitative, quantitative, and mixed methods
- Cross-sectional, longitudinal, and combined designs

Analyzing Data and Reporting Findings

- Traditional qualitative and quantitative data analysis and corresponding software
- Emerging new methods and designs
- Interpreting and reporting findings in articles, presentations, and grant proposals

Applied Geropsychological Assessment and Evaluation Methods

(Hinrichsen, 2019; Knight & Pachana, 2015; Lichtenberg & Mast, 2015, volume 2)

General Issues

- Relating assessment and evaluation to the major steps of geropsychological acting (e.g., assessment methods used for problem description and analysis of problem conditions, basis for goal setting, prognosis and intervention)
- Problems in applying assessment methods developed for younger populations, reflection on risks and need to apply, and adaptation of the methods to older people

Data Sources and Access Options

– Clinical interviewing of older adults and informants
– Self-report and other report questionnaires
– Cognitive performance testing
– Behavioral observation
– Psychophysiological measuring
– Functional behavior analysis

Selected Problem Areas

– Mental disorders
– Major transitions in later life

Intervention Methods

(Diehl & Wahl, 2020, Chap. 7; Hinrichsen, 2019; Knight & Pachana, 2015)

General Issues

- Basing interventions on problem description, analysis of problem conditions, goal getting
- Major distinctions and decisions:
  – Purposes: Preventive vs. corrective interventions
  – Target points for interventions: Older persons and their context
  – Intervention agents: Geropsychologists and others of multi-professional geriatric teams (e.g., geriatricians, physiotherapists, occupational therapists, speech therapists, educators)
- Specific considerations when implementing interventions with older adults (e.g., sensory, cognitive, and motivational requirements of interventions); adaptation of key interventions to the situation of older people

Preventive interventions

- Interventions goals: Long life in best possible health, independent living, high a level of well-being
- Stages: Primary, secondary, and tertiary prevention
- Strategies: Reduction of risk factors, increase of protective factors/resilience
- Target persons: Older people, family carers, professional care providers
- Examples of interventions: Preparation for retirement, active aging programs, cognitive and physical training and developmental counseling, and interventions in relation to nursing home, private home modifications, and improvement of community infrastructure

Corrective interventions

- Interventions goals: Reduction of mental disorders, restoring bodily and mental functioning, maintaining independence and well-being despite multi-morbidity, and adaptation to critical life events
- Strategies: Modification of problem conditions, strenghthening of ressources
- Primary targets: Older people. Additional targets: Family carers and professional care providers
- Examples of interventions:
  – For older people: Psychotherapy, cognitive and physical training, reality orientation programs, home modifications, and improvement of community infrastructure
  – For family caregivers: Increasing their knowledge about older people's problems and stress reduction

- For professional caregivers: Increasing knowledge about work-related conditions, increasing job satisfaction, stress reduction, and job enrichment

Settings of Geropsychological Work

(O'Shea Carney, Gum, and Zeiss (2015); Pachana, 2017, selected articles: e.g., on Home-Based Care and Primary Care Settings for Delivery of Geropsychology Services to Older Persons; respite care, age-friendly communities, housing solutions for older adults, ergonomics and demographics, learning in older adults, social politics for aging societies, long-term care, assisted living).

Private Households (old person, relatives)

- Relevance: Most important setting for older people with and without care needs
- Forms and structures of professional work:
  - Domestic care services
  - Home visits to prevent institutionalization

Educational Institutions

- For older people and their relatives: institutions of adult or health education
- For professionals currently or in future working for older people

Work Locations for Older People

- For paid work
- For voluntary work

Healthcare Institutions

These facilities are the most important settings for geropsychological services for older adults with various types of support needs depending on diseases, functional impairments, and activity limitations of older people.

- Major kinds of institutions:
  - General, geriatric, and psychiatric hospitals
  - Rehabilitation centers/clinics
  - Day care centers, nursing homes
  - Hospices
- Attributes of the aforementioned institutions:
  - Attributes of specific target groups of older people admitted to and living in the respective institutions
  - Target groups beyond older adults: relatives of older people, professional staff
  - Kinds of geropsychological and other services offered
  - Goals and competence profiles of the major groups of professional staff providing them (e.g., physicians, certified nurses, social workers, geropsychologists, occupational therapists, speech therapists, physiotherapists, educators)

- Structures and modes of cooperation in multiprofessional teams (e.g., responsibilities and leadership, joint geriatric assessment, goal setting, interventions, and evaluation; referrals, case/team meetings)
- Legal and administrative regulations (incl. reimbursement) for institutions

Linking of Courses to Modules Within Study Programs

Modules of Geropsychological Study Programs

The following modules bundle the thematically related courses into building blocks for geropsychology study programs. Of course, the full range of core topics from the section on "Core Contents and Topics of Geropsychology" cannot be included into the limited space of a single program. Larger portions can, of course, be accommodated in consecutive programs leading to bachelor's, master's, and doctoral degrees. Even then, some selection of topics for courses is still inevitable.

- Module 1 *(Basic concepts of age, aging, and older people)*: Includes a course on these concepts and courses on intentional self-development in adulthood, on geropsychology as a discipline, and on the structure of the given study program.
- Module 2 *(Research methods)*: Designed to build up competencies in *research methods*. The courses provide an overview of basic methods of scientific working and the research process as well as courses on methods of qualitative and quantitative data collection and analysis and the presentation of research results. The implementation of a concrete research project (bachelor's/master's/PhD thesis) completes the module.
- Module 3 *(Assessment and intervention methods)*: Refers to the major *components of geropsychological acting*, in particular, geropsychological assessment (problem description, analyses of problem causes, prognosis of problem course) and intervention (goal setting, intervention, evaluation). Some courses may focus on single components and their variants (e.g., overview of assessment methods, overview of intervention methods); other courses may combine multiple components in relation to major age-related problems (e.g., theory, assessment, and intervention related to cognitive problems of older people).
- Module 4 (*Domains of acting, functioning, and development in age*): Courses deal with the different domains of acting, functioning, and development of older people (e.g., cognitive functioning and declines; motivation and emotion; social relationships, isolation and loneliness; activities of daily living and related declines).
- Module 5 (*Problems of aging in different target groups*): Courses that cover analysis and intervention of age-related problems in different target groups (e.g., health risks and prevention in older people; care giver burden and gain of family members; job stress and job turnover among professional staff; adaptation of the home environments and technology use in response to age-related decline)

- Module 6 (*Settings of geropsychological work*): Analysis and solution of concrete practical problems in different settings of geropsychological work. Courses on gerontological practice at the community level, in acute elder care and rehabilitation, in long-term care facilities, as well as in in administrative and political organizations

Arranging Course Sequences over Several Semesters

In each semester, it is advisable to combine courses from several of the six modules listed in section "Modules of Geropsychological Study Programs," e.g., courses on (1) specific areas of acting, functioning, and development, (2) specific components of geropsychological acting (e.g., assessment, intervention), (3) specific target groups, or (4) specific settings of geropsychological work. Combinations of courses that impart theoretical knowledge with those that teach methodical or practical skills create variety and allow cross-references. They also show that the program provides knowledge and skills that are relevant to practice, which enhances motivation to study.

Courses offered in successive semesters should build on each other. Those that provide an overview (e.g., on age-related problems) should precede those that provide more detailed and in-depth training (e.g., on specific geropsychiatric disorders). Courses that provide basic geropsychology action skills (e.g., to conduct assessments or interventions) should precede those that address their integration into complex geropsychological workflows (e.g., case seminars with specific clients in specific settings).

Teaching, Learning, and Assessment in Geropsychology: Approaches and Strategies

Learning Outcomes, Teaching, and Assessment: Issues of Alignment

Having covered the learning themes and content of geropsychology in detail, the question arises as to what goals should guide teaching activities, what teaching activities should be used, and how the achievement of learning goals should be assessed. The concept of "constructive alignment" (e.g., Biggs, 2014; Biggs & Tang, 2011) establishes a systematic link between the three entities (see Fig. 2).

Intended Learning Outcomes

If the teacher applies the concept of constructive alignment to geropsychology learning, teaching, and assessment, then the first step is to define what students should learn in a given unit (e.g., a course). Such "intended learning outcomes" include (1) what students should be able to do, (2) at what level of understanding and performance, (3) with the given content, and (4) in what context. The teacher characterizes the intended level of a certain learning outcome with reference to

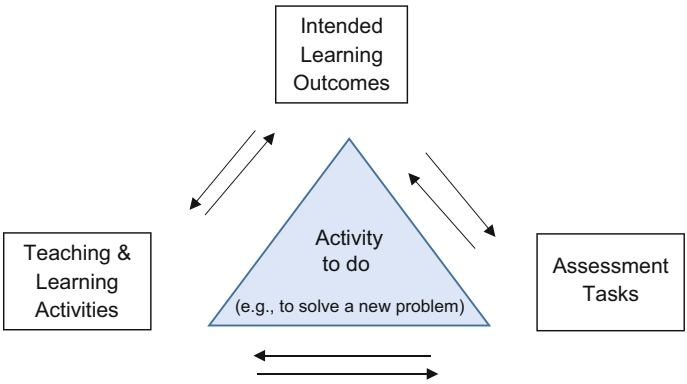

Fig. 2 Alignment between intended learning outcomes, teaching and learning activities, and assessment tasks

one of four qualitative labels of the Structure of Observed Learning Outcomes (SOLO) taxonomy, to which four sets of activities of increasing complexity correspond (activity verbs in brackets): *unistructural* (e.g., to identify, name, define, list; perform simple procedure), *multistructural* (e.g., to classify; to describe; perform more complex procedure), *relational* (e.g., to explain causes, predict, apply a theory to a familiar domain or problem), and e*xtended abstract level* (e.g., to hypothesize, evaluate decisions, improve a practice, apply a theory to a new domain or problem, formulate a new theory). For example, for a course on "ethical issues in aging," the learning outcomes might be that upon completion students will be able to do the following:

- *Recite* existing ethical principles and frameworks relevant for geropsychological work with older people in institutional settings.
- *Describe and classify* ethically appropriate versus ethically questionable acting in nursing homes.
- *Explain causes* of ethically questionable acting in own institution.
- *Evaluate* whether and why a concrete care decision is problematic from an ethical point of view, and if so, *design an appropriate solution*.

To formulate the intended learning outcomes of one's courses, teachers will find valuable methodical help in Chap. 7 of Biggs and Tang (2011).

Teaching and Learning Activities

The word "constructive" in "constructive alignment" reflects the theoretical view that knowledge is constructed through the activities of the learner and that the key to good teaching is to get the learner to engage in activities most suited for reaching the intended learning outcomes in question. The intended learning outcomes should therefore guide the choice of such instructional activities appropriate to engage students in activities that correspond the intended learning outcomes (in terms of

type, content, and level of understanding and achievement). Thus, with reference to the above example, instructors should create teaching situations in which students can *recite*, *describe and classify*, *explain causes of*, *evaluate a problem, and design a solution of* the ethical or unethical issues identified in the learning objectives.

For a wide range of students, the traditional lecture and tutorial have only very limited stimulation potential for raising levels of understanding and performance. Fortunately, there are better alternatives for reaching these outcomes (see Biggs & Tang, 2011, Chaps. 8 and 9 for general considerations and further concrete suggestions). A first one for teaching declarative knowledge (in large classes) are interactive forms of lecturing that include working with concept maps, forming learning partnerships with other students, writing minute papers, thinking aloud modeling, and the deliberate use of changing activities within lectures. A second group of teaching/learning activities is particularly relevant for conveying *functioning knowledge*, which is knowledge that informs the learner what to do and how to act better in concreate situations especially in professional contexts (e.g., how to provide better services to older people). Here, relevant teaching and learning activities require learners to *apply* knowledge to given domains and to solve problems in *case-based* and *problem-based* as well as *workplace teaching/learning* which all are particularly relevant for geropsychology teaching and learning.

Teaching/learning in the workplace plays a major role, e.g., in internships, which are part of many study programs. This form of teaching/learning is even more important for students in part-time study programs, who work in the respective professional fields alongside their studies and have particularly good opportunities to regularly apply their newly acquired knowledge to real professional practice. Instead of simply letting these forms of learning run alongside teaching and learning at the university, it would be better to link them systematically to the respective courses in the form of reflexive, case- and problem-based teaching, and learning.

Assessment Tasks

Intended learning outcomes should be further aligned with the adequate kind of *assessment* tasks, which should determine whether these learning outcomes have in fact been reached as is done in criterion-referenced testing. The most important issue is that the assessment tasks should focus on the extent to which students can perform those activities in relation to the content and context that co-define the intended learning outcomes. That means with respect to the example above, assessment tasks should assess the extent to which students can *recite*, *describe and classify*, *explain causes of*, *evaluate a problem, and design a solution of* the ethical or unethical issues stated in the above learning objectives. This has some implications on how to design the respective tasks. In any case, clear assessment criteria have to be established for each task and learning outcome. Assessment formats will differ depending on whether declarative or functioning knowledge is assessed and which levels of understanding and performance should be covered. Whereas written formats (of which there are several) are well-suited to assess both low and high levels of learning outcomes, multiple choice formats usually assess

only low level learning outcomes. Teachers who want to design and use their own assessments for declarative knowledge and functioning knowledge in the context of constructive alignment will find valuable methodical help in Chaps. 11 and 12 of Biggs and Tang (2011).

Different Target Students: Geropsychology in Non-psychological Study Programs

The core task of geropsychological learning and teaching in the tertiary sector, namely, to qualify students to better cope with the demanding tasks in their respective professional fields, also applies to geropsychology education in non-psychological study programs. A transfer of considerations by Dutke et al. (2019a, 2019b) and Narciss (2019) for designing psychology curricula for non-psychology students leads to the following guidelines here. Geropsychological curricula should, first, be specific to the *professional needs* and *work processes* of the non-psychological target groups dealing with issues related to older people (e.g., gerontologists, social workers, nursing scientists). This requires sufficient information on these topics from the best available sources. These can be provided by relevant documents (e.g., descriptions of study programs and professional tasks) or – even better – by experts from the relevant academic and professional fields, with whom close cooperation is therefore recommended. In addition to people with many years of experience in senior specialist or management functions, it is also advisable to explicitly consult part-time students here as further experts on the needs, tasks, and work processes of their practical field.

Curricula for non-psychological programs require a very careful selection and adaptation of geropsychological content and competencies to be taught and learned, to actually increase the qualification of non-psychological target groups for completing *their* specific professional tasks which by and large are not identical with those of full-fledged geropsychologists. On the other hand, geropsychological curricula for non-psychologists should not be so limited that they severely impair a deeper understanding of geropsychological phenomena and related research results. Therefore, a basic knowledge of geropsychological research methods should still be taught so that students from a non-psychology study program can understand and evaluate the results of relevant research in this field, without becoming necessarily enabled to conduct high-level studies of this kind themselves.

Admittedly, non-psychologists should also learn something *about* geropsychologists' core competencies. This knowledge is important, for example, so that a non-psychologist can better advise or decide whether an older person should be referred to a geropsychologist for further assessment and intervention. However, it is not readily appropriate, given existing professional roles and rules, to teach non-psychology students or professionals the key geropsychological competencies to autonomously assess older adults or to provide psychotherapeutic treatment to them. Here it becomes apparent that the issue of geropsychology learning and teaching in non-psychology programs can quickly touch on issues of

professional self-concepts, powers, and responsibilities vis-à-vis other professions providing services to older people and related persons. These general procedural guidelines should suffice here, and no concrete geropsychology curricula for non-psychology courses are proposed. In addition to the fundamental issues just touched upon, the development of these curricula would also have to take into account the often very specific local conditions of the fields of practice as well as the educational institutions. This can be better handled by the respective locally formed cooperation teams.

Challenges and Lessons Learned

The initial view of this chapter on the relationship between geropsychological research, teaching, and application was simply linear: Research provides the conceptual, methodical, and normative tools, which are transmitted by teaching to students/practitioners, who then apply them to solve the practical psychological problems of the relevant target groups. It now turns out that it is more fruitful to regard the relationship between the three entities as multidirectional (Fig. 3).

Research and Practical Application

Researchers can strive to gain practically useful knowledge from the outset. For example, they can follow principles for constructing practically useful theories by (1) *identifying practically relevant problems* to be solved; (2) building theories with causal factors, mediators, moderators, and outcomes as essential components; and (3) including *modifiable key variables* as suitable targets for interventions (Berkman & Wilson, 2021). In this process, practitioners can provide researchers with pertinent information about relevant practical problems and – later – the applicability of findings in practice settings. Researchers can also serve practitioners by making the implications of their findings for application highly visible in their publications and

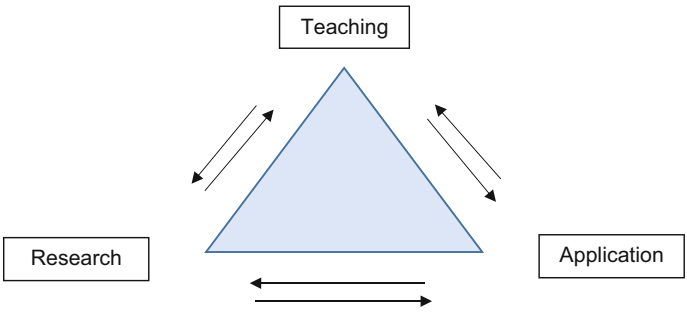

Fig. 3 Multidirectional relationships between geropsychological research, teaching, and application

conference presentations. Relevant journals can catalyze these processes by encouraging consideration of application issues in the scope statement of their journals (e.g., formulating better policies, developing better practices to serve older adults), by including relevance to practice in their publication criteria, or by requiring "Implications for practical applications" parts in the discussion sections of their articles.

Teaching and Practical Application

Teachers should also try to identify the problems in various practical application areas and define the knowledge and competencies needed to solve these problems in order to make carefully targeted choices for teaching content and learning assessments. Teachers should consult practitioners about this. Conversely, practitioners should not hesitate to ask teachers to convey such knowledge and skills that are needed to solve problems in professional practice. Which research findings are most relevant to practical application is probably clearest to those teachers who are researchers and practitioners in one person. Teachers who are not should use other sources to obtain the corresponding information. Study program directors are well advised to do likewise and, in addition, to include practitioners/persons from key application areas on the teaching staff and steering committees of their programs.

Research and Teaching

Researchers should already consider the relevance of their results as possible content for teaching in their research-oriented publications. They could point this out by including instructive figures or tables that summarize the main research findings in an instructive way that can be easily picked up for teaching purposes. Further options are parts in the discussion sections of research papers ("Implications for Teaching") and the writing of textbooks for teachers and students of geropsychology. Each chapter covering a major content area should include a final subsection with considerations for teaching. Active collaboration between researchers as authors of textbooks and students as well as teachers as users of these works should help to achieve these goals. Editors and publishers may catalyze this process in their respective policies.

Teaching, Learning, and Assessment Resources

Tips for Geropsychology Teaching

Organizing and Updating Curricula

- Observe continuously changing demands of practical fields to update curricula if necessary
- Observe continuously new developments in research and update curricula if relevant

- Use feedback from involved groups to improve curricula (e.g., workshop with students, teachers, stakeholders in the field; survey with students and alumni)
- Admission of students in application oriented study programs: Strive for composition of students representing a broad range of occupational settings (e.g., geriatric hospitals /wards, rehabilitation centers, domestic care services, nursing homes, administrations).

Organization of the Semester-by-Semester Schedule of Classes

- Encourage both teachers and students to bring current topics from their professional fields into courses (to improve ability for applying new knowledge to solve practical problems)
- Supplement thematically fixed courses by ones that allow flexible adaptation to upcoming relevant topics (e.g., "New developments in geropsychological research and practice")
- Composition of teaching staff in application-oriented programs: some of them should be both researchers and practical appliers of knowledge.

Kinds of Teaching and Learning Activities

- Learning and teaching activities: Use a variety of formats and allow students to work both individually and in groups to achieve their credits depending on the course content and learning objectives
- Internships: Encourage / require your part-time students to complete internships in areas that are markedly different from their current field of work
- Bachelor's and master's theses: Encouraging students to choose as topics practical problems that they have already encountered in their workplace or will encounter in the future and that may be a suitable target for innovation.

Annotated References for Further Reading

Handbooks/Encyclopedias

- Lichtenberg, P. A. & Mast, B. T. (Eds.) (2015). *APA handbook of clinical geropsychology.* Washington, DC: American Psychological Association.

This research and practice oriented manual includes two volumes (1343 pages in total). Volume 1 covers the history and current status of the field, various aspects of normal aging and diversity in aging.

Volume 2 covers the assessment and treatment in relation to a broad range of mental disorders in ageing as well as to the major transitions in later life.

- Knight, B. G. (Ed.) (2019). *The Oxford Encyclopedia of Psychology and Aging*. Oxford: Oxford University Press.

This mainly research oriented work – available digitally and in print (3 volumes: 1864 pages in total) – provides a broad overview of psychology and aging in

5 sections. (1) Theories and Conceptual Models including perspectives from neighboring disciplines like biology and sociology of aging, (2) Lifespan Developmental Methodology and Analyses including designs, biological and behavioral data collection, basic and advanced methods of data analyses. (3) Cognitive Aging and Neuroscience covering research on brain organization, cognitive performance and interventions, (4) Aging in a wide range of Social-Physical-Technical-Cultural Environments. (5) Clinical Geropsychology of assessment and therapy of major behavioral and mental disorders.

- Pachana, N. (Ed.) (2017). *Encyclopedia of Geropsychology.* Singapore: Springer. This encyclopedia – available digitally and in print (3 volumes, 2250 pages in total) – is addressed to researchers, practitioners and students. It provides a comprehensive coverage of the entire breadth of the field of geropsychology and its major subareas of normal and pathological functioning and development in ageing, their diversity and context, global and specific theories of aging, various methods of geropsychological research, assessment and intervention, ethical and legal issues as well as settings of applied geropsychological work. These issues are covered in relatively brief individual articles by international and multidisciplinary authors. Contributions from (gero)psychology are supplemented by those from neuroscience, social science, population health, public policy, epidemiology and demography and medicine.
- Pantel, J., Bollheimer, C., Kruse A., Schröder, J., Sieber, C. & Tesky, V.A. (Eds.) (2021). *Praxishandbuch Altersmedizin: Geriatrie – Gerontopsychiatrie – Gerontologie [Practical Handbook of Geriatric Medicine: Geriatrics – Gerontopsychiatry – Gerontology].* Stuttgart: Kohlhammer.

Even though this interdisciplinary and application-oriented handbook contains the word „geropsychology“ neither in its title nor subtitle, its covers a lot of topics that are geropsychological in nature or otherwise relevant for geropsychological practice in 4 sections (1004 pages). (I) Basics (e.g. demographic change, concepts of healthy and pathological aging, plasticity and cognitive reserve), (II) Diagnosis and treatment of geriatric syndromes (e.g. immobility, instability, incontinence, malnutrition, delirium, dementia and minor cognitive impairment, sleep disorders, depression and suicidality), (III) Geriatric aspects of selected medical disciplines (e.g., cardiology, neurology, ophthalmology), (IV) Cross-cutting topics (e.g., geriatric assessment, psychotherapy, psychosocial and non-pharmacological interventions, geriatric teams and support structures, palliative and spiritual care, prevention, rehabilitation, ethical and legal aspects, transcultural aspects).

Textbooks

- Diehl, M. & Wahl, H.-W. (2020). *The psychology of later life: A contextual perspective.* Washington, DC: American Psychological Association.

This book (284 pages) combines an up-to-date overview of development in old age in 5 domains with an introduction and application of a theoretical perspective that

strongly focuses on the role of 3 major developmental contexts (life-span, social-physical-technological, historical-cultural). After the introduction of this perspective 5 separate chapters then present the development in old age in 5 domains (cognition and every day competencies; personality; motivation, emotion and well-being; self-perception of aging; successful ageing). An additional chapter is devoted to behavioral interventions in adult development and ageing. Each chapter includes a section that describes the importance of the 3 contexts explained above for the development in the 5 domains considered followed by dialogue with another expert in the given field.

- Boll, T., Ferring, D. & Valsiner, J. (Eds.) (2018). *Cultures of care in aging*. Charlotte, NC: Information Age Publishing.

This book deals with elder care as influenced by many factors of the person in need of care, the care giver(s), and the micro-, and macro-social as well as the cultural context. It includes contributions from authors in geropsychology, other gerosciences and cultural psychologies in 4 sections (442 pages): (A) Contexts (e.g., demographic trends, history of professional care, home care policies, concepts of positive aging,) (B) Individuals' stance toward care (e.g., Effects of caring on families, cultural influences on older persons' care-related preferences), (C) Between informal and formal care (e.g., scientific and legal concepts of care dependency, informal caregivers in long-term care, suffering and compassion in caregiving relationships), and (D) Future issues (e.g., self-care assistive technologies, personnel recruitment and retention; quality assurance; culturally competent care). In each section, the set of contributions by geropsychologists and other geroscientists is followed by a commentary from cultural psychologists.

- Hinrichsen, G. A. (2019). *Assessment and Treatment of Older Adults: A Guide for Mental Health Professionals*. Washington, DC: American Psychological Association. This practice-oriented, handy book (233 pages) addresses mental health professionals either new or experienced in working with older adults. The author has comprehensive experience in geropsychological research, teaching, practice and professional organizations. Basic explanations about working with older adults as well as facts about aging and the lifespan developmental perspective are followed by two overviews of assessment and treatment of older adults. This is further exemplified regarding late life depression and anxiety as well as cognitive impairment and drug abuse. Two appendices about useful resources and relevant assessment screening instruments complete the book.

Journal Articles

- American Psychological Association. (2014). Guidelines for psychological practice with older adults. *American Psychologist, 69*(1), 34-65. doi:10.1037/a0035063

These guidelines are designed to assist psychologists in assessing their own readiness to work with older adults and to enhance their knowledge, skills, and experience in this field through continuing education. The guidelines aim at providing practitioners with (a) a frame of reference for *clinical work* with older adults and (b) basic information and further guidance in the areas of attitudes, general aspects of aging, clinical issues, assessment, intervention, consultation, professional issues, and continuing education and training relevant to working with this group. This paper provides recommendations in the areas of awareness, knowledge, and clinical skills seen as applicable to this work, rather than prescribing specific training methods to be followed.

- Molinari, V., Edelstein, B., Gibson, R., Lind, L., Norris, M., O'Shea Carney, K., Bush, S. S., Heck, A. L., Moye, J., Gordon, B. H., & Hiroto, K. (2021). Psychologists in Long-Term Care (PLTC) Guidelines for Psychological and Behavioral Health Services in Long-Term Care Settings. *Professional Psychology: Research and Practice, 52*(1), 34–45. https://doi.org/10.1037/pro0000298

Psychologists in Long-Term Care (PLTC) Guidelines Revision Task Force present PLTC guidelines based on the original prescriptive Standards for Psychologists in Long-Term Care Facilities organization. The content of the PLTC Standards was updated and the format changed from prescriptive standards to aspirational guidelines. First, general guidelines regarding knowledge and skills in LTC (e.g., education and training, understanding of LTC systems, end-of-life care) are presented, followed by specific guidelines covering the basic psychological service activities in LTC (e.g., referral, assessment, treatment, ethical issues, and advocacy). The PLTC guidelines are aimed at providing guidance to psychologists who work or plan to work in long-term care and to assist them in their continuing education efforts.

Journals with Regular Contributions on Geropsychological Topics

- American Psychologist
- European Journal of Ageing
- European Psychologist
- GeroPsych – The Journal of Gerontopsychology and Geriatric Psychiatry
- Innovation in Aging
- Journal of Aging Studies
- Journal of Applied Gerontology
- Journal of Cross-Cultural Gerontology
- Journal of Gerontological Nursing
- Journal of Nutrition, Health and Aging
- Journal of Mental Health and Aging
- Psychology and Aging
- Research on Aging
- The Journals of Gerontology, Series B: Psychological Sciences
- Zeitschrift für Gerontologie und Geriatrie

Journals with Contributions Relevant for Teaching Geropsychology

- Educational Gerontology
- Gerontology and Geriatrics Education
- Psychology Learning and Teaching
- Training and Education in Professional Psychology

URL-links to Teaching, Learning, and Assessment Resources

- American Board of Professional Psychology – Speciality Board Geropsychology (https://www.abpp.org/Applicant-Information/Specialty-Boards/Geropsychology.aspx)
- APA Divison 20 (Adult development and teaching) – Graduate studies directory (https://www.apadivisions.org/division-20/publications/graduate-studies)
- APA office on aging, the focal point for APA activities pertaining to aging: https://www.apa.org/pi/aging
- Council of Professional Geropsychology Training Programs (CoPGTP; http://copgtp.org): lists 14 doctoral & practicum programs, 24 predoctoral internship programs, 3 postlicensure programs, 17 postdoctoral training programs in geropsychology, 1 associate member, 2 international members (https://copgtp.org/members/member-list/)
- GeroCentral: collaborative effort between the APA Division 12, Section II: Society of Clinical Geropsychology and Division 20: Adult Development & Aging, along with the Council of Professional Geropsychology Training Programs (CoPGTP), Psychologists in Long Term Care (PLTC), and the APA Committee ON Aging (CONA) to bring together available resources for geropsychology training, service provision, policy, and research, including online assessment of geropsychology competencies, in a central internet location (https://gerocentral.org/)
- Psychologists in Long-Term Care (http://www.pltcweb.org/index.php)
- Society of Clinical Geropsychology (https://geropsychology.org/).

Cross-References

- ▶ Community Psychology and Psychological Distress
- ▶ Cultural Psychology
- ▶ Developmental Psychology
- ▶ Formative Assessment and Feedback Strategies
- ▶ Problem-Based Learning and Case-Based Learning
- ▶ Psychological Assessment and Testing
- ▶ Psychology and Social Work Through Critical Lens
- ▶ Psychology in Health Science
- ▶ Psychology in Professional Education and Training
- ▶ Psychology in Work and Organizational Education

- ▶ Psychology of Special Needs and Inclusion
- ▶ Qualitative Methodology
- ▶ Small Group Learning
- ▶ Teaching the Foundations of Psychological Science
- ▶ The Methodology Cycle as the Basis for Knowledge

Acknowledgments I dedicate this chapter to Prof. Dr. Dieter Ferring (1958–2017), who founded the Master's program in Gerontology at the University of Luxembourg.

References

American Psychological Association. (2014). Guidelines for psychological practice with older adults. *American Psychologist, 69*(1), 34–65. https://doi.org/10.1037/a0035063

Approbationsordnung für Psychotherapeutinnen und Psychotherapeuten (PsychThApproO) in der Fassung vom 4. März. (2020). [Licensing regulations for psychotherapists (PsychThApproO) version of 4th March, 2020]. *Bundesgesetzblatt (BGBL), I*, 11, 448-483.

Baltes, P. B. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology, 23*(5), 611–626. https://doi.org/10.1037/0012-1649.23.5.611

Becker, T., Martin, F., Wilz, G., Risch, A. K., Kessler, E.-M., & Forstmeier, S. (2020). Psychotherapie im höheren Lebensalter in der Psychotherapieausbildung. Eine Bestandsaufnahme [Psychotherapy with Older Adults in Psychotherapy Training. A Survey]. *Zeitschrift für Klinische Psychologie und Psychotherapie, 49*(3), 172–181. https://doi.org/10.1026/1616-3443/a000593

Berkman, E. T., & Wilson, S. M. (2021). So useful as a good theory? The practicality crisis in (social) psychological theory. *Perspectives on Psychological Science, 16*(4), 864–874. https://doi.org/10.1177/1745691620969650

Biggs, J. (2014). Constructive alignment in university teaching. *HERDSA Review of Higher Education, 1*, 5–22.

Biggs, J. B., & Tang, C. (2011). *Teaching for Quality Learning at University* (4th ed.). Maidenhead: McGraw Hill Society for Research into Higher Education & Open University Press.

Boll, T., Ferring, D., & Valsiner, J. (Eds.). (2018). *Cultures of care in aging*. Charlotte, NC: Information Age Publishing.

Brabrand, C., & Dahl, B. (2009). Using the SOLO taxonomy to analyze competence progression of university science curricula. *Higher Education, 58*, 531–549. https://doi.org/10.1007/s10734-009-9210-4

Brandtstädter, J. (2006). Action perspectives on human development. In R. M. Lerner (Ed.), *Handbook of Child Psychology: Theoretical models of human development* (Vol. 1, 6th ed., pp. 516–568). New York, NY: Wiley.

Brandtstädter, J. (2009). Goal pursuit and goal adjustment: Self-regulation and intentional self-development in changing developmental contexts. *Advances in Life Course Research, 14*, 52–62. https://doi.org/10.1016/j.alcr.2009.03.002

Brandtstädter, J., Fischer, M., Kluwe, R., Lohmann, J., Schneewind, K. A., & Wiedl, K. H. (1974). Entwurf eines heuristisch-taxonomischen Schemas zur Strukturierung von Zielbereichen pädagogisch-psychologischer Forschung und Lehre [Design of a heuristic-taxonomic scheme for structuring goal areas of educational-psychological research and teaching]. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie, 6*, 1–18.

Bush, S. S., Allen, R. S., & Molinari, V. A. (2017). *Ethical practice in geropsychology*. Washington, DC: American Psychological Association.

Chenoweth, L., & Lapkin, S. (2018). Personnel recruitment and retention in long-term eldercare. In T. Boll, D. Ferring, & J. Valsiner (Eds.), *Cultures of care in aging* (pp. 315–346). Charlotte, NC: Information Age Publishing.

Cohen, S., Murphey, M. L. M., & Prather, A. A. (2019). Ten surprising facts about stressful life events. *Annual Review of Psychology, 70*, 577–597. https://doi.org/10.1146/annurev-psych-010418-102857

Diehl, M., & Wahl, H.-W. (2020). *The psychology of later life. A contextual perspective*. Washington, DC: American Psychological Association.

Dutke, S., Bakker, H., Sokolova, L., Stuchlikova, I., Salvatore, S., & Papageorgi, I. (2019a). Psychology curricula for non-psychologists? A framework recommended by the European Federation of Psychologists' Associations' Board of Educational Affairs. *Psychology Learning and Teaching, 18*(2), 111–120. https://doi.org/10.1177/1475725718810929

Dutke, S., Bakker, H., Sokolova, L., Stuchlikova, I., Salvatore, S., & Papageorgi, I. (2019b). Going too Far or Not Far Enough? The Framework for Psychology Curricula for Non-psychologists revisited – Reply to Comments. *Psychology Learning and Teaching, 18*(2), 148–153. https://doi.org/10.1177/1475725719838889

Freund, A. M., & Baltes, P. B. (2000). The orchestration of selection, optimization, and compensation: An action-theoretical conceptualization of a theory of developmental regulation. In W. J. Perrig & A. Grob (Eds.), *Control of human behaviour, mental processes and consciousness* (pp. 35–58). Mahwah/NJ: Erlbaum.

Gerok, W., & Brandtstädter, J. (1992). Normales, krankhaftes und optimales Altern: Variations- und Modifikationsspielräume [Normal, pathological, and optimal aging: Margins of variation and modification]. In P. B. Baltes & J. Mittelstraß (Eds.), *Zukunft des Alterns und gesellschaftliche Entwicklung. Akademie der Wissenschaften zu Berlin. Forschungsbericht 5 [The future of aging and societal development. Academy of Sciences Berlin, Research Report 5]* (pp. 356–385). Berlin: de Gruyter.

Gerstorf, D., Hülür, G., Drewelies, J., Willis, S. L., Schaie, K. W., & Ram, N. (2020). Adult development and aging in historical context. *American Psychologist, 75*, 525–539. https://doi.org/10.1037/amp0000596

Heckhausen, J., Wrosch, C., & Schulz, R. (2010). A motivational theory of life-span development. *Psychological Review, 117*, 32–60. https://doi.org/10.1037/a0017668

Hinrichsen, G. A. (2019). *Assessment and Treatment of Older Adults: A Guide for Mental Health Professionals*. Washington, DC: American Psychological Association.

Hinrichsen, G. A., Emery-Tiburcio, E. E., Gooblar, J., & Molinari, V. A. (2018). Building foundational knowledge competencies in professional geropsychology: Council of Professional Geropsychology Training Programs (CoPGTP) recommendations. *Clinical Psychology: Science and Practice, e12236*. https://doi.org/10.1111/cpsp.12236

Inouye, S. K., Studenski, S., Tinetti, M. E., & Kuchel, G. A. (2007). Geriatric syndromes: clinical, research, and policy implications of a core geriatric concept. *Journal of the American Geriatric Society, 55*(5), *780–791*. https://doi.org/10.1111/j.1532-5415.2007.01156.x

Kessler, D. E.-M., Agines, S., Schmidt, C., & Mühlig, S. (2014). Qualifikationsmöglichkeiten im Fachgebiet Gerontopsychologie. [Qualification offers in geropsychology. A baseline study]. *Zeitschrift für Gerontologie und Geriatrie, 47*(4), 337–344. https://doi.org/10.1007/s00391-013-0553-1

Kitayama, S., Berg, M. K., & Chopik, W. J. (2020). Culture and well-being in late adulthood: Theory and evidence. *American Psychologist, 75*(4), 567–576. https://doi.org/10.1037/amp0000614

Klie, T. (2017). Das Recht und die Lebensphase Alter [The law and the life phase of old age]. *Zeitschrift für Gerontologie und Geriatrie, 50*, 275–280. https://doi.org/10.1007/s00391-017-1254-y

Klie, T. (2021). Rechtliche Aspekte [Legal aspects]. In J. Pantel, C. Bollheimer, A. Kruse, J. Schröder, C. Sieber, & V.A. Tesky (Hrsg.). *Praxishandbuch Altersmedizin: Geriatrie –*

Gerontopsychiatrie – Gerontologie [Practical Handbook of Geriatric Medicine: Geriatrics – Gerontopsychiatry – Gerontology] (pp. 955-976). Stuttgart: Kohlhammer.

Knight, B. G. (Ed.). (2019). *The Oxford Encyclopedia of Psychology and Aging*. Oxford: Oxford University Press.

Knight, B. G., & Pachana, N. A. (2015). *Psychological assessment and therapy with older adults*. Oxford, England: Oxford University Press.

Knight, B. G., Karel, M. J., Hinrichsen, G. A., Qualls, S. H., & Duffy, M. (2009). Pikes Peak model for training in professional geropsychology. *American Psychologist, 64*, 205–214. https://doi.org/10.1037/a0015059

Kornadt, A. E., & Rothermund, K. (2015). Views on aging: domain-specific approaches and implications for developmental regulation. *Annual Review of Gerontology and Geriatrics, 35*, 121–144. https://doi-org.proxy.bnl.lu/10.1891/0198-8794.35.121

Lawton, M. P., & Brody, E. M. (1969). Assessment of older people: selfmaintaining and instrumental activities of daily living. *Gerontologist, 9*, 179–186. https://doi.org/10.1093/geront/9.3_part_1.179

Lichtenberg, P. A., & Mast, B. T. (Eds.). (2015). *APA handbook of clinical geropsychology* (Vol. 2 volumes). Washington, DC: American Psychological Association.

Molinari, V., Edelstein, B., Gibson, R., Lind, L., Norris, M., O'Shea Carney, K., … Hiroto, K. (2021). Psychologists in Long-Term Care (PLTC) Guidelines for Psychological and Behavioral Health Services in Long-Term Care Settings. *Professional Psychology: Research and Practice, 52*(1), 34–45. https://doi.org/10.1037/pro0000298

Montada, L. (1984). Applied developmental psychology: Tasks, problems, perspectives. *International Journal of Behavioral Development, 7*, 267–286. https://doi.org/10.1177/016502548400700302

Moye, J., Karel, M. J., Stamm, K. E., Qualls, S. H., Segal, D. L., Tazeau, Y. N., & DiGilio, D. A. (2019). Workforce analysis of psychological practice with older adults: Growing crisis requires urgent action. *Training and Education in Professional Psychology, 13*(1), 46–55. https://doi.org/10.1037/tep0000206

Narciss, S. (2019). Curriculum design for (non-)psychology programs – a reflection on general and specific issues, and approaches on how to address them: Comment on Dutke et al., 2019. *Psychology Learning and Teaching, 18*(2), 144–147. https://doi.org/10.1177/1475725719831498

O'Shea Carney, K., Gum, A. M., & Zeiss, A. M. (2015). Geropsychology in interprofessional teams across different practice settings. In P. A. Lichtenberg, B. T. Mast, B. D. Carpenter, & J. Loebach Wetherell (Eds.), *APA handbook of clinical geropsychology, Vol. 1. History and status of the field and perspectives on aging* (pp. 73–99). Washington, DC: American Psychological Association. https://doi.org/10.1037/14458-005

Pachana, N. (Ed.). (2017). *Encyclopedia of Geropsychology*. Singapore: Springer.

Pachana, N. A., & Yeo, G. (2019). Interprofessional training and practice: The Need for More Engagement, Training, and Research in Geropsychology. In O. Braddick (Ed.), *Oxford Research Encyclopedia of Psychology*. https://doi.org/10.1093/acrefore/9780190236557.013.426

Pantel, J., Bollheimer, C., Kruse, A., Schröder, J., Sieber, C., & Tesky, V. A. (Eds.). (2021). *Praxishandbuch Altersmedizin: Geriatrie – Gerontopsychiatrie – Gerontologie [Practical Handbook of Geriatric Medicine: Geriatrics – Gerontopsychiatry – Gerontology]*. Stuttgart: Kohlhammer.

Pillemer, K., Burnes, D., Riffin, C., & Lachs, M. S. (2016). Elder abuse: global situation, risk factors, and prevention strategies. *Gerontologist, 56*, S194–S205. https://doi.org/10.1093/geront/gnw004

Pinquart, M., & Wahl, H. W. (2021). Subjective Age From Childhood to Advanced Old Age: A Meta-Analysis. *Psychology & Aging, 36*(3), 394–406. https://doi.org/10.1037/pag0000600

Rothermund, K., & Brandtstädter, J. (2019). Dual process theory of assimilation and accomodation. In D. Gu & M. E. Dupre (Eds.), *Encycloepedia of Gerontology and Population Aging*. Basel: Springer Nature. https://doi.org/10.1007/978-3-319-69892-2_96-1

Schilling, O. K. (2017). Distance-to-death research in Geropsychology. In N. A. Pachana (Ed.), *Encyclopedia of Geropsychology*. Singapore: Springer. https://doi.org/10.1007/978-981-287-080-3_125-1

Schulz, R., Beach, S. R., Czaja, S. J., Martire, L. M., & Monin, J. K. (2020). Family caregiving for older adults. *Annual Review of Psychology, 71*, 635–659.

Sharifian, N., Sol, K., Zahodne, L. B., & Antonucci, T. C. (2022). Social relationships and adaptation in later life. *Reference Module in Neuroscience and Biobehavioral Psychology*, B978-0-12-818697-8.00016-9. https://doi.org/10.1016/B978-0-12-818697-8.00016-9

Standing Committee on GeroPsychology by the European Federation of Psychologists' Associations. (2021, December 22). *Introduction geropsychology*. Retrieved from http://geropsychology.efpa.eu/introduction/

Verbrugge, L. M. (2016). Disability experience and measurement. *Journal of Aging and Health, 28*(7), 1124–1158. https://doi.org/10.1177/0898264316656513

Wahl, H.-W. (2020). Aging successfully: Possible in principle? Possible for all? Desirable for all? *Integrative Psychological & Behavioral Sciences, 54*(2), 251–268. https://doi.org/10.1007/s12124-020-09513-8

Weil, J. (2017). *Research design in aging and social gerontology: Quantitative, qualitative, and mixed methods*. New York: Routledge.

World Health Organization. (2001). *International classification of functioning, disability, and health: ICF*. Geneva, Switzerland: World Health Organization.

Psychology of Special Needs and Inclusion 44

Mirella Zanobini, Paola Viterbori, and Maria Carmen Usai

Contents

Abstract

Special educational needs refer to the conditions in which a student has to be provided with the necessary measures to overcome any learning obstacle. In this chapter, special educational needs are explored in different sections that share the same idea on the extreme relevance of cultural aspects in influencing inclusion. After introducing the regulatory framework, a review of inclusion measures and advancement in different countries is presented. The second part of this chapter addresses the psychological aspects related to the inclusion of students with special educational needs. Key factors for positive outcomes in inclusive education include peer and adult attitudes toward individuals with special educational needs, as well as participation in in-class activities, school well-being, and family satisfaction toward school inclusion. The third part is aimed at describing

M. Zanobini (✉) · P. Viterbori · M. C. Usai
Department of Educational Sciences, University of Genova, Genova, Italy
e-mail: mirella.zanobini@unige.it; paola.viterbori@unige.it; maria.carmen.usai@unige.it

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methods and strategies that have proven to be effective in promoting inclusion. In particular, measures to foster inclusive attitudes and create an inclusive environment are illustrated. In conclusion, inclusive teaching strategies are reviewed.

Keywords

School inclusion · Inclusive attitudes · Inclusive practices · Participation · Well-being

Introduction

The present chapter addresses the concept of inclusion as it has been covered by psychological literature focused on students with special needs. The main focus will be on the school and psychological issues connected to students with special educational needs and their inclusion in school. Given the many facets of the terms special needs and inclusion and their underlying concepts, the first part of the chapter will attempt to delineate the principal meanings of the terms, in relation to cultural and theoretical differences.

Special Needs and Disability from a Cultural Perspective

It is not always simple to understand each other when speaking about special educational needs (SENs). In a very broad sense, everyone is unique, and consequently, everyone could be a carrier of special needs. Especially in educational contexts, it is widely accepted that a "good teacher" should adapt their teaching methods to each student's individual needs. However, when are a student's needs considered special? In addition, how do SENs and disabilities differ?

As you can imagine, there is no single answer to these questions. In an article published in 2012, Giangreco, Doyle, and Suter (2012) proposed a comparison between the American and Italian special education systems, highlighting the proportion of students considered with disabilities and with SENs in the two countries, among other differences. US inclusion-oriented schools at that time identified approximately 14% of their students as having disabilities and another 16% as having some other kind of SENs, while the investigation of 16 Italian schools found an average of 3.8% students with certified disabilities and 5.5% with other SENs (with a wide range from 1% to 15%). The reason for these wide differences has to be rooted in the different inclusion criteria. Students enrolled in inclusive settings in the American context tended to have, in most cases, learning or language disorders and mild disabilities. Simultaneously, significant delays in literacy or math were considered SENs. In contrast, Italian legislative provisions follow relatively stringent criteria in certifying a disability, and students with severe intellectual, physical, or multiple disabilities attend regular schools. The concept of SENs is generally less well defined and can be interpreted in different ways. Nepi et al.

(2013), referring to UNESCO's classification system, defined SENs as "any situation in which extra resources become necessary in order to provide a student with the tools needed to overcome a barrier to learning." In this direction, different kinds of SENs can be identified: physical or mental disabilities, learning or behavioral problems, and difficulties related to poor social, cultural, or economic contexts. The Organization for Economic Cooperation and Development (OECD, 2003) presented three cross-national categories derived from educational statistics: disabilities, learning, and behavioral difficulties, and social disadvantages. The intention was to create a common data set among participating countries that share a common goal, namely, to create an education system suitable for including all students and achieving equitable outcomes while maintaining cultural diversity and improving quality instruction.

In conclusion, both when consulting the scientific literature and when it comes to educational approaches favoring disabilities, developmental disorders, and SENs, it is therefore important to fully understand which population is being referred to. We can state that SENs possibly derive from different conditions, and attitudes toward considering individual needs as "special" or "normal" can also vary concerning cultural factors. For example, although a medical certification is required in the presence of a mental, physical, sensory disability, or neurodevelopmental disorder in Italy, personalized school planning is also provided for disadvantaged situations associated with sociocultural factors or conditions of temporary disability without the requirement of diagnostic labeling.

Inclusion and Inclusive Education Around the World

Before attempting to exemplify how inclusive education works in different countries, it is important to examine different meanings of the term. Historically, the term integration preceded the actual widespread acceptance of the term "inclusion." In the 1970s, at the beginning of cultural and political movements aimed at guaranteeing access to mainstream schools for children with disabilities, the main objective was to "insert" or "integrate" children attending separate school structures into less restrictive environments. For example, in the UK in 1978, the Warnock Report on SENs recommended, "The principle of educating handicapped and non-handicapped children together, which is described as 'integration' in this country and 'mainstreaming' in the United States of America, and is recognised as part of a much wider movement of 'normalisation' in Scandinavia and Canada, is the particular expression of a widely held and still growing conviction that, so far as is humanly possible, handicapped people should share the opportunities for self-fulfilment enjoyed by other people" (p. 99). The authors of the report distinguished three types of integration: *physical location*, which is when special units or classes are set up in ordinary schools; *social integration*, which is when children attend a special class or unit and share activities with peers; and *functional integration*, which is intended as joint participation in educational programs with fellow students. Even in Italy, the beginning of integration largely was initiated by families who wished to

avoid the marginalization of their children (Barzaghi, 2019) and was a part of a broader democratization movement in the country, realized through the abolition of psychiatric institutes (Basaglia law, 180/1978) and special classes (law 517/1977).

Avramidis and Norwich (2002) stated that when the term integration is used, the emphasis is on the individual child's ability to adapt to an unchanged school environment. Inclusion goes beyond the idea of assimilating children with disabilities into the existing traditional school system and emphasizes the need for a change in the school context to accommodate all types of students.

Many authors agree that the Salamanca Declaration (UNESCO 1994) was the turning point toward an international commitment to avoid segregated educational solutions and promote inclusive school environments for every child, regardless of the severity of the condition. Moreover, starting from this event, the term inclusion began to take the place of "integration." Another crucial event in this process was the publication of the International Classification of Functioning, Disability and Health (ICF: WHO, 2001), which radically changed the concept of disability, thereby emphasizing the role of contextual variables in influencing human functioning beyond the type and levels of impairment. This transformation also brought about a dramatic change in the use of words; the term "handicap" disappeared, and an emphasis was instead placed on participation and the relative limits due to personal or environmental barriers (see paragraph 2.2). However, it was not until 2006 that the right of persons with disabilities to full and unquestioned participation in the life of their communities was internationally sanctioned. Article 24 of the United Nation Convention on the Rights of Persons with Disabilities (UNCRPD) affirms that "States Parties recognise the right of persons with disabilities to education. With a view to realizing this right without discrimination and on the basis of equal opportunity, States Parties shall ensure an inclusive education system at all levels and lifelong learning." It additionally states that States Parties shall ensure "Persons with disabilities are not excluded from the general education system on the basis of disability, and that children with disabilities are not excluded from free and compulsory primary education, or from secondary education, on the basis of disability." In 2010, the European Union ratified the convention, and currently, the ratification of the Convention by 175 states around the world makes it a law in those countries.

Despite the progress, the application of these principles as concrete implementations of school inclusion in different countries and different local realities is still uneven and sometimes far from actual realization. Kiel et al. (2020) highlighted that it is possible to distinguish different inclusion concepts from a narrow definition, where inclusion refers only to students with disabilities, to a broad definition focused on all students' diversity. In the latter case, teaching is tailored to students' individual needs both through different learning objectives and with differentiated tasks that are tuned to students' needs, learning strategies, and achievement levels. In the same vein, Nilholm (2020) identified four uses of the term inclusion in the research on this topic: inclusion can denote the place of education; in addition, it can require that the social and academic needs of pupils with disabilities are met; the third definition applies to all students, with or without SENSs; lastly, inclusion involves the creation of communities in school.

Even considering only the meaning relating to all children's attendance in the common school, there are still considerable differences today. The European Agency for Development in Special Needs Education has classified European countries into three categories according to their policies and practices for the schooling of children with disabilities and the extent of exceptions to the mainstreaming principle. Some countries, such as Italy and Sweden, apply a full-inclusion model, where almost all pupils and students with SENs attend ordinary schools. In other countries, such as Austria, two distinct systems are maintained. Learners there who are officially labeled as having SENs attend either special schools or inclusive settings, with their parents maintaining the right to choose the kind of schooling they prefer for their child. Most countries (such as Denmark, France, Ireland, and England) currently have a multitrack system with various inclusion approaches, including specialized structures, specialized classrooms, and mainstream classrooms. Despite these differences, in most European countries and around the world, the attendance of disabled students in normal classes has increased, while the percentage in separate school settings has decreased (Schwab, 2017).

Given the achievement of this important goal, some questions remain unanswered, such as how can we fully apply the principles of equity, dignity, well-being, and full participation in school life derived from the application of the UN convention and how can we build truly inclusive environments that involve all pupils and create communities in schools? We will try to address these issues in the third section.

The Psychological Issues Connected to Inclusion

As highlighted in the previous chapter, inclusive education currently constitutes a challenge for many countries. In many European countries, the inclusive education trend started with agreements such as the Salamanca Statement (UNESCO 1994) and the UNCRPD (2006). School inclusion is currently a reality in many of these countries and all over the world.

Many studies have shown the positive outcomes of inclusive education, especially for children with intellectual disabilities. Inclusive placements (compared to segregated placements) generally reduce problematic behaviors, produce more positive academic outcomes, increase social interactions with peers, and promote better self-concepts (Vianello & Lanfranchi, 2011). Moreover, an advantage was also found for students without disabilities in terms of social and academic skills.

Nevertheless, some authors claim that the student's presence in regular classes per se cannot guarantee access to a shared curriculum (Obiakor et al. 2012) and that is important to distinguish between physical inclusion and social inclusion. D'Alessio (2011) and Zanobini (2013) suggested micro exclusions can also be found in the so-called fully inclusive settings.

The aims of the subsequent paragraphs are, on the one hand, to highlight how personal and environmental variables relate to the attitudes of peers and adults and, on the other hand, to describe the possible pragmatic and psychological outcomes – in

terms of children's participation and well-being and parental satisfaction – regarding different levels of inclusiveness.

Attitudes Toward Inclusion in Peers and Adults

This section considers the perceptions of peers and adults in different roles (teachers, parents of classmates, and other members of the school and community) toward children with various kinds of SENs. We will try to understand which factors contribute to building these attitudes.

The literature concerning attitudes generally considers a multidimensional, three-component model with behavioral, affective, and cognitive attitude components (Vignes et al., 2008). However, not all the authors agree on the possibility of measuring the three dimensions separately (Armstrong et al., 2017). Regarding the focus of this chapter, children's attitudes toward peers with disabilities can be explored, for example, by presenting children with different vignettes describing a hypothetical classmate who has physical, cognitive, sensory, or behavioral problems and submitting the related assertions to be evaluated. The behavioral component concerns behavior intentions toward peers with a disability (i.e., "I would invite John to a sleep over at my house). The affective component reflects personal feelings such as fear, shame, and joy (i.e., "I would be happy to have Mark as my friend"), and the cognitive aspect relates to knowledge and beliefs toward individuals with various kinds of disabilities or SENs (i.e., "I think Jenny likes many things").

Research exploring the inclusive attitudes of peers has produced mixed results. For example, Nepi et al. (2013) found that in Italy, despite the full inclusion model adopted in this country, students with SENs attending both primary and secondary schools experienced less acceptance from peers, especially in challenging conditions. A questionnaire completed by classmates indicated a greater percentage of rejection toward students with a disability or other SENs in the "study condition," where students were asked to express how much they liked to do school work with each classmate, compared to the "play condition." In a review of studies aimed at analyzing students' attitudes toward peers with developmental disabilities, the variables underlying these attitudes, and the outcome in terms of social participation, De Boer et al. (2010) found an average tendency toward neutral attitudes. Nevertheless, whereas some students showed very positive attitudes, a group of children embraced negative attitudes that could make life at school very difficult for a peer with a disability.

Students who undergo less peer acceptance are at risk of experiencing feelings of loneliness and a lesser sense of belonging to the school community. Many studies have focused on the variables relating to students' inclusive attitudes to analyze which personal and environmental factors can influence their inclusiveness levels to prevent these consequences. In this vein, we can consider three types of factors: personal variables related to children with typical development (gender, age, knowledge and understanding of disabilities, acquaintances and friendships with a peer with SENs), personal variables related to children with SENs (the type of SENs, the

presence of behavioral problems), and environmental variables (the attitudes of teachers or parents, school characteristics).

Regarding gender, an advantage is usually found for girls (de Boer et al., 2010), with females expressing more positive attitudes than males but not in every condition (Laws & Kelly, 2005). In the few studies considering the effect of age, older peers hold more positive attitudes when a significant difference is found (De Boer et al., 2010). No correlation with age has been found in other studies (Laws & Kelly, 2005).

In summary, the results concerning the role of age and gender are inconsistent. It is important to remember that a positive attitude does not always translate into positive behaviors. Cultural reasons may drive girls to manifest greater acceptance when requested. Similarly, as children grow older, they become more aware of the social desirability of an inclusive attitude. Acquiring additional concrete knowledge and experience in the field of disabilities could better help explain interindividual differences. Indeed, most of the literature indicates that direct contact and interaction with people with disabilities are associated with more positive attitudes, possibly because contact reduces anxiety and enhances empathy toward individuals with disabilities (Armstrong et al., 2017). Nevertheless, some studies have found that simple experience with a classmate with a disability does not influence peer attitudes, while friendliness with a peer with SENs is correlated with more positive attitudes (de Boer et al., 2010). Although most research has found that children with SENs generally have fewer friends than their typically developing peers, research on friendship quality shows mixed results. At least in some cases, students with SENs may not have many friends but do have one or two high-quality friends in terms of companionship (spending free time together), intimacy (sharing private thoughts and feelings), and support (helping each other).

Most research concerning attitudes, peer acceptance and friendship has investigated possible differences based on the type of disability or SENs. Overall, the results show that behavioral difficulties are associated with worse attitudes (see, for example, the review of Woodgate et al., 2019). In the same vein, more positive peer attitudes were found toward children with physical or intellectual disabilities than children with behavioral problems (Laws & Kelly, 2005) and children with cognitive difficulties rather than children with ADHD.

Behavioral problems seem to influence the overall quality of inclusion more than cognitive difficulties, academic skills, or physical problems (de Boer et al. 2013). The disruptive characteristics of children with inappropriate behaviors have a strong impact on class life and can be perceived as voluntary rather than the result of SENs (Litvack et al., 2011). This can then trigger a lower level of acceptance not only by peers but also by teachers. In general, severe conditions in terms of the cognitive, emotional, or behavioral characteristics of students with SENs confront teachers with difficult tasks and can adversely affect their perceptions and attitudes. In turn, a teacher's ability to create an inclusive climate at school could influence children's attitudes and perceptions toward peers with disabilities or other kinds of SENs.

It is well known that teachers' attitudes can be strongly relevant to success in implementing inclusive education. However, research analyzing this topic does not

always agree on this variable's actual weight and the key factors influencing the attitudes themselves. Among the aspects considered potentially involved are the teachers' years of active experience in inclusive educational contexts and their knowledge in the field of disability.

Moreover, teachers' professional self-efficacy is considered a crucial factor in implementing inclusive attitudes. It largely depends on teachers' perceptions of whether they possess adequate skills to successfully include different kinds of students. Especially when teachers must cope with severe cognitive disabilities and with problematic behaviors, the sense of being efficacious in their own profession is strictly linked to the possession of training in the field of developmental disorders. Other variables, such as age or previous teaching experience, appear to be less important in contributing to teachers' attitudes.

We can conclude that teachers' attitudes toward disabled children and their full inclusion in mainstream education are necessary for building an inclusive educational community, but it is not enough. Without adequate knowledge and teaching skills, teachers with positive attitudes may have limited possibilities to promote the process of inclusion in their own classes. Moreover, the ability to foster successful peer relationships is critical to ensure all children's successful inclusion and support their social and emotional development (Laws & Kelly, 2005).

From these premises, we can conclude that many variables concerning students and teachers, who are key actors in the school inclusion process, can influence the process itself. Nevertheless, these protagonists do not act in a closed system. Thus it is important to highlight which aspects of the external community and school organization can contribute to constructing an inclusive class climate.

In this vein, parents are a fundamental part of the inclusion process. The literature on parents' perceptions has primarily considered the parents of children with disabilities by analyzing their satisfaction with school inclusion; we will consider this topic in-depth in Sect. 2.4. However, research about other parents is scarce. A study by de Boer and Munde (2015) highlighted that parents generally declare positive attitudes toward children with disabilities, but the findings showed some important differences as well. Attitudes were less positive toward children with profound intellectual and multiple disabilities compared to children with sensory, physical, or mild disabilities. Moreover, greater acceptance characterized mothers rather than fathers and younger parents compared to older ones. Another study aimed to compare the inclusiveness profiles of parents of children with and without SENs attending kindergarten (Schmidt et al., 2020) and found a generally positive attitude. However, parents of children with SENs showed higher openness to the inclusion of children with different SENs types than the other parents. The former tends to emphasize the benefits and positive social effects of inclusion in regular classrooms rather than negative effects on children with and without SENs. Nevertheless, the disability severity in this case also influenced parental attitudes, with more negative evaluations toward the inclusion of students with intellectual disabilities. The authors suggest that preschool services, in particular, can play an important role in increasing parental awareness and knowledge of various kinds of disabilities as well as in decreasing misconceptions concerning inclusive education.

What seems particularly frightening to parents, similar to what happens for teachers, is the fear that teachers do not have sufficient skills to deal with the most challenging situations. Especially when children with behavioral or severe intellectual disorders are enrolled, parents may worry that their children will receive less attention from teachers and that classmates with a disability hold back their children's learning.

Of course, teachers' competence is not the only ingredient for successful inclusion. Teachers' ability to put their skills to good use correlates with the tendency of schools to make the necessary changes for accommodating all types of students. First, cooperation between teachers with different roles appears to be a crucial factor. In an inclusive school, specialized teachers and curricular teachers work together toward a common goal, namely, to put every child in the best conditions to achieve learning goals and gain full participation in classroom activities. Both personalized educational plans and changes in the environment, schedules, and timing are required to achieve this.

Soukakou (2012), who described the factors involved in an inclusive class profile at the preschool level, highlighted the extent to which adults adapt spaces, furniture, and materials to promote children's learning and social experiences in class as an indicator of environmental adaptation. Furthermore, the author considered the importance of other factors: planning and monitoring the achievement of individual goals; the adaptation of group activities to promote individual involvement; the guiding and scaffolding of adults in play activities; adults' support for social communication; and the extent to which the transitions between the times of the school day are organized and adapted to prepare children for scheduled activities. In sum, "inclusive education is not only about teaching students with and without SENs in one classroom, it is about striving for inclusive communities that foster the social integration and school well-being of all students" (Heyder et al., 2020, p. 7).

Inclusion and Participation

When thinking about school inclusion, the focus is not only on the placement in the classroom in the sense of spatial location, but also on the best conditions for social involvement and learning at school. In this sense, social participation or "involvement in life situations," as defined in the ICF, is considered the gold standard indicator of a successful implementation of inclusion in a school context.

In a recent literature review, Maciver et al. (2019) defined the multidimensional nature of the participation construct in terms of involvement in structured (e.g., sport) and unstructured (e.g., play) activities and engagement not only in classroom activities but also in the wider school community. "Participation includes school events, trips, teams, clubs, relationships with adults and friendships with peers." Furthermore, the effectiveness of participation cannot be assessed only in terms of physical presence and activities performed but also in terms of the involvement, motivation, and fulfilment of all participants. The key question is as follows: which factors favor each student's participation in school life in this broad sense?

To answer this question, Maciver and colleagues considered both personal and environmental variables. The first set of variables is grouped into identity (described as self-perception, preferences, internalization of roles, habits, and routines), experiences of body and mind (pain, fatigue, anxiety, and mood), and competence (expressed by making choices, persistence, and skills in various domains).

The second set concerns the quality of the contexts in terms of opportunities and constraints.

First, adults' quality is analyzed in terms of knowledge, skills, and attitudes and the ability to provide participation opportunities and model positive roles for students. Furthermore, the collaboration between staff is seen as an opportunity (instead of poor communication between adults, which is an obstacle to participation). As shown above, the quality of peers, which takes shape as positive attitudes, friendship, and support, can also promote the participation of children with SENs. The quality of the structures and organization, responding to all students' needs and characterized by flexibility and the presence of coherent and predictable routines, constitutes another element in favor of participation. Additionally, the quality of spaces and objects, available, accessible, and suitable, is considered another ingredient necessary for all students' full participation.

In light of the multidimensional nature of participation, it is appropriate to add the community's quality, thereby allowing for wider participation, both inside and outside the school. In this direction, we have already mentioned the role of the families of classmates. To feel part of the class, it is important to attend birthday parties or other occasions to visit peers' homes and share in sports or other recreational activities with peers after school hours. To achieve this goal, people, associations, and organizations of various kinds must be considered open and accessible to all.

In conclusion, participation in this broad sense allows the child to experience a sense of belonging to the school and out-of-school community. Furthermore, participation in a wide range of activities promotes children's self-determination and learning new skills. It is also associated with positive health and developmental outcomes, including a better sense of well-being and greater life satisfaction.

Inclusion and Well-Being

It has been stressed that school inclusion cannot be conceived as a simple physical location in regular classes. Therefore, it is very important to analyze how the inclusion and participation of students with disabilities are related to every student's well-being. Students' well-being is currently considered a priority objective and an indicator of the quality of the teaching process.

Research that investigates well-being usually highlights the multidimensional nature of the construct. Govorova et al. (2020) reported that in the context of the PISA (Programme for International Student Assessment), well-being is described according to five domains: cognitive (achievement of knowledge and skills by students), psychological (commitment, a sense of belonging, and the realization of

one's aspirations), physical (good health and participation in sports activities), social (experiencing meaningful relationships inside and outside of school), and material (availability of the necessary resources). In the research by Simmons et al. (2015), which involved 606 students aged 6–17, participants answered the question: "What constitutes an ideal school for well-being?" Respondents cited different characteristics of the organization and climate at school: good communication and relationships, feelings of safety and security, and opportunities for students to play active roles in their education.

How can a school achieve these goals? The possible strategies that the school can implement at various levels will be examined in more detail in the third section.

Here, we try to clarify the possible relationship between well-being and inclusion. As we have seen, most research shows that peer and adult attitudes and involvement in life situations are crucial for students with SENs to achieve a sense of belonging related strictly to their psychological well-being. Nevertheless, there is a lack of research aiming to understand the possible correlations between the school well-being of typically developing children and their attitudes toward inclusion. It is plausible to believe that students who are satisfied with their academic achievements, and perceive themselves as autonomous and accepted by classmates, teachers, and parents, may in turn have a favorable and inclusive attitude toward the most fragile children (Zanobini and Viterbori, 2021). Therefore, the strong relationship between inclusive attitudes of peers and students' well-being with learning difficulties (Tobia & Marzocchi, 2011) can also characterize students with typical development.

Although it is difficult to determine the direction of the influence between school well-being and different aspects of inclusion, the research findings tell us that well-being in school is significantly correlated with, or even predicts, a sense of belonging at school, active involvement in school activities, and student satisfaction level (Yang et al., 2019).

The Satisfaction of Families Toward School Inclusion

Traditionally, family studies have highlighted the increased demands of rearing a child with a disability and the resulting distress. Nevertheless, the cognitive appraisal of the situation is crucial for family adjustment. Many studies have shown that positive and negative appraisals co-occur and that the proportions of each appraisal can predict parental well-being (Trute & Hiebert-Murphy, 2002). Family adjustment and well-being are affected not only by the child's specific condition but also by the environmental characteristics.

A study aimed at exploring parental perceptions of services for children with autism (Al Jabery et al., 2014) showed an average satisfaction level. In particular, the items that presented a lower level of satisfaction concerned the cost of services, professional-parent collaboration (in terms of adequacy and frequency of collaboration), and the adequacy of parental involvement in the child's education.

When a child with a disability enters school, parents have to cope with new challenges. Marginalization constitutes a risk for their children with disabilities and

their families due to such issues as less availability of time, poor sharing of interests, problems and activities with other families, and fear of rejection and external judgment. Despite these difficulties, parents of children with disabilities usually demonstrate a positive disposition toward inclusion. They generally believe that inclusive education may enhance their children's self-concept, ameliorate their learning skills, and better prepare their children for the real world. A study focusing on factors affecting parental perspectives (Leyser & Kirk, 2011) showed that parents recognize the positive effects of inclusion on classmates and are likely to accept individual differences more when attending an inclusive setting. The concerns of parents of children with and without SENs are generally related to the availability of specialized services and qualified personnel.

Research on the levels of parent satisfaction regarding the inclusive education of their children with disabilities (Zanobini et al., 2017) has showed that these parents generally hold positive perceptions about inclusive educational placement. However, there are some interesting differences. First, emotional regulation evaluated by teachers was significantly associated with all measures of parental satisfaction. As mentioned previously, difficulties in self-regulatory behaviors and emotional responses can be negatively correlated with peer and adult attitudes and consequently undermine parental satisfaction. Moreover, parents with lower educational levels tend to be more satisfied than parents with higher education concerning school services, particularly in the degree of cooperation between the adults involved in the educational and rehabilitation process. It also seems particularly important to underline how some parents identify an element of criticality in relationships with classmates and their families in the face of otherwise high levels of satisfaction in many areas of school inclusion.

These results show the importance of paying attention to multiple factors in the design of inclusive school environments. These include knowledge and familiarity with various types of disorders for all individuals directly or indirectly involved in the educational process, and solid training for all teachers, enabling them not to be overwhelmed in the most complex situations. Additionally, the active involvement of all children and their families, taking into account individual and sociocultural differences, is an important factor, as is the ability to draw on the school's resources and that of the entire community.

Implications for Learning and Teaching

How to Promote Inclusive Attitudes

As previously indicated, the successful implementation of inclusion is largely dependent on teachers who need to have both appropriate skills and knowledge and certain values and attitudes to work effectively in inclusive settings. Empirical research has suggested that training can positively affect teachers' skills, knowledge, and attitudes toward children with SENs. For example, Tristani and Basset-Gunter's (2020) systematic review showed that a positive attitudinal response is promoted by

diverse intervention strategies that included course-based, workshop, practicum, and blended approaches. A change in inclusive attitudes may derive from a better knowledge and understanding of the disability and from the acquisition of specific teaching skills and strategies, such as how to adjust the physical environment, make curriculum adaptations, and handle various types of difficult behaviors (off-task, noncompliant, and isolating, among others).

In sum, training programs can positively impact teachers' attitudes toward the inclusion of children with SENs, particularly when these programs a) include fieldwork and classroom-based observation and direct contact with children with SENs; b) provide the acquisition of knowledge, strategies, and skills, which in turn increase teachers' perceived competence and reduce anxiety and stress; and c) promote reflection about how stereotypes, perceptions, attitudes, and beliefs may negatively affect teaching behavior and teacher–student interactions.

Finally, teachers' attitudes toward the inclusion of children with SENs depend on the availability of effective equipment, teaching materials, and advice and help from other teachers or specialists. This means that attitudes may also be influenced by educational environment-related variables, suggesting that teachers' attitudes may become more positive with the provision of adequate resources and support (Avramidis & Norwich, 2002).

In addition to teachers, classmates also play an important role in promoting inclusion. In particular, children's positive attitudes toward peers with SENs are significant prerequisites for fostering social participation in schools and the success of inclusive learning environments. Empirical research has suggested that interventions aimed at increasing children's disability awareness can improve the knowledge, attitudes, and acceptance of people with disabilities (Lindsay & Edwards, 2013). These interventions include different approaches, such as social contact and simulation.

Social contact interventions derive from Allport's theory (1954), which suggests that negative attitudes may be reduced by creating positive interactions between members of different social groups. Under specific circumstances, positive contact can reduce anxiety about intergroup contact and elicit emotions such as empathy toward outgroup members. The mere presence of students with disabilities in classrooms or schools may not be sufficient to develop positive attitudes; it is the intensity and quality of contacts that better explain attitudes than the type of classroom (e.g., Schwab, 2017). For example, contact has to be frequent, interactive, focused on common goals, meaningful, and pleasant.

A systematic review of 35 studies found a positive association between children's direct interactions with people with disabilities and their attitudes toward disability (MacMillan et al., 2014). Similarly, Armstrong et al. (2017), in their meta-analysis, showed that both direct and indirect (for example, reading storybooks) contact experiences improved children's attitudes toward peers with SENs.

Simulation is another approach used to enhance children's understanding of the difficulties peers with disabilities may encounter. Simulation-based interventions allow children without a disability to experience situations, perceptions, and interactions from the perspective of a child with a disability. For example, Pivik et al.

(2002) used virtual reality to provide children with a better understanding of what it is like to move around in a wheelchair and experience concrete obstacles such as stairs or objects too high to reach and attitudinal barriers such as inappropriate comments.

Other interventions used multiple components, such as multimedia activities (presentations, movies, and class activities) combined with social contact. Lindsay and Edwards (2013) suggested that common elements of successful interventions include disrupting stereotypes and creating awareness of the barriers people with disabilities encounter. In addition, interventions that included multiple and interactive activities, social contact with an individual with a disability, and several sessions over a longer period, rather than short duration approaches, appear to be more effective.

Finally, positive parental attitudes toward inclusion can also facilitate the implementation of inclusive policies (De Boer et al., 2010) since schools find it difficult to promote inclusion without the support of parents of both typical children and children with SENs. In addition, parents shape children's attitudes and orientations toward peers with SENs so that children whose parents show positive attitudes might be more likely to accept peers with SENs in inclusive classrooms. Although it is recognized that parents play an important role in the implementation and success of inclusive policies and practice, research focusing on interventions that may promote positive attitudes toward inclusion in parents is lacking. Nevertheless, it has been suggested that parents could be involved in disability awareness interventions with their children or become more involved in inclusive school activities so that they can become aware of the chances of inclusive practice for all children (Paseka & Schwab, 2020).

How to Build an Inclusive Environment

Inclusive learning environments allow children, independent of their condition and characteristics, to feel in control and comfortable at school, to participate and make friendships and to learn and achieve. This entails that different inclusion components should be considered to create an inclusive environment, such as physical, social, and academic aspects of inclusion (Obiakor et al., 2012). These components allow the creation of environments that promote a sense of belonging and well-being at school, as well as high levels of student engagement and achievement.

Physical inclusion refers to the possibility for all students to have equitable access to services and activities. For example, students with motor disabilities or sensory impairments have specific needs regarding mobility, sense of direction, and safety when moving around, and children with autism often experience difficulties in sensory processing, such as hypersensitivity to noise, smells, or lighting that makes them feel uncomfortable. Therefore, physical inclusion involves those changes and arrangements that allow children with SENs to feel safe and promote learning, participation, and autonomy. Methods for adapting the classroom environment may include offering alternative seating options, changing classroom

arrangements to help children better concentrate on school activities, reducing the noise level, or adjusting the lighting.

Social and emotional inclusion refers to the opportunity to make friends with peers, participate in community activities, and engage in leisure and play. Children with disabilities are often marginalized and are at increased risk of being isolated or bullied, and their opportunities for social participation are reduced compared to typical children. To reach social inclusion, it is not sufficient to allow children with SENs to attend regular classes. Schools need to address the culture of negative attitudes toward disability that lead to prejudice and discrimination and to develop strategies that help children know each other and experience positive interactions and relationships. Specific interventions have been developed to enhance social inclusion, such as the Circle of Friends approach (Frederickson & Turner, 2003) and various peer support interventions (Carter et al., 2015). These approaches contribute to higher levels of active engagement for students with and without disabilities, increase social interactions, decrease problem behaviors for students with disabilities, and promote the acquisition of functional skills.

Academic inclusion refers to all the actions that promote the participation of students with SENs in the teaching–learning process of their classroom. Several approaches have been developed to promote academic inclusion, such as Universal Design for Learning (Rose & Meyer, 2002). These approaches are based on the idea that all students respond better to responsive teaching that acknowledges variabilities in students' abilities, interests, and needs; provides multiple ways of representing content; promotes students' expression; and engages students' motivation. In addition, specific materials, assistive technology, small-group instruction, visual support, and different accommodations can be provided to make learning accessible and allow the students to demonstrate what they know.

Implementing learning environments that embed these inclusive characteristics depends on educational policies and schools' ability to effectively implement these policies in their specific context. The UNESCO Guide for Ensuring Inclusion and Equity in Education (2017) has provided a policy framework for establishing inclusive education systems. The guide was intended to help countries embed inclusion and equity in educational policy and put into practice the principle that "every learner matters and matters equally." Developing policies that embrace an inclusive approach involves recognizing that students' difficulties may arise from aspects of the education system itself, such as the specific characteristics of education systems, the forms of teaching provided, the learning environment, and how students' achievement is supported and evaluated.

Once policies are established, the implementation of inclusive education occurs at the school and classroom levels. First, schools need to analyze their own characteristics, values, and practices; identify the weaknesses that may occur; and set priorities for change. Different kinds of assessment tools that can assist schools in the evaluation process are now available. For example, the Index for Inclusion (Booth & Ainscow, 2011) provides a planning framework to facilitate school evaluation for inclusion in three dimensions: creating inclusive cultures, producing inclusive policies, and evolving inclusive practices. For each dimension, a series of indicators are

provided to help schools identify their own strengths and weaknesses and develop a plan reflecting inclusive aims and the priorities identified. This process needs the school leader's support, who should demonstrate inclusive values, motivation, autonomy, and trust in school staff.

Finally, a relevant aspect of the implementation of inclusive education is teacher training. A lack of training is identified as a key barrier to inclusion by teachers (Glazzard, 2011) who often perceive inclusive education as a top-down recommendation rather than a participatory process. Teacher training on SENs must be organized to prepare regular teachers to work with all kinds of students so that they do not feel overwhelmed when meeting children with SENs. Providing training to all teachers, including pre-service teachers, enhances the awareness that it is within each teachers' professional role to include all children in their classroom, including those with SENs and that inclusion is not just the domain of support teachers.

Inclusive Teaching Practices

Inclusive teaching strategies refer to teaching approaches intended to address the needs of students with different backgrounds, learning styles, and abilities. These strategies promote inclusive learning environments in which all students feel equally valued and embrace a student-centered approach and a view of the teacher as a facilitator to learning rather than an information provider. Generally, teachers who can use a wide range of teaching strategies and are flexible in their teaching approach are more likely to succeed in inclusive classrooms. Characteristics such as attention to planning, good communication skills, high expectations toward students, and demonstrating respect for all learners are common to effective teachers.

Jordan and McGhie-Richmond (2014) identified several general dimensions in the practice of effective teachers:

1. Classroom management: Effective teachers establish rules for routines, such as starting and completing activities, and rules for behavior, make sure that all the students understand the rules, and are committed to fostering student independence. They require self-regulation and responsibility, and as a result, they are not the center of the classroom's control because students are expected to know who is to do what, when, and how.
2. Time management: Effective teachers use time effectively. Having established rules and routines, minimal time is spent directing students. In addition, they protect themselves and students from distractions and communicate clear expectations for lessons and transitions.
3. Lesson presentation: Effective teachers use flexible teaching strategies, materials, and tools, including technology. They make sure that students are aware of the lesson's objectives, make connections with past learning, are clear about expectations, frequently check for understanding, and promote students' participation.

4. Large group and whole-class instruction, small group, and individual instruction: Effective teachers can manage teaching and interactions at the class and individual level.
5. Prevalent teaching style: Effective teachers promote students' engagement and interact positively with all students by engaging students in dialogue that extends students' thinking at high cognitive engagement levels.
6. Classroom tone: Effective teachers promote respect, mutual support, collaboration, and encourage taking responsibility for learning.

It should also be noted that teachers' implementation of inclusive teaching practices is affected by the school's culture and the teachers' beliefs, such as their personal views about ability and disability. Teachers with "entity" beliefs hold that ability is rather fixed and poorly responsive to learning. In contrast, teachers with "incremental" beliefs hold that ability can develop and increase over time under the right learning conditions. Similar beliefs have been found in regard to explaining students' disability (Jordan et al., 2010). Some teachers think that a disability is a fixed condition that is intrinsic to the child and scarcely influenced by instruction; conversely, others recognize that a disability is partly created by society and thus feel responsible for reducing barriers and increasing access to learning. These differences in teacher beliefs are related to differences in instructional practices and different propensity to inclusion. For example, teachers who hold a malleable view of disability are more likely to use student-centered instruction and less likely to motivate their students through extrinsic sources such as grades.

References

Al Jabery, M. A., Arabiat, D. H., Al Khamra, H. A., Betawi, I. A., & Jabbar, S. K. A. (2014). Parental perceptions of services provided for children with autism in Jordan. *Journal of Child and Family Studies, 23*(3), 475–486. https://doi.org/10.1007/s10826-012-9703-0

Allport, G. (1954). *The nature of prejudice*. Cambridge, MA: Addison-Wesley Publishing.

Armstrong, M., Morris, C., Abraham, C., & Tarrant, M. (2017). Interventions utilising contact with people with disabilities to improve children's attitudes towards disability: A systematic review and meta-analysis. *Disability and Health Journal, 10*(1), 11–22. https://doi.org/10.1016/j.dhjo.2016.10.003

Avramidis, E., & Norwich, B. (2002). Teachers' attitudes towards integration/inclusion: a review of the literature. *European Journal of Special Needs Education, 17*(2), 129–147. https://doi.org/10.1080/08856250210129056

Barzaghi, C. M. (2019). Gli alunni con disabilità nella scuola di tutti. Il tortuoso percorso dall'integrazione all'inclusione. In M. Zanobini & M. C. Usai (Eds.), *Psicologia della disabilità e dei disturbi dello sviluppo: elementi di riabilitazione e d'intervento*. Milano, Italy: Franco Angeli.

Booth, T., & Ainscow, M. (2011). *The index for inclusion* (3rd ed.). Bristol, UK: Centre for Studies on Inclusive Education.

Carter, E. W., Moss, C. K., Asmus, J., Fesperman, E., Cooney, M., Brock, M. E., . . . Vincent, L. B. (2015). Promoting inclusion, social connections, and learning through peer support arrangements. *Teaching Exceptional Children, 48*(1), 9–18. https://doi.org/10.1177/0040059915594784

D'Alessio, S. (2011). *Inclusive education in Italy. A criticalaAnalysis of the policy of Integrazione Scolastica*. Rotterdam, The Netherlands: Sense Publishers.

de Boer, A., & Munde, V. S. (2015). Parental attitudes toward the inclusion of children with profound intellectual and multiple disabilities in general primary education in the Netherlands. *The Journal of Special Education, 49*(3), 179–187. https://doi.org/10.1177/0022466914554297

De Boer, A., Pijl, S. J., & Minnaert, A. (2010). Attitudes of parents towards inclusive education: A review of the literature. *European Journal of Special Needs Education, 25*(2), 165–181. https://doi.org/10.1080/08856251003658694

de Boer, A., Pijl, S. J., Post, W., & Minnaert, A. (2013). Peer acceptance and friendships of students with disabilities in general education: The role of child, peer, and classroom variables. *Social Development, 22*(4), 831–844. https://doi.org/10.1111/j.1467-9507.2012.00670.x

Frederickson, N., & Turner, J. (2003). Utilizing the classroom peer group to address children's social needs: An evaluation of the Circle of Friends intervention approach. *The Journal of Special Education, 36*(4), 234–245. https://doi.org/10.1177/002246690303600404

Giangreco, M. F., Doyle, M. B., & Suter, J. C. (2012). Demographic and personnel service delivery data: Implications for including students with disabilities in Italian schools. *Life Span and Disability, 15*(1), 93–123.

Glazzard, J. (2011). Perceptions of the barriers to effective inclusion in one primary school: Voices of teachers and teaching assistants. *Support for Learning, 26*(2), 56–63. https://doi.org/10.1111/j.1467-9604.2011.01478.x

Govorova, E., Benítez, I., & Muñiz, J. (2020). Predicting student well-being: Network analysis based on PISA 2018. *International Journal of Environmental Research and Public Health, 17*(11), 4014. https://doi.org/10.3390/ijerph17114014

Heyder, A., Südkamp, A., & Steinmayr, R. (2020). How are teachers' attitudes toward inclusion related to the social-emotional school experiences of students with and without special educational needs? *Learning and Individual Differences, 77*, 1–11. https://doi.org/10.1016/j.lindif.2019.101776

Jordan, A., & McGhie-Richmond, D. (2014). Identifying effective teaching practices in inclusive classrooms. In C. Forlin & T. Loreman (Eds.), *International Perspectives on Inclusive Education: Vol. 3. Measuring inclusive education* (pp. 133–162). Bingley, UK: Emerald Group Publishing. https://doi.org/10.1108/S1479-363620140000003023

Jordan, A., Glenn, C., & McGhie-Richmond, D. (2010). The Supporting Effective Teaching (SET) project: The relationship of inclusive teaching practices to teachers' beliefs about disability and ability, and about their roles as teachers. *Teaching and Teacher Education, 26*(2), 259–266. https://doi.org/10.1016/j.tate.2009.03.005

Kiel, E., Braun, A., Muckenthaler, M., Heimlich, U., & Weiss, S. (2020). Self-efficacy of teachers in inclusive classes. How do teachers with different self-efficacy beliefs differ in implementing inclusion? *European Journal of Special Needs Education, 35*(3), 333–349. https://doi.org/10.1080/08856257.2019.1683685

Laws, G., & Kelly, E. (2005). The attitudes and friendship intentions of children in United Kingdom mainstream schools towards peers with physical or intellectual disabilities. *International Journal of Disability, Development and Education, 52*(2), 79–99. https://doi.org/10.1080/10349120500086298

Leyser, I., & Kirk, R. (2011). Parents' perspectives on inclusion and schooling of students with Angelman Syndrome: Suggestions for educators. *International Journal of Special Education, 26*(2), 79–91.

Lindsay, S., & Edwards, A. (2013). A systematic review of disability awareness interventions for children and youth. *Disability and Rehabilitation, 35*(8), 623–646. https://doi.org/10.3109/09638288.2012.702850

Litvack, M. S., Ritchie, K. C., & Shore, B. M. (2011). High-and average-achieving students' perceptions of disabilities and of students with disabilities in inclusive classrooms. *Exceptional children, 77*(4), 474–487. https://doi.org/10.1177/001440291107700406

Maciver, D., Rutherford, M., Arakelyan, S., Kramer, J. M., Richmond, J., Todorova, L., . . . Forsyth, K. (2019). Participation of children with disabilities in school: A realist systematic review of

psychosocial and environmental factors. *PloS one, 14*(1), e0210511. https://doi.org/10.1371/journal.pone.0210511

MacMillan, M., Tarrant, M., Abraham, C., & Morris, C. (2014). The association between children's contact with people with disabilities and their attitudes towards disability: a systematic review. *Developmental Medicine & Child Neurology, 56*(6), 529–546. https://doi.org/10.1111/dmcn.12326

Nepi, L. D., Facondini, R., Nucci, F., & Peru, A. (2013). Evidence from full-inclusion model: The social position and sense of belonging of students with special educational needs and their peers in Italian primary school. *European Journal of Special Needs Education, 2*(3), 319–332. https://doi.org/10.1080/08856257.2013.777530

Nilholm, C. (2020). Research about inclusive education in 2020 – How can we improve our theories in order to change practice? *European Journal of Special Needs Education, 1-13*. https://doi.org/10.1080/08856257.2020.1754547

Obiakor, F. E., Harris, M., Mutua, K., Rotatori, A., & Algozzine, B. (2012). Making inclusion work in general education classrooms. *Education and Treatment of Children, 35*(3), 477–490. https://doi.org/10.1353/etc.2012.0020

Organization for Economic Cooperation and Development (OECD). (2003). *Students with Disabilities, Difficulties and Disadvantages: Statistics and Indicators for Curriculum Access and Equity.* Paris, France: OECD.

Paseka, A., & Schwab, S. (2020). Parents' attitudes towards inclusive education and their perceptions of inclusive teaching practices and resources. *European Journal of Special Needs Education, 35*(2), 254–272. https://doi.org/10.1080/08856257.2019.1665232

Pivik, J., McComas, J., MaCfarlane, I., & Laflamme, M. (2002). Using virtual reality to teach disability awareness. *Journal of Educational Computing Research, 26*(2), 203–218. https://doi.org/10.2190/WACX-1VR9-HCMJ-RTKB

Rose, D., & Meyer, A. (2002). *Teaching every student in the digital age*. Alexandria, VA: ASCD.

Schmidt, M., Krivec, K., & Bastič, M. (2020). Attitudes of Slovenian parents towards pre-school inclusion. *European Journal of Special Needs Education, 35*(5), 696–710. https://doi.org/10.1080/08856257.2020.1748430

Schwab, S. (2017). The impact of contact on students' attitudes towards peers with disabilities. *Research in Developmental Disabilities, 62*, 160–165. https://doi.org/10.1016/j.ridd.2017.01.015

Simmons, C., Graham, A., & Thomas, N. (2015). Imagining an ideal school for wellbeing: Locating student voice. *Journal of Educational Change, 16*(2), 129–144. https://doi.org/10.1007/s10833-014-9239-8

Soukakou, E. P. (2012). Measuring quality in inclusive preschool classrooms: Development and validation of the Inclusive Classroom Profile (ICP). *Early Childhood Research Quarterly, 27*(3), 478–488. https://doi.org/10.1016/j.ecresq.2011.12.003

Tobia, V., & Marzocchi, G. M. (2011). Il benessere nei bambini con disturbi specifici dell'apprendimento e nei loro genitori: uno studio pilota con il questionario sul benessere scolastico-versione per genitori [The wellbeing of children with specific learning disabilities and their parents: a pilot study with the Questionnaire on the School Wellness-parents' version]. *Ricerche di psicologia, 4*, 499–517. https://doi.org/10.3280/RIP2011-00400

Tristani, L., & Bassett-Gunter, R. (2020). Making the grade: Teacher training for inclusive education: A systematic review. *Journal of Research in Special Educational Needs, 20*(3), 246–264. https://doi.org/10.1111/1471-3802.12483

Trute, B., & Hiebert-Murphy, D. (2002). Family adjustment to childhood developmental disability: A measure of parent appraisal of family impacts. *Journal of Pediatric Psychology, 27*(3), 271–280. https://doi.org/10.1093/jpepsy/27.3.271

UNESCO (1994). The Salamanca Statement and Framework for Action on Special Needs Education. *World Conference on Special Needs Education: Access and quality.* Salamanca, Spain, 7-10 June 1994.

UNESCO. (2017). *A guide for ensuring inclusion and equity in education*. Paris, France: United Nations Educational, Scientific and Cultural Organization. Retrieved at https://unesdoc.unesco.org/ark:/48223/pf0000248254

United Nations General Assembly Session 61 Resolution 106. *Convention on the Rights of Persons with Disabilities* A/RES/61/106 13 December 2006

Vianello, R., & Lanfranchi, S. (2011). Positive effects of the placements of students with intellectual developmental disabilities in typical class. *Life Span and Disability, 14*(1), 75–84.

Vignes, C., Coley, N., Grandjean, H., Godeau, E., & Arnaud, C. (2008). Measuring children's attitudes towards peers with disabilities: A review of instruments. *Developmental Medicine & Child Neurology, 50*(3), 182–189. https://doi.org/10.1111/j.1469-8749.2008.02032.x

Warnock, H. M. (1978). *Special Educational Needs: Report of the Committee of Enquiry into the Education of Handicapped Children and Young People*. London, UK: Her Majesty's Stationery Office.

Woodgate, R., Gonzalez, M., Demczuk, L., Snow, W., Barriage, S., & Kirk, S. (2019). How do peers promote social inclusion of children with disabilities? A mixed-methods systematic review. *Disability and Rehabilitation, 42*(18), 2553–2579. https://doi.org/10.1080/09638288.2018.1561955

World Health Organization. (2001). *The International Classification of Functioning, Disability and Health (ICF)*. Geneva: WHO, Switzerland. http://www.who.int/classifications/icf/en/

Yang, Q., Tian, L., Huebner, E. S., & Zhu, X. (2019). Relations among academic achievement, self-esteem, and subjective well-being in school among elementary school students: A longitudinal mediation model. *School Psychology*, *34*(3), 328-340. https://doi.org/10.1037/spq0000292

Zanobini, M. (2013). Some considerations about inclusion, disability, and special educational needs: A reply to Giangreco, Doyle and Suter (2012). *Life Span and Disability, 16*(1), 83–94.

Zanobini, M., Viterbori, P., Garello, V., & Camba, R. (2017). Parental satisfaction with disabled children's school inclusion in Italy. *European Journal of Special Needs Education*. https://doi.org/10.1080/08856257.2017.1386318

Zanobini, M. & Viterbori, P. (2021). Students' well-being and attitudes towards inclusion. *European Journal of Special Needs Education*. https://doi.org/10.1080/08856257.2021.1920213

Teaching the Psychology of Religion and Spirituality

45

Timothy A. Sisemore

Contents

Abstract

This chapter introduces the field of the psychology of religion and spirituality, defining its domain and presenting some of the key areas of research it offers. It discusses how these can be shaped into an undergraduate class on the topic and provides basic suggestions on how the literature of the psychology of religion and spirituality can be integrated into other undergraduate courses. Finally, suggestions are offered for teaching psychology of religion at the graduate level.

Keywords

Psychology · Religion · Spirituality · Undergraduate courses · Graduate courses

T. A. Sisemore (✉)
St. Louis Behavioral Medicine Institute, St. Louis, MO, USA
e-mail: timothy.sisemore@uhsinc.com

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Introduction

As you perused the Table of Contents of this Handbook, you might have been surprised to see that there is a chapter on the psychology of religion and spirituality. Indeed, the editors are commended for their thoughtfulness in including this chapter. Many, particularly Western, colleges and universities are so afraid of appearing to promote religion that they neglect the major role it plays in the lives of most people. Most psychology departments do not offer a course in the area, despite a long and rich history of scientific study in the area.

Another reason for this may be the notable disparity between psychologists and the general public on religious belief. For example, Delaney, Miller, and Bisonó (2013) found that clinical psychologists continued to be considerably less religious than the general population in America, while religion is largely considered to be beneficial. Their survey found psychologists as less likely to see their religion as very important (21% vs 55% in the public) and only half as likely to believe in God at all (32% vs 64%). While this only reflects on clinical psychologists, the trend seems evident across the spectrum of the field of psychology.

Religion and spirituality remain vital aspects of the lives of most persons around the world. It is hard to say we understand humans if we do not have some understanding of the nature of religion in their lives – how this affects their goals, relationships, values, coping, and self-images. Yet, not only are there few courses in the psychology of religion, but most psychology textbooks severely undervalue the role of faith in the lives of most people, giving only brief mention to faith despite the formative role it plays for so many. The field of the psychology of religion has produced many valuable findings yet often they languish in the psychology of religion journals, their value ignored by (or at least hidden from) the broader field of psychology.

This chapter will introduce the field of the psychology of religion, defining its domain and presenting some of the key areas of research it offers. It will discuss how these can be shaped into an undergraduate class on the topic. Space will only permit some basic suggestions on how the literature of the psychology of religion can be integrated into other undergraduate courses. Finally, suggestions are offered for teaching psychology of religion at the graduate level.

What Is the Psychology of Religion and Spirituality?

We begin our discussion by looking at the field itself: defining it, briefly charting its history, and surveying some of the major content areas in it.

Defining the Psychology of Religion and Spirituality

Looking back into history, the topics of psychology as we know it were often seen as a subset of religion, with ancient texts covering themes of what goes on in the mind

and emotions, and which behaviors are to be encouraged and which to be discouraged. It spoke of meaning and purpose and of relationships (see Hill et al., 2000). Wisdom for life is offered in all of the great religious traditions, so psychology – as technically the "word on the soul" by its etymology – originated in religion. Philosophers weighed in, of course, Plato and Aristotle, among others, musing on human nature and behavior. The Enlightenment turned this around as science became the primary lens through which humans gained knowledge. It was inevitable that they would turn the lens on themselves and their practices, and so was born the modern discipline of psychology.

We will shortly turn to our brief history of the psychology of religion, but first a word on terminology. Religion is the traditional term used for the area we are discussing, coming from the Latin root *religio* that carried the notion of a bond, typically between an individual and a higher power (Hill et al., 2000). The precise meaning has been debated, but overall has included both an individual and institutional level (Pargament, Mahoney, Exline, Jones, & Shafranske, 2013). Given the anti-institutional sentiment in the West in particular, the term "spirituality" (rooted in *spiritus*, breath of life) gained ground as an alternative to religion. Sisemore (2016) summarized the contrasting connotations of the two terms by describing religion as related to ideas of being institutional, external, objective, old, fixed, and frozen, requiring a deity, and including a moral code. Much of this no longer aligned with the highly individualistic Western culture. In contrast, spirituality connotes individual, internal, subjective, newness, flexibility, and dynamism, does not require a deity, and does not entail a moral code. Spirituality has also been an Eastern phenomenon, too, with many forms of faith excluding a deity as such.

The rise of the term "spirituality" led to considerable debate in the field, though most people describe themselves as religious and spiritual (Marler & Hadaway, 2002). But the focus has been on the "spiritual but not religious" category, with 18% of Americans claiming this option (Pew Forum on Religious and Public Life, 2012). Hood (2003) argued that a subset of this group might better be termed "spiritual *against* religion" where spirituality frees from the bondage of religion. All of these groups fall within the purview of the psychology of religion.

We will follow the lead of Pargament et al. (2013) who define spirituality as simply "the search for the sacred" (p.14), with "sacred" being more than a higher power but including any aspect of life that might manifest the divine. They define religion as "the search for significance that occurs within the context of established institutions that are designed to facilitate spirituality" (p. 15). As such, then, spirituality is the broader term with religion being a subset of it, though one might argue there could be religion without spirituality.

A Brief History of the Psychology of Religion and Spirituality

The relationship between science and faith has long been conflictual – the tragedy of Galileo being a prime example. However, the tension only mounts when science moves toward religion itself as occurs when secular psychology turns to try to

explain religion and religious behavior. We will note some of the pivotal points in this story, admittedly neglecting many important events and authors in the service of brevity.

William James The connection between the young scientific discipline of psychology and an interest in people's religious behavior could not have been more intimate than it being the focus on a set of lectures by the founding president of the American Psychological Association, William James (Nelson, 2009). The lectures occurred in Edinburgh from 1899 to 1902 and were published as *The Varieties of Religious Experience* (James 1902/1961). Consistent with his (and psychology's) individualistic tendencies, *Varieties* examined the religious experience of particular persons – primarily exceptional experiences – from a psychological viewpoint. The work has been immensely influential, praised for its giving credibility to the psychological study of religion, its being supportive of faith, and looking at experience from outside the norm foreshadowed the recent turn to spirituality. Negatively, James avoided more normative experiences such as prayer and the influence of the religious community and may have overemphasized the role of emotion (Sisemore, 2016).

Sigmund Freud One of the most significant figures in Western history, Freud stepped boldly into the psychology of religion, largely using his theoretical systems to psychologize and explain away religion and religious experience. Three of his works were strongly focused on religion: *Totem and Taboo* (1913/1950), *Moses and Monotheism* (1939/1955), and *The Future of an Illusion* (1923/1961), this likely being his most influential work on religion as he blatantly labeled religious faith as an "illusion" and replaced it with scientific human reasoning. While James had been detached and rather neutral in his view of religious experience, Freud now used science not only to explain but to debunk religious faith, drawing battle lines in this debate that continue to this day.

Freud's Successors Several of Freud's disciples strayed from his pure atheistic position and looked more favorably on the spiritual and religious. Carl Jung rejected his father's Christian faith (Nelson, 2009) but it was influential, and Jung studied other religions and argued that religion was largely valuable. His theories might best be described as a form of Gnosticism as God is relegated to an archetype in Jung's theory of personality. Erik Erikson developed a methodology called psychohistory, using psychoanalytic theory to explain significant figures from the past. In *Young Man Luther* (1962), Erikson examines a major religious figure and notes not only the influence of his early childhood but his ongoing development in adulthood. (And did the same with spiritual icon Mahatma Gandhi [Erikson, 1969].) Object relations theory, too, gives space for a God image that acts as a transitional object from parents to broader life (Winnicott, 1990).

Psychology of Religion in Other Models of Psychology and Today The phenomenological/humanistic approach to psychology emerged in the mid- twentieth century and included several figures who considered religion. Gordon Allport came

from a Protestant family and became a significant scholar at Harvard (Wulff, 1997). He introduced important categories of intrinsic and extrinsic faith (in *The Individual and His Religion*, 1950) and wrote a seminal book on racial prejudice (*The Nature of Prejudice*, 1954/1958) that included theory on why some religious persons are prejudiced and why some are not. Another humanist, Erich Fromm (1950/1967), stressed the need to move from authoritarian religion to humanistic religion, a faith that focuses on human strength and so moves away from traditional forms of religion.

The coming of behaviorism had little impact on the study of religion other than to essentially discard it from attention. When cognitive psychology came to the fore, again the focus was more on persons and thoughts than just behavior, though now potentially the impact of religious thoughts might be considered.

All the while, however, the psychology of religion was becoming its own field with scholars devoting their careers to studying the role of religion (and subsequently spirituality) in the lives of individuals. Social psychology joined the pursuit and much literature has emerged on how religious community interacts with individuals (Sisemore, 2016, Chapter 12) and even broader culture (Sisemore, 2016, Chapter 13).

Most of the work being done flows from an empirical model based on Western scientific psychology, yet in recent years there is movement toward a more emic perspective on the field, working from indigenous perspectives and broadening the focus to include more from other religions (Sisemore & Knabb, 2020a) and even to examine the psychology of being secular (e.g., Streib & Klein, 2013). Finally, there has been a strong movement to consider the clinical implications of the psychology of religion, as exemplified by the inauguration of the journal *Spirituality in Clinical Practice.* Numerous journals publish articles on the psychology of religion and spirituality, and many psychological organizations have a division to focus on this. For example, the American Psychological Association hosts Division 36, The Society for the Psychology of Religion and Spirituality. There is also the Society for the Scientific Study of Religion composed largely of social psychologists and publishing one of the most prestigious journals in the field.

Major Content Areas of the Psychology of Religion and Spirituality

The domain of PRS is quite broad as religion and spirituality impact many areas of the lives of those who hold to them. My goal in the paragraphs that follow is simply to summarize the areas and cite a sample finding so that I can communicate a "taste" of the field. This list is by no means exhaustive but hopefully is representative of the work done in PRS.

Development and Religion and Spirituality Religious faith and spirituality play a significant role in development for many individuals and families, if not for most. Some (e.g., Barrett, 2012) argue there is scientific evidence that seeking something

"bigger" than ourselves is possibly even built in at birth. Many families raise children into a faith and place them in communities that support and encourage them in that belief. Marriage is often seen as a religious act, and religion and spirituality impact adults in their family and work lives. Though this may be a generational effect, for now religion may be more salient in the lives of old adults than any other group.

One sample area of research in this area is the way that attachment theory, rooted in the work of John Bowlby (1969), has been applied to religious relationships. This work might have been started by Kirkpatrick and Shaver (1990) but it has grown considerably and is summarized in the recent landmark work of Granqvist (2020). Granqvist and Dickie (2006) track how attachment to parents translates to attachment to God and changes through development, moving from more parent-focus to God-focus as God becomes a secure object (in the optimal version) and safe haven.

Conversion and Deconversion One of the fascinating things in religion is the sometimes-dramatic conversion of a person from non-faith to religious faith, or a change from one faith to another, or even from a posture of faith to non-faith. The first two of these are generally called conversions while the latter is referred to as deconversion. These are sometimes quite remarkable and sudden while at other times gradual and subtle. Arguably the leading theorist of conversion is Rambo (Rambo & Bauman, 2012) who sees conversion beginning in the broad context of the individual and running through a crisis, quest, and encounter with the religious group, interaction with them, and then a commitment to the group leading to the ensuing consequences. Studies are also ongoing about the reverse process of leaving a faith, exemplified by Streib's Deconversion Project (Streib, Hood Jr., Keller, Csöff, & Silver, 2009) which looks at narratives of those who deconvert and found themes such as the pursuit of autonomy, feeling debarred from paradise (disappointed with the faith), finding a new frame of reference, and some who live lifelong quests, trying various religions.

The Psychology of Religious Experience As noted earlier, this is in a sense where the psychology of religion began as James (1902/1961) lectured on psychological explanations of religious experience. Since then, the field has broadened to look at things ranging from the more typical experience of prayer, meditation (including mindfulness), and rituals, to more unusual things such as serpent handling and mystical experience. Hood and his colleagues (e.g., Hood & Williamson, 2008) have offered fascinating insight into how some Christian believers take literally a disputed text of the Bible and in faith handle serpents to express it. Hood is sympathetic in general, seeing this as a strong demonstration of faith – even when these worshippers are occasionally bitten and even die.

Religion and Mental/Physical Health Another large body of research in PRS examines how religious faith and spirituality impact health – often for the better

but sometimes for the worse. The Society for the Psychology of Religion and Spirituality (APA Division 36) recently focused their annual conference on the topic (2020). The hope, community, and good habits espoused by religious often play positive roles in promoting good health, though spiritual crisis during illness can have the opposite effect (e.g., Exline & Rose, 2013). Meditation and mindfulness are also garnering considerable attention for their health benefits. Let us focus on prayer. It has benefits to physical health by helping cope with stress, giving a sense of control and promoting relaxation, and thereby reduces cardiovascular issues, though the literature is less conclusive regarding cancer and HIV/AIDS (summarized by Sisemore, 2016, p. 198). The benefits to a sense of well-being are also strong, with 60% of studies summarized by Kimball (2013) showing positive effects. For some, though, prayer can increase anxiety depending on one's view of God (Spilka & Ladd, 2013).

Cognitive Science of Religion This is a broad area that looks to see how religion appears in the brain and cognitive processing. It fits with a literature that has examined how religious acts and experience show in the brain and how cognitive processes inform and react to religious and spiritual activity and ritual. It is a very cross-disciplinary area of PRS as it intersects with neuroscience, development, cognition, chemistry, and even evolutionary psychology. An example is Barrett's (2012) work mentioned earlier that suggests children to be naturally predisposed to see agency in the world. For instance, they more readily see something like the Grand Canyon as made by God than by the forces of nature. Based on this, Barrett says, it is almost as if parents raising children not to believe in a God who has agency must undo this tendency. An older illustration of this is the infamous Good Friday Experiment (Pahnke, 1966) conducted by Timothy Leary where seminary students were randomly given a placebo or psilocybin prior to going to worship. Needless to say, those receiving the hallucinogen had more remarkable experiences that day – except for one in particular who had a very upsetting experience. The goal was to explore how physiological states impact spiritual experience.

Religious Practices We looked at some unusual experiences, but psychologists of religion also examine more routine religious and spiritual practices for what they are: regular parts of life and spiritual maintenance and growth. We noted earlier how prayer can help with health issues, but activities such as prayer have a deeper meaning than simply physical benefits. Religious practices, often referred to as rituals, can occur individually or in community. Rituals can also range to such things as bar and bat mitzvahs for Jews, the Hajj for Muslims, and Easter for Christians, to give some basic illustrations. Other rituals might include fasting or feasting, times of celebration, or mourning. Research shows that these have impacts ranging from creating a synchrony among participants, to a channeling of sexuality, to delaying death, being a means of contacting the supernatural, focusing attention, creating a sense of vulnerability yet support, and promoting the community (these are summarized in Sisemore, 2016, p. 283–4).

Religion and Coping and Meaning Two key functions of religion and spirituality are to provide a sense of meaning to life in general and events in particular and to provide a way to cope with the challenges of life. PRS has looked at these extensively and found that religion generally promotes coping but can lead to spiritual crisis when events challenge it. Kenneth Pargament has arguably been the leader in research in this area, defining religious coping as "a search for significance in times of stress" (Pargament, 1997, p. 90). This leads to efforts to conserve the significance of the sacred or to transform the significance of the sacred, with such positive coping leading to some of the health benefits mentioned earlier. Should these strategies fail, there is a spiritual crisis that can be devastating to the individual.

Crystal Park (e.g., Park, Edmondson, & Hale-Smith, 2013) has pioneered research on meaning and its relationship to religion, finding that religion fits well as a meaning system as it integrates well with peoples' self-definition, daily living, and life goals. Challenges to this push the person to integrate them into meanings or to adapt meanings (Park, 2013). Between these approaches, we can learn how religion gives life meaning and enables people of faith to cope with life's challenges, though admittedly sometimes this leads to spiritual struggle.

Religion in Communities Historically faith communities have been vital to many cultures and shape the individuals within them, partly through rituals as we noted before. This is less clear in the West given how it is shaped by individualism but clearly holds true for many religions – including Christianity in many cases. I previously explained (Sisemore, 2016, p. 276–278) how religious communities provide moral cohesion, a sense of belonging and a sense of transcendence. Religious community can be controversial as seen with what the field calls new religious movements, often popularly called "cults." Other controversial issues current in this field are the role of non-heterosexuals in many religious communities given many sacred texts speak against sexuality outside of marriage between a male and female, conflicting with current views of sexual and gender diversity.

Religion and Spirituality in Clinical Practice There is a growing emphasis on taking the findings in PRS and applying them to clinical work by psychologists and other mental health professionals. When people of faith face mental health challenges, they generally desire to include their faith in psychotherapy. This can be a challenge as mental health professionals are generally less religious than the general public (developed in Shafranske, 1996). Models have been developed from specifically religious perspectives, such as Knabb et al. (2019) from a Christian worldview and al-Karam (2018) from a Muslim one, though other religions are rapidly developing models of therapy built on their worldviews while (in many cases) incorporating evidence-based treatments.

Pargament (2007) has developed a broad model of psychotherapy named "spiritually oriented psychotherapy" built around the notion of seeing problems through a spiritual lens, useful for all forms of religion and spirituality. There are several religious and spiritual interventions that have empirical support (Plante, 2009)

including prayer, meditation, clarifying meaning, bibliotherapy, participating in rituals, and acting in accordance with religious ethics and promoting forgiveness, gratitude, and kindness – including acts of sympathy and charity. Others include accepting self and others and appreciating the sacredness of life. Applications of PRS to psychotherapy are being actively researched and form a vital part of the field today.

This cursory review of some of the areas of work underway in the psychology of religion and spirituality is intended simply to give the reader a flavor of the dimensions of the area and the fascinating findings emerging – findings that are immensely practical and particularly impacting clinical work with persons of faith.

Teaching the Psychology of Religion and Spirituality as an Undergraduate Course

We turn now to consider the actual teaching of PRS in postsecondary education. We will consider the primary approach of teaching it as a freestanding course of its own, then turn to how important elements of PRS can be incorporated into other courses, and then conclude with some thoughts on teaching PRS at the graduate level.

Contexts for the Course

There are, of course, quite a variety of educational institutions, but when it comes to religion there is somewhat of a bifurcation into religious institutions and state or other secular schools. Nielsen and Silver (2015) address the significance of this issue, with the former sometimes promoting a specific religion (or even a specific version of a religion – such as a Baptist university promoting the Baptist version of the Christian faith), while sectarian schools may be commissioned carefully to avoid any semblance of endorsing a specific religion. Indeed, this may lead at times to a hesitance to even offer a course in PRS. Yet to avoid doing so can leave a significant deficit in a college's curriculum given the significant and vital role religion plays in the life of many (if not most) people and thus to neglect it is to fail to fully understand persons and some communities.

One of the problems that Nielsen and Silver (2015) point out, however, is that the preponderance of research in PRS is from Christian populations given most has been conducted in the West where Christianity is the most common religion. Yet, much of this research is done with deference to other faiths and the trends are changing (see, e.g., Sisemore & Knabb, 2020a). Nielsen and Silver (2015) suggest that professors consider the accreditation standards of the school and requirements for being able to teach a course given there may be a need to show some background in PRS in order to teach the course. Even at that, instructors will need to be self-aware of their own faith (or secularity) and its impact on the course and be prepared for the potential reactions of students from varying backgrounds with regard to faith, particularly as this is often a troubling topic and may bring up unpleasant memories for some who

have had negative experiences with religion and religious groups. Conversely, Nielsen (2012) notes that many believing student may enroll for such a course in an effort to affirm their own beliefs.

The context of a faith-based institution may alter the approach to the course and its content. Religiously based schools vary widely on how open they are to presentation of contrasting views of faith and to letting their own views be examined by scientific psychology. Addressing these issues in advance with school administration will be important. Clarifying with students how the course fits into the school's philosophy will also be essential to the success of the course. A PRS class may challenge students' beliefs but also may lead to a deeper appreciation of faith through closer examination of how it functions in life and serves psychological as well as spiritual functions.

Another contextual issue is in what department to teach PRS. Obviously, a psychology department is most common and natural. But religion has many sociological dimensions and much of the research is done by sociologists and social psychologists. It could also, then, be offered in a sociology department. A PRS course might also be housed in an anthropology department as through it we learn of different cultures and people groups. PRS can also be located as a course in a religious studies or theology department and could be adapted to different approaches to the material depending on how the department frames the course and its role in the curriculum.

Possible Course Texts

While some instructors will prefer to assemble a set of articles or media for their courses, there is a solid set of options for textbooks that can organize material and make supplements of articles and media less central. We will briefly note a few.

Paloutzian (2016) is a traditional text focused on undergraduates that has recently been updated and is a manageable resource for undergraduates. Written by a leader in the field, it challenges students to see how religion can shape meaning through the changes of life. Paloutzian fulfills the book's title well as a warm welcome to the field, though some may see it as less positive toward faith than other texts.

Sisemore (2016) is written explicitly with the goal of being an undergraduate text and is organized to support that. It is intentionally two-pronged, presenting the empirical research but also having a more qualitative aspect in giving voice to people of differing faiths (and atheism) to illustrate key points.

Nelson (2009) may be stronger on theory and explanation and thus less clearly focused on the empirical literature, though he gives this adequate coverage. Its strength is giving detail to ideas and has made some effort to be more intentional in discussing Eastern religions than the others. It is becoming a little dated, however.

Hood, Hill, and Spilka (2018) are clearly the dominant text in the field as evident in its being in its fifth edition. I mention it last only because it is more of a graduate text and may be a challenge to most undergraduate students. It is, nonetheless, the

standard for the most information, and its empirical approach keeps it extremely focused on the scientific literature which it thoroughly and fairly covers.

Also notable are two handbooks that offer excellent summaries of topics in the area, though these may be best suited as sources for supplemental readings than as textbooks. Pargament (2013) is the editor-in-chief of the American Psychological Association's massive two-volume *Handbook of Psychology, Religion, and Spirituality.* Other than its sheer comprehensiveness, Pargament's work is noteworthy in that the entire second volume is dedicated to applied areas of PRS and thus of utility for those with more clinical interests.

Paloutzian and Park (2013) have also published an outstanding source for summaries of many of the vital areas of PRS. While not as thorough as Pargament (2013), this book is manageable enough to consider as a text if an instructor wants focused summaries of topics and to connect them through customized lecture. This could be a flexible approach is the instructor know the field well enough.

Beyond these, there are numerous books on topics in PRS in addition to the growing body of journal literature. Many professors will want to direct their students to the primary literature at some point for the sake of making them familiar with original sources and how the data is developed in research.

Suggested Attitudes for Teaching PRS

We mentioned above how the philosophy of a course in PRS will vary depending on the type of institution it is offered in. So will the stance of the instructor. I venture to suggest a few attitudes that may enhance the experience across a range of settings.

First, there will need to be some openness. For people of faith, there is often anxiety in having science examine this treasured part of their lives. Others will seek to use science to discount the faith of others. Instructors in the class will want to create a space for students to speak freely with a sense that the divergent perspectives will be respected. An atmosphere of curiosity and understanding is to be preferred.

Second, for this to occur, the instructor does well to model humility in approaching the discipline of PRS. A humble approach acknowledges the problems of epistemology in the area, and that science, committed as it is to the observable and measurable, is not equipped to answer ultimate religious questions (Sisemore & Knabb, 2020b). While PRS can describe religious/spiritual behavior, emotions, and attitudes, it is not equipped to decide basic questions such as whether there is a God, etc. The instructor may wish to model a humble approach to facilitate the openness just described.

Finally, the instructor will want to be particularly respectful – especially to students who do not share the instructor's position regarding faith. There are such things as religious micro-aggressions where one person subtly insults or dismisses the faith of others. In a day when we are increasingly working to respect cultural differences, religion and spirituality should not be omitted as worthy of cultural respect.

From this, the atmosphere of the class should be one of understanding and engaging, not of judging. Students, too, can bring biases and, as we all know,

feelings run strong around the issue of religion. PRS is a form of scholarship and as such should keep a posture of detachment and eagerness to understand.

Instructional Strategies

As with any course, the instructor must engage students and utilize effective pedagogy. While the standard methods of lecture, exam, papers, etc. play a role, I offer a few other suggestions for structuring the class. A wonderful resource was created by Kevin Ladd (https://osf.io/vsua9/) which lists a variety of syllabi in the area of PRS, and I encourage you to consult this for ideas on overall structure of your course.

Nielsen (2012) surveyed a number of psychology of religion courses and found some of the major assignments used. We will omit more typical ones (such as a research paper, though it was the most commonly used). Personal reflection assignments were also common. Here one could be asked to reflect on course content in light of a personal experience or reflect more generally on their (non)spiritual journey in some way. Similarly, one could assign students to write a spiritual autobiography. Experiential activities are commonly used, and these may range from trying a meditative technique to attending a worship service of a group different from one's own background to interviewing a practitioner of a different faith. Another interesting task is to have students watch films and consider them from the perspective of PRS. For example, in the past I have had students watch the Academy Award winning *Chariots of Fire* and compare how the two lead characters used faith in differing ways in their pursuit of Olympic gold. One could also stage a debate between differing points of views on certain topics or have students design an empirical study of a topic covered in class.

To Neilsen's list, I would add students could be asked to complete a project in the community where they attend a meet with a spiritual leader or assist with a community project of a religious/spiritual group. One might also hold class symposia (also preparing them for this common format of presenting research) by assigning small groups a topic and having them break it down for several presentations around the theme. Finally, instructors might invite guest speakers who have either done research in an area of PRS or who could describe their spirituality or spiritual experience. Similarly, numerous clips are available on YouTube and other Internet sources to show religious practices and spiritual experiences.

You, of course, may have other, better ideas and creativity is encouraged. Hopefully, some of these suggestions may inspire your ingenuity.

Introducing PRS in the General Psychology and Related Undergraduate Curriculum

PRS is an orphan in psychology in some ways. There is not a doctorate in the field, though there are some related programs. For instance, the University of Denver and

Iliff School of Theology offer a joint Ph.D. program in the study of religion, and Religion and Psychological Studies is one of its concentrations (https://www.du.edu/duiliffjoint/current-students/concentrations/religion-psychological-studies). Several clinical psychology programs offer doctoral degrees in clinical psychology from a specific religious perspective, though this is not really the same as the psychology of religion. This lack of a formal route to becoming a psychologist of religion mean scholars in the field may be social psychologists, personality psychologists, developmental psychologists, philosophers of psychology, or clinical psychologists by training. This implies that PRS connects to various areas in the broader realm of psychology, despite not having a direct route to becoming an expert in the field.

Despite this, textbooks in other major areas of psychology overlook the PRS literature and the importance of religion in general and in so doing offer incomplete views of their topics. A rare exception is Krull's (2019) introductory psychology text that includes an entire chapter on the psychology of religion. Conscientious professors of a variety of classes may wish to include a section on how PRS overlaps with their classes at points. As already observed, PRS can be relevant to sociology, religion, anthropology, and also ethics, social work, counseling, philosophy, world religions, and diversity studies. These instructors merely need to ask themselves, "How do religion and spirituality intersect with the content area of the course?" A brief reflection will likely yield some important ways PRS is germane to the course – even though the standard texts may overlook it.

Space will not permit a review of all possible courses in all disciplines where the literature of PRS is relevant, but I offer a brief list of typical courses in an undergraduate psychology curriculum and a point of connection with the PRS literature.

Abnormal Psychology There is a fascinating history of research on distinguishing religious experience and belief from psychopathology, particularly psychosis. PRS has also produced a solid body of research on the positive and negative impacts of religion and spirituality on mental health.

Personality Psychology The differences between intrinsic (faith valued for itself) and extrinsic (faith as pragmatic, serving external purposes) religiosity are important in understanding how faith is incorporated into personality more than just being some behaviors. For many people, religion and spirituality are core components of a sense of self, making it challenging to understand who they are without considering the role of their faith.

Community Psychology Historically faith occurred predominantly in community, only recently, and in the West primarily, has it been more of an individualistic phenomenon. In the United States, for example, the church is a core source of community for many black Americans. Often such faith shapes the larger community and so is vital to understanding its functioning.

Statistics and Research Methods Understanding what psychologists of religion have done to explore something as "invisible" as faith demonstrates the flexibility of

research methods. Religion is a ripe field for utilizing qualitative methods to build theory about religious behavior, and mixed methods approaches are giving insight into the complexities of those without faith who have often been assumed to be homogeneous in their atheism (see Sisemore, 2016, p. 137–142 for a summary).

Tests and Measures For instance, my colleagues and I took an explicitly theological concept, grace, and developed a measure for it and then demonstrated its utility in understanding individual functioning and its role in coping with mental illness (Bufford, Sisemore, & Blackburn, 2017). There are numerous other examples of creatively operationalizing religious variables to make them researchable.

Social Psychology We have already noted that many researchers in PRS are social psychologists. Earlier we noted the work of Hood and colleagues (e.g., Hood & Williamson, 2008) in studying serpent handling groups. Much work has also been done on the role of fundamentalism as a form of religion and the magnetism of new religious movements. Ritual is also a key feature of social life – often for the non-religious as well!

Industrial/Organizational Psychology People do not check their faith at the door of their places of business. Muslim businesses may pause operations at times of prayer; conflict can ensue if a hajib or yarmulke is worn into a place of business, or if an employee wants to place a crucifix by their office door. Does faith impact life in the workplace? Is it possibly a resource businesses might incorporate more effectively? These are only a few of the areas where PRS impacts industrial/organizational psychology.

Positive Psychology This is a natural area of overlap with PRS given the long history of religion promoting virtues. Positive psychologists can hardly study core areas like forgivingness, gratitude, and happiness without considering the roles faith and spirituality play, whether for better or worse.

Biological or Physiological Psychology PRS has long examined the activity of the brain during spiritual experience, noting the areas which are active during prayer, meditation, and other aspects of faith expression. We noted earlier the Good Friday experiment (Pahnke, 1966) and this opens the door to other interconnections of worship and physiology such as the use of peyote in indigenous American spirituality. Mystical experiences are also intriguing in their impact on physiology – or vice versa.

Cognitive Psychology In addition to Barrett's (2012) argument for children as intuitively seeking causation beyond the physical, other areas here are the study of body and spirit and why so many see humans as including a spiritual element. Cognitive scientists of religion have also looked at ritual and particularly the role of linguistics in rituals and at how persons of faith attribute life events to the divine that others attribute to more material causes.

Human Development Already one of the more cross-disciplinary domains of psychology, the role of religion and spirituality in changes throughout the lifespan are not to be overlooked. There are myriad areas to consider here, from cognitive development and faith and morality, to the role of parents in transmitting faith traditions, to the challenges as children often leave or change faiths as they move into adulthood.

History of Psychology We skimmed the surface of the history of PRS earlier but given the fact that vital players in history like James, Freud, and Jung have spoken to the psychology of religion, a thorough history of psychology course could not overlook examining these areas and how psychology and religion in general have had a tumultuous relationship.

Ethics of Psychology Though more likely to be in a graduate course, psychology has an impact on ethics, particularly in tracing the move from a religious ethic to one based on consensus such as in the American Psychological Association. How are religious issues to be treated in psychotherapy? What are we to do with the conflicts between some forms of religion and the broad range of gender and sexuality diversities? How are conflicts between religious belief and ethical standards to be handled?

Philosophical Psychology The problem of ethics has largely been seen as a philosophical one, and the psychology of religion and spirituality can offer insight into the impact of diverging epistemologies in science and religion (as attempted in Sisemore & Knabb, 2020a). How do views about faith inform the development of ethics?

Learning and Memory This may be one of the more thinly related areas to PRS, but one must learn one's religion and hold memories of religious experience. Here religion might learn from psychology how to make sermons more memorable or how to teach the faith to people in religious communities.

Sensation and Perception Good work has been done in PRS on the intersection of sense and the spiritual, examining what exactly goes on during mystical experiences or other strange phenomena such as near death experiences. When a person claims "God spoke to me" or the like, what does that actually mean in terms of what is sensed and perceived?

Clinical We need only to point to the large second volume of Pargament (2013) that is devoted to clinical application of PRS. Should therapy be more spiritually oriented for people of faith? How should faith be incorporated in understanding and treating mental health concerns? How is psychology to be integrated with specific faiths? It is hard to imagine a comprehensive course on clinical psychology that ignores faith as a part of the problem and/or solution for many clients.

This quick survey is illustrative of the many ways that the PRS literature can be tapped to enhance education across the spectrum of psychology given that faith is such a vital and central part of the lives of so many people.

PRS in the Graduate Curriculum

One may occasionally find a PRS course in a graduate curriculum, and as noted above, on occasion it is an area of focus in a graduate program, albeit more often in religion schools than psychology schools. It is included in some psychology doctoral programs in clinical psychology, particularly as associated with Christian-focused programs (e.g., it is offered currently at Regent University in Virginia (https://www.regent.edu/school-of-psychology-and-counseling/program/psyd-in-clinical-psychology/#programs-program_courses)).

Given the recent surge in research in applied psychology of religion, it is quite apropos to doctoral programs in clinical psychology (and related non-psychology clinical and counseling programs). Given that the American Psychological Association (2003) has encouraged the use of culturally appropriate interventions in therapy, and religion and spirituality are seen as cultural dimensions. It would seem incumbent on doctoral psychology programs to directly address working with religion persons, but there is relatively little emphasis on this – even though psychologists have developed a set of empirically derived competencies for working with religious and spiritual clients (Vieten et al., 2016) and the Society for the Psychology of Religion and Spirituality has an active task force working toward adapting these as guidelines for all applied psychologists. These flow from PRS and so this content will need to be covered somewhere in graduate programs if psychologists are to be trained to use culturally appropriate interventions with people of faith. This also entails an awareness of working with persons from a variety of faith backgrounds (Sisemore & Knabb, 2020a) and knowing more emic approaches to understanding faith. Much the same can be said for students in social work, counseling, and marriage and family therapy.

In non-clinical psychology programs, PRS can broaden the understanding of the content area along the lines noted in the list of courses above, though in more detail. It also can fill out the background of students in religious studies programs and even those who are pursuing pastoral degrees and clinical pastoral education.

Summary

The psychology of religion and spirituality has struggled to find a home in the broader field of psychology, yet offers extremely important insights into human behavior, but as individuals and as groups. If we are to understand humans in their fullness – as psychology purports to do – then we must study and understand the role of religion and spirituality in humans and our cultures. Colleges and universities are encouraged to consider adding a course in PRS to their curricula, and professors in

other areas of psychology are urged to incorporate relevant findings from PRS in their courses in psychology. Maybe even some schools will pioneer the field and develop doctoral programs in PRS. Clinically oriented graduate programs might consider how to equip their graduates to serve people of faith as a form of diversity. Finally, I hope this chapter has given enough of a taste of the field to pique an interest in further study in PRS by the reader.

References

Allport, G. W. (1950). *The individual and his religion*. New York: Macmillan.

Allport, G. W. (1958; original, 1954). *The nature of prejudice.* New York: Doubleday.

American Psychological Association. (2003). Guidelines for multicultural education, training, research, practice, and organizational change for psychologists. *American Psychologist, 58*, 377–402.

al-Karam, C.Y. (Ed.). (2018). Islamically integrated psychotherapy: Uniting faith and professional practice. West Conshohoken, PA: Templeton Press.

Barrett, J. L. (2012). *Born believers: The science of children's religious belief*. New York: Free Press.

Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.

Bufford, R. K., Sisemore, T. A., & Blackburn, A. M. (2017). Dimensions of grace: Factor analysis of three grace scales. *Psychology of Religion and Spirituality, 9*, 56–69. Supplemental materials at https://doi.org/10.1037/rel0000064.supp

Delaney, H. D., Miller, W. R., & Bisonó, A. M. (2013). Religiosity and spirituality among psychologists: A survey of clinician members of the American Psychological Association. *Spirituality in Clinical Practice, 1*(S), 95–106. https://doi.org/10.1037/2326.4500.1.S.95

Erikson, E. H. (1962). *Young man Luther: A study in psychoanalysis and history*. New York: W. W. Norton.

Erikson, E. H. (1969). *Gandhi's truth: On the origins of militant nonviolence*. New York: W. W. Norton.

Exline, J. J., & Rose, E. D. (2013). Religious and spiritual struggles. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (2nd ed., pp. 380–398). New York: Guilford.

Freud, S. (1950). *Totem and taboo: Some points of agreement between the mental lives of savages and neurotics*. London: Routledge and Paul. (Original work published 1913.).

Freud, S. (1955). *Moses and monotheism*. New York: Vintage Books. (Original work published 1939.).

Freud, S. (1961). The future of an illusion. New York: W.W. Norton. (Original work published 1923.)

Fromm, E. (1967). *Psychoanalysis and religion*. New York: Bantam Books. (Original work published 1950).

Granqvist, P., & Dickie, J. R. (2006). Attachment and spiritual development in childhood and adolescence. In E. C. Roehlkepartain, P. E. King, L. Wagener, & P. L. Benson (Eds.), *The handbook of spiritual development in childhood and adolescence* (pp. 197–210). Thousand Oaks, CA: Sage.

Granqvist, P. E. (2020). *Attachment in religion and spirituality: A wider view*. New York: Guilford.

Hill, P. C., Pargament, K. I., Hood, R. W., Jr., McCullough, M. E., Swyers, J. P., Larson, D. B., & Zinnbauer, B. J. (2000). Conceptualizing religion and spirituality: Points of commonality, points of departure. *Journal for the Theory of Social Behavior, 30*, 52–77.

Hood, R. W., Jr., Hill, P. C., & Spilka, B. (2018). *The psychology of religion: An empirical approach* (5th ed.). New York: Guilford.

Hood, R. W., Jr., & Williamson, W. P. (2008). *Them that believe: The power and meaning of the Christian serpent-handling tradition*. Berkeley, CA: University of California Press.

Hood, R. W. (2003). The relationship between religion and spirituality. In A. L. Griel & D. G. Bromiley (Eds.), *Defining religion: Investigating the boundaries between the sacred and the secular* (pp. 241–264). Oxford, UK: Elsevier Science.

James, W. (1961). *The varieties of religious experience*. New York: Macmillan. (Original work published 1902).

Kimball, B. M. (2013). A practical meta-analysis of prayer efficacy in coping with mental health. *Master of Social Work Clinical Research Papers.* Paper 208. Retrieved from http://sophia.stkate.edu/msw_papers/208

Kirkpatrick, L. A., & Shaver, P. R. (1990). Attachment theory and religion: Childhood attachments, religious beliefs, and conversion. *Journal for the Scientific Study of Religion, 29,* 315–334. In R. F. Paloutzian & C. L. Park (Eds.), *Handbook of the psychology of religion and spirituality* (2nd ed., pp. 118–137). New York: Guilford.

Knabb, J. J., Johnson, E. L., Bates, M. T., & Sisemore, T. A. (2019). Christian psychotherapy in context: Theoretical and empirical explorations in faith-based mental health. New York: Routledge.

Krull, D. S. (2019). *Psychological science: A conversational approach* (2nd ed.). Matthews, NC: Kona Publishing.

Marler, P. L., & Hadaway, C. K. (2002). "Being religious" or "being spiritual" in America: A zero-sum proposition? *Journal for the Scientific Study of Religion, 41*, 289–300.

Nelson, J. M. (2009). *Psychology, religion, and spirituality.* New York: Springer.

Nielsen, M. E. (2012, Summer). Teaching psychology of religion at a state university. *Society for the Psychology of Religion and Spirituality Newsletter: American Psychological Association Division, 36*(2), 2–5.

Nielsen, M. E., & Silver, C. F. (2015). Strategies and resources for teaching psychology of religion. In D. Dunn (Ed.), *The Oxford handbook of undergraduate psychology education* (pp. 577–587). New York: Oxford.

Pahnke, W. (1966). Drugs and mysticism. *International Journal of Parapsychology, 8*, 295–314.

Paloutzian, R. F. (2016). *Invitation to the psychology of religion* (3rd ed.). New York: Guilford.

Paloutzian, R. F., & Park, C. L. (Eds.). (2013). *Handbook of the psychology of religion and spirituality* (2nd ed.). New York: Guilford.

Pargament, K. I. (1997). *The psychology of religion and coping: Theory, research, and practice*. New York: Guilford.

Pargament, K. I. (2007). Spiritually integrated psychotherapy: Understanding and addressing the sacred. New York: Guilford.

Pargament, K. I. (Ed. in Chief, 2013). *APA handbook of psychology, religion, and spirituality (2 Vols.).* Washington, D.C.: American Psychological Association.

Pargament, K.I., Mahoney, A., Exline, J.J., Jones, J.W., & Shafranske, E.P. (2013). Envisioning an integrative paradigm for the psychology of religion and spirituality. In K.I. Pargament (Ed.-in-Chief), *APA handbook of psychology, religion, and spirituality: Vol. 1: Context, theory, and research* (pp. 3–19). Washington, D.C.: American Psychological Association.

Park, C. L. (2013). Trauma and meaning making: Converging conceptualizations and emerging evidence. In J. A. Hicks & C. Routledge (Eds.), *The experience of meaning in life: Classic perspectives, emerging themes, and controversies* (pp. 61–76). New York: Springer.

Park, C. L., Edmondson, E., & Hale-Smith, A. (2013). Why religion? Meaning as motivation. In K. I. Pargament (Ed.-in-Chief), *APA handbook of psychology, religion, and spirituality: Vol. 1: Context, theory, and research* (pp. 157–171). Washington, D.C.: American Psychological Association.

Pew Forum on Religion and Public Life. (2012, October 9). Religion and the unaffiliated. Retrieved from www.pewforum.org/2012/10/09/nones-on-the-rise-religion/

Plante, T. G. (2009). Spiritual practices in psychotherapy: Thirteen tools for enhancing psychological health. Washington, DC: American Psychological Association.

Rambo, L. R., & Bauman, S. C. (2012). Psychology of conversion and spiritual transformation. *Pastoral Psychology, 61*, 879–894.

Sisemore, T. A. (2016). *The psychology of religion: From the inside out*. Hoboken, NJ: John Wiley & Sons.

Sisemore, T. A., & Knabb, J. J. (Eds.). (2020a). *The psychology of world religions and spiritualities: An indigenous perspective*. West Conshohocken, PA: Templeton Press.

Sisemore, T. A., & Knabb, J. J. (2020b). Seeing religions and spiritualities from the inside: Problems for Western psychology that can be addressed with an indigenous psychological perspective. In T. A. Sisemore & J. J. Knabb (Eds.), *The psychology of world religions and spiritualities: An indigenous perspective* (pp. 3–28). West Conshohocken, PA: Templeton Press.

Spilka, B., & Ladd, K. L. (2013). *The psychology of prayer: A scientific approach*. New York: Guilford.

Streib, H., Hood, R. W., Jr., Keller, B., Csöff, R.-M., & Silver, C. (2009). *Deconversion: Qualitative and quantitative results from cross-cultural research in Germany and the United States (research in contemporary religion, Vol. 4)*. Göttingen, Germany: Vandenhoeck & Ruprecht.

Streib, H., & Klein, C. (2013). Atheists, agnostics, and apostates. In K.I. Pargament (Ed.-in-Chief), *APA handbook of psychology, religion, and spirituality: Vol. 1: Context, theory, and research* (pp. 713–728). Washington, D.C.: American Psychological Association.

Vieten, C., Scammell, S., Pierce, A., Pilato, R., Ammondson, I., Pargament, K. I., & Lukoff, D. (2016). Competencies for psychologists in the domains of religion and spirituality. *Spirituality in Clinical Practice, 3*, 92–114. https://doi.org/10.1037/scp0000078

Winnicott, D. W. (1990). *The maturational process and the facilitating environment*. London: Karnac Books.

Wulff, D. M. (1997). *Psychology of religion: Classic and contemporary* (2nd ed.). New York: John Wiley & Sons.

Epistemology of Psychology

46

Gordana Jovanović

Contents

Abstract

After a brief introduction of the term epistemology, the chapter presents an historical overview of most influential epistemological positions, pointing out especially those aspects that have proved to be relevant to psychology or which could be relevant to its future development. Positivism seems to be an indispensable starting point given its dominance in the first half of the twentieth century, even though it first appeared as a scientific program in the mid nineteenth century, in philosophy of Comte. As a new version of positivism named logical positivism or logical empiricism (Vienna Circle) provoked quite different critiques over decades (Popper, Quine, Husserl, Critical Theory, hermeneutics, feminist theories, communitarian epistemology), it follows a section dealing with critiques of positivist claims of certainty, of induction as a preferred mode of generating knowledge, of the unity of sciences, of atomistic representational model of knowledge, and of individualistic subject of knowing. Additionally it is referred

Gordana Jovanović is independent academic

G. Jovanović (✉)
Belgrade, Serbia
e-mail: gorda.jovanovic@gmail.com

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to another, humanistic epistemic culture shaped in Renaissance under the influence of revival of the ancient Greek and Latin cultural legacy, which however remained less influential in shaping further developments. In spite of that, at the turn of the twentieth century, there were philosophers and psychologists (Dilthey, Wundt) who argued for a necessity to distinguish natural and human sciences and, correspondingly, to acknowledge that social and human sciences require specific modes of knowing (understanding) oriented toward grasping meaning of human experience and symbolic products objectified in human historical and sociocultural worlds. Summarizing implications of different epistemological positions for psychology, it is stated that epistemology of psychology is characterized, on the one hand, by a substantial influence of positivism and its natural-science model of knowledge, and on the other hand, by challenges posed by psychology's subject matter to positivism. In conclusion, it is argued for a holistic, historically based and culturally shaped relational model of knowledge capable to integrate value dimension as an indispensable feature of human experience and human activity. In this way psychology and consequently teaching psychology can do justice to their subject matter – experience and activity of human beings as historical, social, and cultural beings living in a man-made world.

Keywords

Epistemology · Positivism · Hermeneutics · Signification · Popper · Dilthey · Wundt · Habermas

Introduction

The term "epistemology," derived from two Greek roots – "ἐπιστήμη, *epistēmē*" (meaning – knowledge, understanding) and "λόγος, logos" (meaning – account, thought, reason) – is usually translated as theory of knowledge. The first appearance of the English term in the 1840s was a translation of the German term "Wissenschaftslehre" (literally – theory of science) introduced by German philosopher Johann Gottlieb Fichte (1762–1814), and elaborated in his main work under the title *Wissenschaftslehre* (1804).

From the very beginning the term epistemology has been associated with both a broader and a narrower meaning, referring either to knowledge in general or to scientific knowledge only. Either way, it was probably not an exaggeration when Karl Popper a half of century ago stated: "The phenomenon of human knowledge is no doubt the greatest miracle in our universe" (Popper, 1972, p. vii). But if a miracle, human knowledge has shared the destiny with other miracles in human world – never being completely deciphered.

Generally, to know means to have a kind of mental state. Mental states that underlay knowing belong to a category of states named beliefs. Clearly, not any belief counts as a knowledge. A belief needs an association with truth in order to qualify to be considered knowledge. However, even not just a true belief is

knowledge. To know requires from the subject who claims to know to provide a valid justification for the truth claim. "For true beliefs to count as knowledge, it is necessary that they originate in sources we have good reason to consider reliable. These are perception, introspection, memory, reason, and testimony" (Steup & Neta, 2020, no pagination). Even though to this basic definition of knowledge as a justified true belief some additional condition could be added (as it is possible to imagine situations where a subject can have a justified true belief and in spite of that not knowing), a process of acquiring knowledge certainly presupposes a subject involved in that process (knowing subject, knower) and object(s) at which subject's knowing activity is directed (known objects could be of different kinds – to know that, to know how, or to know facts or individuals) (Baergen, 2006).

However, this simple structure of epistemic situation consisting of subject and object of knowing is just an abstraction from broader contexts of both the subject and object of knowing. There are different levels of mediation operating at the locus of subject of knowing – structure and functioning of its sense organs, cognitive schemes, its motivation, expectations, social position, psychological and other beliefs, symbolic capital available to it, and a general world view of its culture or epoch. The object of knowing is also part of a physical or sociocultural environment, it can be visible or hidden, or even repressed, it can be saturated with positive, desirable, or negative, adverse connotations, and with cultural, historical meanings in general. Both the process of knowing and its results, namely, knowledge, are shaped by plurality of contexts, including those a knower might not be aware of. It is the task of epistemological studies to take into account all these complexities, even though this is quite a challenging task, even at a descriptive level, not to speak of tasks to justify truth claims made under such conditions.

If epistemology is understood as a theory of scientific knowledge, i.e., where the object of knowing is a particular form of knowledge itself, the epistemic situation becomes even more complex. Scientific knowledge presupposes use of specific methods in the process of acquiring and verifying knowledge; the process itself is highly standardized and most importantly includes community of scientists as an indispensable reference agency. Even though scientific procedures are designed to reduce the influence of subjective factors of the scientists in order to achieve a supposedly objective account, it is clear that no scientist can assume God's view perspective, but is embedded into their culture, including scientific culture and their epochal agendas. At a quite basic level no science can escape language and its formative role in shaping even the basic processes of acquiring and transmitting knowledge, starting with the very naming of the observed phenomena (see, for example, Cassirer, 1923/1975).

From the history of epistemological conceptions, very different even opposed ones, it is possible to learn that a seemingly simple epistemic situation in which a knowing subject tries to know an object, is a microcosmos of a much broader world. When it comes to scientific knowledge, the position of psychology as science becomes additionally complicated as knowing subject belongs to its subject matter as well, and its object of knowing is also of a specific nature – the object is actually a subject, a conscious and self-conscious subject capable of using language and interpreting signs in the world (Piaget, 1972b).

This chapter presents an overview of most influential epistemological positions from a historical perspective, pointing out especially those aspects which have proved to be relevant to psychology or which could be relevant to its future development. Positivism is an indispensable starting point first given its dominance in the first half of the twentieth century and second, in view of quite different critiques it provoked over decades. However, it is referred also to another, humanistic epistemic culture shaped in Renaissance under the revival of ancient Greek and Latin cultural legacy, but this humanist epistemic culture remained less influential in shaping further developments. Summarizing implications of those epistemological positions to psychology, it could be stated that epistemology of psychology is characterized, on the one hand, by a substantial influence of positivism and its natural-science model of knowledge, and on the other hand, by challenges psychology's subject matter poses to positivism. The structure of this chapter is shaped according to these lines in order to demonstrate the importance of historical context for understanding scientific theories and formative role of critical accounts in development of science. Both historical consciousness and critical attitude are teaching goals whose relevance transcends any particular scientific field or topic.

Positivist Epistemology

As the knowledge acquisition is a process taking place between epistemic subject and object to be known, it is clear that it depends on both sides, with their narrower or broader contexts and on all the methods, i.e., tools used by the knower in the process of knowing. Therefore at the very beginning some pressing questions appear: are all objects (i.e., natural, mental, social phenomena) the same in their epistemic position, are all methods and validity criteria suitable for all objects to be known. Answers to these questions define different epistemological positions.

Positive answers characterize positions, which argue that there are no substantial differences among phenomena in the world when they are the objects of knowledge. Consequently positive answers support the model of unity of science regardless of the objects they study, which means that there are no differences between natural and social or human sciences. The most influential position of this kind is logical positivism, which dominated philosophies, theories of science, and sciences themselves in the first half of the twentieth century, even though its roots are older. An immediate ancestor of the name root stems from French positivism of the mid-nineteenth century (positivisme, from positif – in philosophical meaning "imposed by experience," something that is posited). However, positivism remained committed to historically even older epistemological position of empiricism. Logical positivism is used as a description of the epistemological position formulated in the first decades of the twentieth century within the so-called Vienna Circle. Another description – logical empiricism – includes Vienna Circle but also Berlin school and some other philosophical centers in other parts of the world. Logical positivism and logical empiricism claim that genuine knowledge is based on sensory experience of objects that are part of an independently existing reality. If knowledge is not

immediately based on sensory experience, it should be possible to reduce it to sensory experience. Thus, positivism is interested in positive facts only for which empirical evidence can be provided by sensory experience. Only propositions describing positive facts can be considered meaningful propositions, claims logical positivism.

Both historically and in its revived version, which was flourishing in the Vienna Circle – with the main representatives Moritz Schlick (1882–1936) and Rudolf Carnap (1891–1970) – positivism argues that the only valid knowledge is scientific knowledge, which has to replace metaphysical knowledge. Historically, this was the idea of French philosopher and sociologist Auguste Comte (1798–1857) who first in modern times formulated a program of "positive philosophy," as he called it in a series of texts published between 1830 and 1852 under the title *Cours de philosophie positive*.

While arguing for empirically founded scientific knowledge, which would expel theological or metaphysical assumptions of knowledge, Comte at the same time claimed that the purpose of knowledge is improvement of human life and society. Comte was committed to the Enlightenment idea of progress of knowledge and humankind. In his *Discours sur l'Esprit positif* (1844/1865) Comte described intellectual features of positivism, as he understood it, which showed explicit educational and social purpose of positive philosophy: "the proper function of intellect is the service of the social sympathies; the word positive connotes all the highest intellectual attributes and will finally have moral significance" (Comte, 1865, p. vii). After that Comte discussed social aspects of positivism defining in that chapter "the political motto of positivism as order and progress," and progress as "the development of order" (ibid. p.viii). In the further chapters Comte examined "the action of positivism upon the working classes," then "the influence of positivism upon women," "the relation of positivism to art" (ibid, pp. ix-xi). These features qualify Comte's positivism as an expansive social positivism.

The scope of positivism in its twentieth century version was much narrower, as the name logical positivism suggests. Similarly to Comte, Vienna Circle, a group of philosophers and scientists nominally led by Moritz Schlick, relied on model of natural sciences, but contrary to Comte, members of the Vienna Circle referred strongly to mathematics as well in order to achieve objectivity and accuracy of knowledge, i.e., statements expressing knowledge. They argued that only statements that can be verified are proper, meaningful statements. Verification can occur empirically through reference to sensory experience. This is the way how facts are generated. Only two kinds of meaningful statements are possible: analytic and synthetic. While in analytic statements meaning is completely contained in the subject of the statement, synthetic statements have a content, which requires an external verification – by reference to sensory experience. The program they pursued normatively expelled all a priori assumptions.

In spite of striking differences in the scope, both versions of positivism, Comte's positivism and Vienna Circle positivism, share empiricism and scientism – a view that only scientific knowledge is a valid knowledge and that valid knowledge needs empirical verification. It should be noted however that the very fact that Comte's

positivism and Vienna Circle positivism are in many important aspects very different theories, could be understood as an early announcement that positivism is not a position that can stand up to absolutist certainty claims it has advanced.

Critiques of Positivism

Even though arguments against positivism were raised already in the 1930s (for example, in Critical Theory of society or early Frankfurt School (Horkheimer, 1937), then in Husserl's (1859–1938) *Die Krisis der europäischen Wissenschaften und die transzendentale Phänomenologie (Crisis of European Sciences and Transcendental Phenomenology)*, by the mid-twentieth century several new critiques appeared, which contributed to the demise of positivism from its previous dominant position. In addition to critical theorists who continued the critique of positivism even after its demise – Theodor Adorno (1903–1969), Habermas (born 1929) – there were serious objections provided by Karl Popper (1902–1994), Willard van Orman Quine (1908–2000), and from a different perspective by Ludwig Wittgenstein (1889–1951) (1953) and Thomas Kuhn (1922–1996) (1962).

The first doubts on the very possibility of certainty and objectivity claims positivism has advanced as the validity criteria of knowledge came from the field that was considered to exemplify the certainty and objectivity of knowledge – natural sciences. Physicists working on subatomic particles (Werner Heisenberg, Niels Bohr) realized that it is not possible to accurately describe subatomic processes and moreover that it is not possible to determine them independently from the observation as observation changes them.

Further questionings of positivist claims were articulated by philosophers. Karl Popper criticized the logic of scientific research adopted by positivism, then the method of verification and the role ascribed to induction in generating inferences, which then became parts of scientific laws. He was especially concerned about "a major philosophical problem: the problem of induction" (Popper, 1972, p. 1) and he thought he had solved it, and that already in 1930s, which means at the best times of Vienna Circle. However, the problem of induction is much older than Vienna Circle. As a matter of fact, inductive inferences have a strong common sense background in beliefs in regularities on the grounds of the past repeated observations. The problem of induction entered philosophy very early – already in Aristotle and Cicero. In modern times David Hume (1711–1776) addressed human understanding (*An Enquiry Concerning Human Understanding*, 1748/1998), as a problem of justified beliefs. From that standpoint Hume identified two problems related to induction: a logical and a psychological problem. From a logical point of view it is not justified to make any expectations and consequently conclusions about the future events on the grounds of experiences of the past repeated events. To Hume, even the inclusion of degrees of probability into expectation cannot solve the logical problem of induction. As humans in spite of that believe that the events of which they have no experience will repeat in the future as they were repeatedly experienced in the past,

Hume concluded that human understanding is based on an irrational faith. Thus, implications of induction are epistemological skepticism and irrationalism.

Poppers solution to the problem of induction – and induction is certainly not just a major philosophical problem, it is no less a major problem in all sciences, even though it is, surprisingly enough, hardly addressed by them – should avoid these difficulties. Instead of the positivist verifiability principle of meaningfulness and truthfulness of statements, which is necessarily entangled with the inherent problems of induction and therefore "all theories remain guesses, conjectures, hypotheses" (Popper, 1972, p. 13), Popper introduced what he called a "negative approach" – instead of verification, what is needed is falsification, i.e., the very possibility of falsification.

Before that move, Popper translated "all the subjective or psychological terms, especially 'belief' etc. into *objective* terms. Thus, instead of speaking of a 'belief', I speak, say, of a 'statement' or of an explanatory theory. . .and instead of an 'impression', I speak of an observation statement' or of a 'test statement'; and instead of the 'justification of a belief, I speak of 'justification of the claim that a theory is true', etc.," (Popper, 1972, p. 6; italics in original). It is striking that some steps in Popper's questioning of positivist epistemological claims, i.e., his translation work, led him very close to the behaviorist psychology whose manifesto was published by John Watson in 1913 – "Psychology as the Behaviorist Views It." Behaviorist psychology expelled from psychology any terms referring to subjective states. But behaviorism went even further translating speech into a verbal response, as it operates with stimulus and response only because they are accessible to external observation. As mental states are not available to external observation, terms referring to them were not allowed into the program of a psychology "as behaviorist views it." Popper does not refer to Watson even in his later or latest works. Instead he translated Hume's logical problem of induction into objective, formal terms, but then following the principle of transference applied his solution to Hume's psychological problem of induction. Popper believes that his solution to the problem of induction eliminates irrationalism, which is a necessary consequence of Hume's approach to induction. Popper describes his approach stressing the difference:

> The fundamental difference between my approach and the approach for which I long ago introduced the label 'inductivist' is that I lay stress on *negative arguments,* such as negative instances or counter examples, refutations, and attempted refutations - in short criticism – while the inductivist lay stress on '*positive instances*', from which he draws 'non-demonstrative *inferences*' and which he hopes will guarantee the 'reliability' of the conclusion s of these inferences. (Popper, 1972, p. 20)

Popper's critique of some of the core claims of the Vienna Circle positivism was nevertheless advanced from the common standpoint of scientism that insists on a sharp demarcation between scientific and nonscientific statements and acknowledges validity to scientific knowledge only. Vienna Circle used verifiability as a criterion of demarcation, while Popper criticized that criterion and argued for falsifiability instead, but both criteria served the same goal – determination of scientific

statements and their demarcation from other types of statements. Scientism is a position that claims that nonscientific statements (Popper's examples: metaphysical, psychoanalytic, Marxist theory) are not meaningful statements. Thus, not just knowledge but the meaning itself is reduced to scientific statements only.

The second very important critique of logical positivism was formulated by analytic philosopher Willard Van Orman Quine (1908–2000). In *Two dogmas of empiricism* (1951), considered by some philosophers the most important paper in the twentieth century philosophy, Quine attacked two core theses of logical positivism – he called them dogmas as suggested by the very title of his paper. The first is the belief that there is a sharp distinction between analytic and synthetic truth statements (meaning of analytic statements is contained in the very subject of the statement independently of the facts, while meaning of synthetic statements depends on facts that have to be established). Historically, the distinction goes back to Leibniz (1646–1716), Hume (1711–1776), and Kant (1724–1804), but was reappropriated by modern logical positivism. The second target of Quine's critique is positivist reductionism as a standpoint claiming that "each meaningful statement is equivalent to some logical construct upon terms which refer to immediate experience" (Quine, 1951, p. 20). As in both theses or dogmas of logical positivism meaning is the core issue, Quine had to offer a different theory of meaning – instead of a reductionist theory he argued for a holistic theory. It holds that a reference to a whole theory is needed instead of focus on singular statements. This means that it is not possible to decompose a theory into singular statements subjected to empirical verification by immediate sensory experience. The holistic claim of system-dependence of statements has consequences for the status of analytic and synthetic distinction making it untenable. A simple example: a definition of a concept appearing in an analytic statement depends on language use outside of the statement and precedes it.

Quine also argued against contrasting common sense and scientific knowledge, pointing out that "Science is not a substitute for common sense but an extension of it" (1957, p. 229). This claim is especially important to social and human sciences. Quine included them into his broader concept of science, which is not restricted to natural sciences only, even though natural sciences are understood by Quine as well as paradigmatic sciences. His position is described as naturalism, which expresses his view that sciences provide account of reality, not an a priori philosophy. The same applies to epistemology, which is founded on science.

What are the implications of those critiques of logical positivism for sciences? They converge in insights that epistemological quests for certainty followed by reductionism and elementarism are not tenable on both logical and empirical grounds. These critical insights are even more important as they were formulated from the standpoint of scientism. However, scientism itself is also subjected to critique – in phenomenology (Husserl), in hermeneutics (Gadamer), in Critical Theory from its first generation (Adorno, Horkheimer, Marcuse) to contemporary representatives (Habermas), in contemporary socio-constructionist, qualitative approaches, in feminism.

His seminal study *The Crisis of European Sciences and Transcendental Phenomenology* (whose first part was published in 1936 in Belgrade because Husserl was

prevented from publishing in Nazi Germany) Edmund Husserl started by a diagnosis of his time: "The positivistic reduction of the idea of science to mere factual science. The 'crisis' of science as the loss of its meaning for life" (Husserl, 1936/1970, p. 5).

> The exclusiveness with which the total world-view of modern man, in the second half of the nineteenth century, let itself be determined by the positive sciences and be blinded by the "prosperity" they produced, meant an indifferent turning-away from the questions which are decisive for a genuine humanity. Merely fact-minded sciences make merely fact-minded people. (Husserl, 1936/1970, pp. 5–6)

While the original positivism considered itself as a step forward in development of humanity, as a vehicle of progress, Husserl saw that development as a fatal loss, i.e., as a regression. While positivism praised the strength and purity of facts, Husserl warned of "fact-minded sciences" and "fact-minded people" alike. While Husserl's contemporary logical positivism was eager to establish rules for meaningful statements, Husserl was concerned with meaning for life, or rather with "struggle for the meaning of man" (ibid, p. 14).

But Husserl claimed that even for the sake of objectivity a radical turn to subjectivity is needed:

> Only a radical inquiry back into subjectivity – and specifically the subjectivity which *ultimately* brings about all world-validity. . .can make objective truth comprehensible and arrive at the ultimate ontic meaning of the world. . . Thus it is not the being of the world as unquestioned, taken for granted, which is primary in itself. . . rather, what is primary in itself is subjectivity, understood as that which naively pregives the being of the world and then rationalizes or (what is the same thing) objectifies it. (ibid, p. 69)

However, to Hans-Georg Gadamer (1900–2002), it is not subjectivity in itself, which would provide insights into meaning of man as any understanding necessarily presupposes as its very condition of the possibility some pre-understanding, or prejudice (Vorurteil) as inherited and given in tradition, history. Even though history is a human achievement, as Gadamer stated it:

> In fact history does not belong to us; we belong to it... Long before we understand ourselves through the process of self-examination, we understand ourselves in a self-evident way in the family, society and state in which we live. The focus of subjectivity is a distorting mirror. The self-awareness of the individual is only flickering in the closed circuit of historical life. (2006, p. 278)

Historicity of man has implications for sciences dealing with historicity, which means for human sciences. To Gadamer, there is no doubt that human sciences are substantially different from natural sciences. To know historical world and to know individual in the historical world requires different conception of knowledge itself: "Understanding is to be thought of less as a subjective act than as participating in an event of tradition" (ibid. p. 291). In other words, both subject and object in epistemic situation of human sciences have different status comparing to natural sciences.

In the last decades the turn away from individual knowing subject and individualistic epistemology led to a conceptualization of a new epistemological program. Martin Kusch (2002) argues for a new position in epistemology, which he calls communitarian epistemology. It is strongly socially oriented, but in some important aspects it is different from the existing social epistemology, which is very much interested in science policy and in programs that should complement the dominant individualistic epistemology. However, according to Kusch's communitarian epistemology, there is no isolated individual knower. Knowledge is fundamentally social – it depends on epistemic communities as it "marks a social status. . . Social statuses exist only in so far as there are communities that constitute, impose or grant these statuses. . .." (p. 1).

It is not so difficult to recognize here Thomas Kuhn's (1962) account of scientific knowledge as constituted by scientific community, i.e., his concept of paradigm as a set of beliefs, assumptions, rules defining the subject matter of study, methods of research, and interpretation of results accepted by a relevant scientific community. As Kusch himself admitted he has generalized Kuhn's account from scientific knowledge to knowledge in general. The other admitted intellectual debts of Kusch's communitarian epistemology go to important figures of the program of sociology of scientific knowledge (Barry Barnes, David Bloor, Harry Collins, and Steven Shapin) and their philosophical interlocutors (Mary Hesse, David Hume, Peter Winch, and Ludwig Wittgenstein). Interestingly, the founding figure of sociology of knowledge Karl Mannheim is not mentioned.

Along the lines of arguing for social foundations of knowledge and relying on feminist scholarships feminist epistemology was formulated, questioning many assumptions of traditional epistemology, including its supposed value-neutrality. Instead, feminists claim that "science is politics by other means (Harding, 1991, p. 308) and therefore raise the questions "whose science, whose knowledge." It is for the sake of knowledge and science that feminist epistemology argues for necessity to include reflection on the standpoint of knowing subject as a condition of possibility of objectivity (Haraway, 1988). In view of Sandra Harding, one of the leading feminist scholars, this has consequences for natural sciences as well:

> The same social forces that shape nature-as-an-object-of-knowledge and other parts of culture also shape us and our scientific accounts. . .
>
> The natural sciences must incorporate the critical, self-reflexive methods beginning to emerge in the social sciences in order to block the intuitive, spontaneous consciousness of nature and inquiry to which all of us, but especially scientists, are susceptible. The natural sciences, I have argued, are a particular kind of social science and should be so conceptualized. Only in this way can a strong objectivity be activated, one that insists on socially situated science and on scientific rather than "folk" accounts of those social situations. (1991, pp. 308–309)

Feminist epistemologies transcend the realm of knowledge in two directions – on the one hand, when arguing that science and knowledge in general are socially situated (in choice of subject matter, of knowing agent, methods, criteria of evaluation and interpretation) and on the other hand, when requiring a transformative,

emancipatory role for science, which itself should be transformed, including the transformed logic of research, with a different position of both the subject and object of knowledge. Therefore, "the subject/agent of feminist knowledge is also the subject/agent of every other liberatory knowledge project. . .Thinking from women's lives provides crucial resources for the reinvention of sciences for the many to replace sciences that are often only for the elite few" (Harding, 1991, p. 310–312).

However, before the feminist epistemological program was articulated, the transcendence of realm of knowledge was accomplished philosophically at the very core of knowledge, i.e., as far as conditions of the possibility of knowledge are concerned. Instead of Kantian a priori transcendental conditions of the possibility of experience (for example, forms of space and time), Habermas argued for a reinterpretation of Kant's philosophy in terms of linguistic and pragmatic turn in order to overcome methodological individualism of the previous foundational project. The new a priori conditions include intersubjectivity of language and communication, which are historically created but fulfill the transcendental role of constituting the very possibility of knowledge. Habermas distinguishes three types of knowledge interests, which express a general relation of humans to their natural and social world in the process of self-formation of humankind. It is within that context shaped by interest in controlling nature (instrumental interest) or in establishing and preserving communication and joint activities among members of a community (practical interest) that knowledge of respective domains is constituted. Critical theory is led by emancipatory interests in overcoming existing limits and distorting processes at both individual and societal level. Therefore to Habermas "a radical critique of theory of knowledge is possible only as social theory" (1972, p.vii).

However, in his book *Erkenntnis und Interesse, (Knowledge and Human Interest),* which he described as a study on the prehistory of positivism, Habermas reconstructs historical transformations of theory of knowledge from its previous privileged position within modern philosophy: "the philosophy of science that has emerged since the mid nineteenth century as the heir of the theory of knowledge is methodology pursued with a scientistic self-understanding of the sciences. 'Scientism' means science's belief in itself: that is, the conviction that we can no longer understand science as one form of possible knowledge, but rather must identify knowledge with science" (1972, p. 4).

Consequences of the disappearance of the classical theory of knowledge with its core question of "how is knowledge possible" and its replacement by methodology "which restricts itself to the pseudo-normative regulation of established research" (ibid. p. 4) affect both philosophy and sciences, contributing to the strengthening of positivist attitude to knowledge and science. As defined by Habermas, positivism means "that we disavow reflection" (p. vii). In that way a possible source of change is removed, which explains a relative longevity of positivism, especially in the form of scientific or rather scientistic methodology. Indeed, as noted by Steinmetz (2005) there is "positivism's uncanny persistence in the human sciences up to the present moment" (p. 2).

Psychology is a good example of such tendencies as it is keeping on positivist assumptions even after they were abandoned in the natural sciences, for example, in

post-Newtonian physics. Even though by mid-twentieth century psychology abandoned behaviorism as the main home of positivism in psychology, psychology's dominant epistemology remained reduced to methodology, which continued to operate with its stimulus-response research model.

It is true, since 1970s a shift in psychological methodology could be identified. Sometimes it is called "a quiet methodological revolution" brought about by qualitative approaches, which oppose positivist assumptions (Denzin & Lincoln, 2018, p. vii, Flick, 2014). Nevertheless, it remains the critical diagnosis advanced by Habermas that methodology has replaced epistemology. Even though qualitative approaches insist on reflexivity as a necessary procedure in acquiring scientific knowledge, requests for reflexivity are not sufficient to reclaim epistemology, in the sense of critical inquiry into conditions of possibility of valid knowledge.

As a consequence of all those developments, accounts of knowledge have gradually become more complex, dynamic, holistic, pluralistic, and relativistic. At the same time reductionism and elementarism are still defended as effective scientific strategies in acquiring knowledge, including psychological knowledge.

Another History of Knowing Subject and Known Objects

Plato strictly separated the world of ideas and material, sensory world. Sensory organs can observe contingent things, but they cannot realize a necessary truth. It is only an immaterial and immortal soul that can acquire a true knowledge, claimed Plato in *Phedo* (387–367B.C./1955, 95e ff). Therefore, in Plato's view, soul is the only valid epistemic agency. In this way Plato formulated an important epistemic principle, the principle of similarity – it is possible to know only through similarity of subject and object of knowledge.

In spite of quite substantial differences between Aristotle's philosophy and philosophy of his teacher Plato, Aristotle (350BC/2006) also endorsed a kind of epistemological principle of similarity. In his treatise *On the Soul* he stated: "in the case of objects which involve no matter, what thinks and what is thought are identical; for speculative knowledge and its object are identical" (429b 16). A contemporary philosopher Charles Taylor interprets these statements as representing a different model of knowledge compared to epistemology of modern times, which he described as a representational model:

> The most important traditional view was Aristotle's, according to which when we come to know something, the mind (*nous*) becomes one with the object of thought. Of course this is not to say that they become materially the same thing, rather mind and object are informed by the same *eidos.* Here was conception quite different from the representational model. . .The basic bent of Aristotle's model could much better be described as participational: being informed by the same *eidos*, the mind participates in the being of the known object, rather than simply depicting it. (1995, p. 3)

While Plato and Aristotle formulated it in terms of soul and the idea of truth, eidos, this epistemic principle has been reiterated through the history in different terms, but

nevertheless it was keeping on important hermeneutic insight that at least some shared base is needed as a condition of the possibility of knowledge and understanding. This principle defines both possibilities and limits of knowledge, or rather dialectics of possibilities and limits of knowledge. The results of the process of knowing are not just a known object but also a changed subject of knowing. When applied to any future hermeneutic endeavor, to new interpretations of previously already interpreted texts, this provides the conditions of possibility and meaningfulness of such endeavors even before they start. No understanding or knowing could be considered closed, final. Thus, any temporary limit of knowing is at the same time a possibility for a new knowing. Temporary limits can be overcome by different means. Institutionalized knowledge acquisition, i.e., education plays a crucial role in that regard.

The legacy of ancient Greek thoughts on knowledge includes a whole range of epistemological positions – from agnosticism and skepticism to empiricism and rationalism. All of them have had successors – up to our times. Indeed, questions on knowledge and a quite prominent place given to them have shaped a quite influential tradition – from ancient to modern times. The rise of natural sciences in the seventeenth century influenced greatly the development of empiricist strand of epistemology, although not under the name of epistemology, which was introduced, as already mentioned, only in the nineteenth century.

Before the rise of modern sciences of nature and new models of knowledge and new values inscribed in them, there was a very special historical epoch that announced a radical shift in understanding the world and position of humans in it when compared to the previous medieval feudal world. Clearly, understanding of knowledge was also affected. "Educational ideals and practice were transformed" (Hankins, 2007, p. 338).

This epoch was characterized by its strong appeal to revive ancient Greco-Roman cultural legacy. Even though the new attitude and new mood started already in the fourteenth century, in Italian cities, the very name of that epoch, namely, Renaissance took a longer way before it became firmly adopted in the nineteenth century.

Renaissance is closely associated with humanism thanks to its shift to humans as central figures in building a new world and a new world view. Humans became also central figures of intellectual and artistic interests and subject matters of studies called *studia humaniora, or studia humanitatis*, which focused on literature, languages, art, and history. The concept of humanitas itself was taken from Cicero. Renaissance humanists believed that studying poetry and art can be formative in moral education of individuals and in cultivating communal life: "The humanist movement first gained moral authority when Petrarch gave it the purpose of inculcating virtue and eloquence. Humanists were in principle committed to nurturing the patriotism, prudence, and civic virtue of social elites. . ." (Hankins, 2007, p. 342).

New discoveries – of the New World – and technical innovations – printing – changed conditions of acquiring and transmitting knowledge which, liberated from the absolutism of Church authority, became a concern of more and more people when pursuing their mundane interests. The plurality of new ideas and revived old ideas instigate a spirit of criticism to which everything could and was subjected. In result every certainty was undermined. Alexandre Koyré (1892–1964) describes the

consequences of the new situation: "Deprived of its traditional patterns and rules of judgment and of choice, man finally feels himself lost in an alien and uncertain world, a world in which nothing is certain and everything is possible" (Koyré, 1971, p, ix). The sixteenth century had its thinkers who were able and courageous enough to think their time.

Michel Montaigne (1533–1592) agreed with the skeptical epochal diagnosis about a lack of any certainty. He decided to turn away from the external world for about a decade and to try to find certainty in himself. Thanks to inherited wealth he could afford this turn, but after a thorough examination he had to admit that he could not find any certainty in himself either. His *Essays* (1580–1588/1923), a new literary genre he introduced, documented his thought journeys. But he was able to accept such an uncertain state of affairs, moreover from his skeptical position he argued for reconciliation of conflicting parties, including Catholic and Reformist confessions.

There is a historically important lesson – skepticism as an epistemological position, which questions any possibility of certain true knowledge does not have necessarily destructive consequences. Quite the contrary, it can foster humility and tolerance in both epistemological and sociopolitical issues. However, it should be noted that these are just potentials of skepticism. In the further historical development skepticism was abandoned for the sake of finding certain foundations of knowledge and strict rules for true judgments.

Thus, in the seventeenth century, which is considered by some authors as the second phase of modernity, the first being Renaissance humanism, instead of skepticism a strong quest for certainty started shaping approaches to knowledge. That quest was motivated also by devastating consequences of religious wars in Europe. Instead of competing perspectives, it was argued for a universal certain foundation of knowledge. Both philosophy and emerging sciences of nature were committed to such an attitude. Under such conditions humanist legacy of tolerance to variety of perspectives and skepticism to any imposition of unquestionable authority was easily forgotten or even repressed as a potential threat to the new epistemological and a general epochal agenda.

In modernity, as a project of laying down foundations for a new world, epistemological questions were considered very important. Clearly, knowledge is indispensable in any human activity. Moreover, knowledge is constitutive to it. In philosophy René Descartes (1596–1650) started building new foundations with a self-imposed radical doubt in all previous knowledge he acquired in the best schools of his time. Instead Descartes was looking for a new "method of rightly directing one's Reason and of seeking truth in the Sciences" (Descartes 1637/1971a, b, p. 5):

> The first was never to accept anything as true if I had not evident knowledge of its being so; that is, carefully to avoid precipitancy and prejudice, and to embrace in my judgment only what presented itself to my mind so clearly and distinctly that I had no occasion to doubt it. (p. 20)

Descartes (1637/1971) confessed: "My first task must be to establish such certainty" (p. 23). He found that certainty in his mind, in his thinking I, as formulated

in his famous *cogito ergo sum* (I am thinking, therefore I exist). But he advanced that to "a general rule that whatever we conceive very clearly and very distinctly is true" (p. 32). Descartes explicates what that general rule meant to him: "and since my method was not bound up with any special subject matter, I hoped to apply it to the problems of other sciences as usefully as I had in algebra" (p. 23).

Descartes self-confident program of laying down rules for acquiring true knowledge, based on clear and distinct ideas of a thinking mind, has brought about certainty. But at the same time that program excluded from the domain of knowledge everything that cannot be subjected to fixed general rational rules. As rightly pointed out by Stephen Toulmin (1992):

> The ideals of reason and rationality typical of the second phase of Modernity were, thus, intellectually perfectionist, morally rigorous, and humanly unrelenting. Whatever sorts of problem one faced, there was a supposedly unique procedure for arriving at the correct solution. That procedure could be recognized only by cutting away the inessentials, and identifying the abstract core of 'clear and distinct' concepts needed for its solution. Unfortunately, little in human life lend itself fully to the lucid, tidy analysis of Euclid's geometry or Descartes' physics. (p. 200)

Such a program provoked critique though. For example, Giambattista Vico (1668–1744) questioned superiority of knowledge of nature and values associated with it as demonstrated by developments of modern natural science since the seventeenth century. Instead Vico (1725/1984) claimed that humans know better what they have created: "the universal principle of his theory of knowledge, that the condition under which a thing can be known is that the knower should have made it, that the true is identical with the created: *verum ipsum factum*" (Croce, 1913, p. 5). History is what humans create. Therefore Vico has been praised as one of the founders of philosophy of history. To Habermas, "In a certain way, the philosophy of history begins early in the eighteen century with Vico's famous explication of the *topos verum et factum convertuntur*" (1973, p. 242).

By formulating a new epistemic principle – *verum est factum* Vico opposed Cartesianism, its rationalist epistemology, which based truth on clear and distinct ideas of thinking subject (Descartes 1637). He also opposed Cartesian focus on individual thinking subject, pointing instead to the world, and especially languages humans created as a precious source of knowledge. This is missing in Descartes' philosophy, even though Descartes could provide proofs for the existence of material things while starting from thinking subject, i.e., res cogitans. In the sixth meditation of his *Meditations on First Philosophy* Descartes undertakes a complex process of reasoning referring also to God, who "is not deceitful" and concludes finally "corporeal things must exist" (Descartes, 1642/1971, p. 116). It should be noted in this context that in the second meditation Descartes, after examining "the nature of human mind," concluded that "it is better known than the Body" (Descartes, 1642/1971, p. 66). Vico went further or rather out into the human historical world, which in his view can be better known to humans as it is created by humans themselves.

Vico (1709/1990) was also concerned with pedagogical implications of Cartesianism. Instead of striving for certainty and excluding all uncertain aspects of

human experience from the scope of true knowledge, Vico argues for necessity to return to old wisdom. "He appeals to the sensus communis, common sense, and the humanistic ideal of eloquentia. . .. But the most important thing in education is still something else – the training in the sensus communis, which is not nourished on the true but on the probable, the verisimilar" (Gadamer 1960/2006, pp. 17–19).

In the late nineteenth and at the beginning of the twentieth century several German philosophers and psychologists – Wilhelm Dilthey (1833–1911), Heinrich Rickert (1863–1936), Wilhelm Wundt (1832–1920), Wilhelm Windelband (1848–1915) – were engaged in arguing that human sciences (Geisteswissenschaften) are different from natural sciences, but not inferior compared to them. They insisted on a distinction between natural and human sciences justifying that claim by pointing out that phenomena studied by natural, on the one side, and social and human sciences, on the other side, are fundamentally different. Consequently, the epistemic situation, i.e., relation between the subject and object of knowledge is different as well as the methods used in the process of acquiring knowledge (Jovanović, 2010). The famous debate Erklären vs Verstehen (explanation – understanding debate) started its long journey. The distinction was programmatically formulated by Wilhelm Dilthey: "We explain nature, but we understand the soul" (1894/1974, p. 144). However, psychology in its main stream remained close to natural science epistemology, imposing it on phenomena belonging to human kinds, not natural kinds (Danziger, 1999; Hacking, 1994).

Epistemic Situation in Psychology

Phenomena studied by psychology belong to a domain of phenomena to which – or more precisely to most of them – humans in their ordinary lives have or can have access. This general or widespread accessibility of objects of psychology – one could metaphorically call it a kind of their democratic distribution – has necessarily consequences for psychology as a science, which constructs its subject matter out of such phenomena. Among those phenomena there is a particular class of phenomena – experiences – to which only subjects of such experiences have access. The epistemologically privileged access to mental states available to subjects, bearers of those states, poses a challenge to psychology as a scientific endeavor. The history of psychology witnesses quite different, even opposed answers to such a challenge, including the exclusion of subjective experiences from psychology's subject matter (Jovanović, 2010).

Further features of phenomena out of which psychology constructs its subject matter are derived from the fact that subjects of mental states live in communities together with other members. Moreover, communities provide the very conditions of possibility of being human (Wundt, 1900–1920). Communities are not just an external physical environment from which stimuli evoke reactions in organisms. It is rather a human-made world, consisting also of material objects, but more importantly it is constituted through different kinds of activities of its members who produce specific facts, social facts on which social ontology is based whose main

feature is its dependence on human activities (Searle, 1995). These activities include quite important signification acts, speech acts being their basic form. Thus humans develop activities and produce outcomes that cannot be described in terms of physical processes. Therefore natural science model cannot be appropriate to describe phenomena of psychic and social life. They transcend themselves as they refer to extra physical domains, to realms of signification and meaning as their defining features, while physical dimensions have just an auxiliary function, they are means in processes of signification, in meaning-making processes. Thus, the definition of humans as animal symbolicum should be extended to include symbolic world as well (Cassirer, 1923/1975); Jovanović, 2019a, b; Valsiner, 2014b).

There is also a temporal extension of humans as they transcend not just their physical space, but also physical time. In the same way as signification allows to transcend the physical space, it allows to transcend the present time and include symbolic representations of the past and the future. It is cultural inheritance based on objectified meaning-making processes that substantially shapes humans.

Living in historical, social, and cultural worlds humans use tools provided by those worlds in order to develop to historical, social, and cultural beings, i. e, to think, feel, and act in accordance with logical, social, or cultural norms and values. As life in a community requires exchange and coordination among its members, it is clear that the immediate epistemologically privileged access to mental states available to subjects of those states only needs to be complemented by other mediated modes and means of knowing mental states of other subjects (Dilthey, 1894/1974; 1883/1988).

Thus, additionally to the general democratic distribution of phenomena out of which psychology constructs its subject matter – these are mental states and their expressions in conduct and in objectified material as well as symbolic forms – there is a distribution of processes of knowing those phenomena between, on the one side, the subjects of experience who can know some of those phenomena as they have an immediate access to their own mental states and, on the other side, other subjects who can have only a mediate access to the mental states of other subjects and that thanks to the fact that those mental states are expressed in forms which are available to others – as bodily expressions, as language, as cultural forms (art, religion, system of philosophical, and scientific ideas, including psychological ones, i.e., psychology as a set of scientific discourses).

These features characterize quite specific and indeed very complex ontological and, related to that, epistemological landscape that psychology has to deal with. Clearly, ontological and epistemological questions are basic questions that have consequences for psychology as a science. In other words, the ways in which psychology addresses psycho-ontological and epistemological questions shape psychology. Different ways of addressing those questions constitute different psychologies.

History of psychology is a history of different psychologies as they were developed over time under different historical and sociohistorical conditions. However, history of psychology is not a neutral record of psychologies as they existed in their times. Quite the contrary, history of psychology is also a record of misrepresentation,

misrecognition, or even repression of psychological ideas (Jovanović, 2021). Therefore it is not enough to study just an original version of a theory. Sometimes, it is reception of the ideas and theories, regardless how partial or one-sided or even biased they might be, which proved to be more powerful in shaping the further developments than a theory in its author's version. Thus, the relevance of history of psychology transcends just a historiographic interest. It is highly relevant to shed more light on basic processes of acquiring knowledge and acknowledging scientific knowledge. Even though at the core these are basic hermeneutic processes, they are mediated and entangled with the whole life worlds of authors and interpreters.

Therefore, to discuss teaching and learning psychology – which is the subject matter of this book – necessarily requires reflection on explicit but also latent ontological and epistemological assumptions adopted by psychological theories. The starting question is – What kind of psychology is taught and consequently learnt. In the educational context with its inherent normative dimension normative dimensions of psychology's knowledge and interpretations become more visible and therefore urge to be reflected upon. Understandably, normative dimensions of psychology are expressions of more general evaluative features of human psychic functioning and of human world in general (Wundt, 1921). Those ontological features of human world pose quite a challenge to a traditional self-understanding of science as based on a dichotomy of facts and values and declared a value-free endeavor (Putnam, 2002). However, the intentional exclusion of evaluative dimensions from human psychic and other forms of activity does not mean that such a discursive gesture indeed expels values from human psyche and human world. If they are excluded from scientific inquiry they will remain in spheres of life and world, which are less accessible to public deliberation and therefore stronger resistant to a possible change.

It is evident from these briefly described ontological and epistemological peculiarities of the phenomena out of which psychology constructs its subject matter that psychology must face quite challenging tasks if it wants to do justice to all the complexities of the phenomena it is expected to study. Therefore different strategies of reducing complexities have been applied in the history of psychology – exclusion of some phenomena, selection of a just few features of the phenomena, translation of holistic patterns into a sum of a few elements, exclusion of developmental time dimension, decontextualization, assuming an allegedly objective standpoint.

These epistemological strategies have their particular outcomes and more general implications for psychology as a science and its role in shaping self-understanding of humans in modern world.

From the quite broad repertoire of epistemological positions formulated over a long period of history, psychology has adopted only some of them, and only rarely it has explicated the adopted position. Psychology shared a general turn toward experience and away from traditional metaphysical categories, like soul. Thus, empiricism would be somehow a natural choice.

However, experience as a starting point or subject matter of psychology does not necessarily implicate adoption of positivist empiricism, as usually assumed. The case of the founding father of psychology Wilhelm Wundt is telling in that regard.

He argued that experience is a common subject matter of all sciences, including both natural sciences and "mental sciences," psychology being one of them. Empirical psychology arose after attempts at metaphysical explanations of psyche and it turned to experience instead:

> every concrete experience immediately divides into *two factors*: into a *content* presented to us, *and our apprehension of this content.* We call the first of these factors *objects of experience*, the second *experiencing subject*. This division points out two directions for the treatment of experience. One is that of the *natural sciences*, which concern themselves with the objects of experience, thought of as independent of the subject. The other is that of *psychology*, which investigates the whole content of experience in its relations to the subject and in its attributes derived directly from the subject. (Wundt, 1897, pp. 2–3; italics in original)

However, Wundt argued that in spite of its turn to experience, psychology should not be separated from philosophy. As a matter of fact, its links to philosophy are neither just temporary nor just historical. In his inaugural lecture *Über den Einfluss der Philosophie auf die Erfahrungswissenschaften (On the influence of philosophy on the empirical sciences)* Wundt stated that "psychology stands close to philosophy through its history, and through the nature of its problems" (Wundt, 1876, p.4). In his engaged writing *Psychology's Struggle for Existence* (1913) Wundt argued that a separation from philosophy would threaten psychology. "Discussion of theory of knowledge makes the beginning of any scientific psychology if it does not want to stay on the surface of randomly listed observations" (Wundt, 1913, p. 31).

Unfortunately, Wundt's conceptualization of psychology, including its relation to philosophy has been to a great extent repressed or misunderstood (Jovanović, 2021). One of the consequences of such a reception of the founding father of psychology is also the status of epistemological issues in psychology.

There is, however, a noteworthy exception to the status of epistemology in psychology. Following the scientific ethos Jean Piaget (1896–1980) argued for necessity to replace epistemology as a philosophical, (and this meant for him speculative) endeavor by a scientifically founded theory of knowledge. He called it genetic epistemology: "Genetic epistemology attempts to explain knowledge, and in particular scientific knowledge, on the basis of its history, its sociogenesis, and especially the psychological origins of the notions and operations upon which it is based" (Piaget, 1970, p. 1). However, sociogenesis of scientific knowledge remained just mentioned, and Piaget's genetic epistemology has become developmental psychology, i.e., psychology of ontogenetic development transferred to a theory of scientific knowledge. Even though Piaget's critique of "the myth of the sensory origin of scientific knowledge" (Piaget, 1972a, p. 45) and his constructivist account of knowledge – knowledge is a process of construction taking place between a subject and object to be known – undermine positivist epistemology, his genetic epistemology can hardly grasp the specificity of historical and cultural objects.

In spite of the specificity of its subject matter, psychology for most parts of its history joined other sciences in adopting positivism, scientism, and methodolatry. Psychology was not alone in such choices, but it seems that it remained longer

faithful to such commitments while other sciences started questioning positivism much earlier. Behaviorism was certainly an important bearer of positivism in psychology in the first half of the twentieth century. With its radical program of psychology as a natural science of behavior behaviorism – from its manifesto formulated by John Watson (1913) through its neo versions, which allowed, additionally to stimulus and response as the main elements of explanatory accounts, to introduce variables mediating between stimulus and response – remained faithful to the main commitments of positivism – model of natural science as the only scientific model of knowledge and requests to found knowledge on observable facts only.

Even after the demise of behaviorism as a psychological school based on positivism, i.e. after 1960s, psychological methodology remained mostly positivist in its foundations – following the idea of a unity of science, operating basically with the stimulus-response model, even when dealing with symbolic, verbal material, which by definition cannot be described in physical terms referring to observable fact. Meaning is not an observable fact but a referential process taking place between a sign producer, the sign it uses, and the object signified by a sign. Understanding a sign presupposes processes of interpretation. As stated by Charles Sanders Peirce: "Nothing is a sign unless it is interpreted as a sign" (Peirce, 1931–1958, 2.308).

Acknowledging an interpretive status to knowing subject, known object, and the world humans live in is a defining standpoint of the alternative methodology that emerged as a consequence of critiques of positivism and insights into limits of quantitative methodology. Again, compared to other social sciences, psychology was relatively late in adopting qualitative methodology (Flick, 2014; Jovanović, 2011). This is even more surprising as psychology's subject matter is knowing subject, which is necessarily an interpreting subject. By adopting natural science model, which means by treating human kinds as natural kinds, psychology has distorted its subject matter or even forgotten it. This was the consequence of the methodolatric belief that methods have priority over subject matter.

With such an attitude psychology takes share in modern agenda, which prioritized methods of acquiring knowledge in order to distinguish science from religious or speculative knowledge. However, while abandoning medieval theologically founded worldview and generally prioritizing methods – just to remind that Descartes's writing marking the beginning of modern philosophy was devoted to method (*Discourse on the Method*) – modernity expelled purposes not just from understanding nature as it was conceived in medieval theology based on Aristotelian physics, but surprisingly enough started transferring a purposeless view or at the best marginalization of purposes to the study of humans as well. A search for causes of events became a universal research agenda. But causes are not enough to explain human affairs as humans have intentions, they set goals which determine their actions. Thus, different explanatory models are needed in order to explain humans.

Even within the classical theory of science there were authors arguing for necessity to include teleological explanation into scientific repertoire. A further shift occurred with distinction between explanation and understanding, in its origin country Germany known as Erklären-Verstehen debate. Understanding refers to objects of knowledge, which are defined not by their physical feature but by the

meaning they express. To understand a meaning of a simple sign means that the sign is interpreted in relation to what it signifies. The relation between a sign and signified is not a causal relation, but a hermeneutic, interpretive one:

> A sign, or *representamen*, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. (Peirce, 1932, §2.228; italics in original)

The plurality of interpretants created by signs in minds of humans shapes the subjective world of humans interacting with physical and symbolic worlds in which they live. This is the subject matter of psychology as a science of humans, of their subjective world and their activity objectified in historical, social and cultural worlds. It is to such a subject matter that psychology needs to adopt and develop epistemology which would do justice to its subject matter. If the adopted methodology fails to generate knowledge on its subject matter, it loses its purpose.

Indeed, adopted epistemology and methodology have both enabling and constraining roles in all sciences.

However, even after the demise of behaviorism as a dominant psychological school and even in spite of some turns having been invested with high expectations (for example, qualitative turn), it seems that the main stream of psychology is continuing its scientific journey – away from the phenomena of human experience and activity that it is supposed to study and closer toward neurons, as demonstrated by the rise of neuropsychology. A lack of reflection or even a strong disdain for reflection of assumptions adopted by psychology in its program of separation from philosophy has been complemented with strong epistemological, methodological, and theoretical individualisms which isolate both psychological object to be known and psychology itself from historical, social, and cultural contexts, which are not just external contexts but provide the very conditions of possibility of both its object and psychology as science itself. With an attitude of scientific solipsism it is not so easy to psychology to recognize that its scientism is serving more other than proper scientific purposes:

> Psychology has become an arena for a complex social game of a fashion of appearing "scientific" at the expense of alienation of the data from the phenomena and the data makers from the theoretical and philosophical issues that were fundamental concerns for their predecessors at Baldwin's time. (Valsiner, 2014a, p. 4)

The basic and unique structure of human experience is its intentionality, its directedness toward objects – this is the crucial insight introduced into psychology by Franz Brentano (even though first formulated already by medieval stoics, for example Acquinas) and explored further by Edmund Husserl in his phenomenological philosophy. The immediate experience as given to the experiencing subject is the only proper source of knowledge of consciousness, claimed phenomenology.

However, conditions of possibility of human consciousness are not in individual consciousness. As stated by Jerome Bruner (1915–2016):

> it is culture and the search for meaning that is the shaping hand . . .the central concept of a human psychology is meaning and the processes and transactions involved in the construction of meanings. . .to understand man you must understand how his experiences and his acts are shaped by his intentional states. . .the form of these intentional states is realized only through participation in the symbolic systems of culture. Indeed the very shape of our lives – the rough and perpetually changing draft of our autobiography that we carry in our minds – is understandable to ourselves and to others only by virtue of those cultural systems of interpretation. But culture is also constitutive of mind. By wirtue of this actualization in culture, meaning achieves a form that is public and communal rather than private and autistic. (Bruner, 1990, p. 23; 33)

As much as humans are intentional beings living in a symbolic universe of signifying signs, it is clear that epistemology of psychology must include teleological explanations and interpretations as its indispensable epistemological tools. Moreover, in order to reach and grasp unconscious psychic functions which are involved in construction of meanings, psychology needs not just hermeneutics, but a depth hermeneutics, able to understand the meaning of states and activities of which their subjects are not aware. For that reason, Habermas (1972) greatly appreciated psychoanalysis as a unique epistemological (and therapeutic) endeavor, which requires self-reflection.

A comprehensive epistemology of psychology is probably the most demanding epistemological project. Consequently, it is a challenge to teaching and learning psychology as it has to deal not just with the actual but also with a not-yet existent, but mostly needed –also as a gesture of epistemic justice to humans as knowing subjects and known objects of psychological knowledge and as creators of unique universe of meanings objectified in cultural worlds.

A Lesson to Be Learnt

The history of epistemological conceptions shows features that resemble history of other forms of human engagement with the world, natural, social, and subjective alike. It has shown that epistemological self-confidence, i.e., trust in human capability to know the world – nature, other human fellows, and their communities and cultures – easily becomes transformed into power to impose, command, exploit, appropriate, or possess, or even destroy. In his "ecology of mind" Gregory Bateson (1904–1980) warned of the catastrophic consequences of epistemic – and related to that moral – arrogance of humans in their relationship to nature and their human fellows, in families, cities, societies, or on the earth (1972). Epistemic justice – acknowledgment of existence of certain phenomena, acknowledgment of their specific ways of being, acknowledgment of rights and capabilities of epistemic objects that happen to be human subjects (Habermas, 1972; Jovanović, 2019c; Piaget, 1972b) – is a presupposition for social justice. At the same time, only a just society can provide an equal access to education as a privileged place of acquiring knowledge as a relational not dualistic experience in a never ending

striving to understand the meaning of human existence in plurality of its activities and changing forms and imagined possible worlds.

References

Aristotle (2006). *On the soul*. (J. A. Smith, Trans.). Digireads.com. https://ia802609.us.archive.org/17/items/aristotledeanima005947mbp/aristotledeanima005947mbp.pdf. (Original work written 350B.C).

Baergen, R. (2006). *Historical dictionary of epistemology*. Lanham, MD: The Scarecrow Press.

Bateson, G. (1972). *Steps to an ecology of mind*. San Franciso, CA: Chandler Publishing Company.

Bruner, J. (1990). *Acts of meaning*. Harvard University Press.

Cassirer, E. (1975). *The philosophy of symbolic forms. Language*. (R. Mannheim, Trans.).Yale University Press. (Original work appeared 1923).

Comte, A. (1865). *A general view of positivism*. (J. H. Bridges, Trans.). Trübner and Co. https://ia800908.us.archive.org/20/items/ageneralviewpos00comtgoog/ageneralviewpos00comtgoog.pdf

Croce, B. (1913). *The philosophy of Giambattista Vico*. (R. Collingwood, Trans.). The Macmilla Company. (Original work published 1911).

Danziger, K. (1999). Natural kinds, human kinds and historicity. In W. Maiers et al. (Eds.), *Challenges to theoretical psychology* (pp. 24–32). Captus Press.

Denzin, N. & Lincoln, I. (Eds.) (2018). *The SAGE handbook of qualitative research* (5) SAGE. Los Angeles, CA

Descartes, R. (1971a). Discourse on the method. In *Descartes philosophical writings* (E. Anscombe & P. T. Geach, Eds. and Trans). (pp. 5–58). Bobb-Merrill Educational Publishing. (Original work published 1637).

Descartes, R. (1971b). Meditations on first philosophy. In *Descartes philosophical writings* (E. Anscombe & P. T. Geach, Eds. and Trans). (pp 59–124). Bobb-Merrill Educational Publishing. (Original work published 1641).

Dilthey, W. (1974). Ideen über eine beschreibende und zergliedernde Psychologie. In: W. Dilthey: *Die gestige Welt: Einleitung in die Philosoiphie des Lebens* (*Gesammelte Schriften, B. 5*) (pp. 139–240). Teubner. (First edition published 1894).

Dilthey, W. (1988). *Introduction to the human sciences: An attempt to lay a foundation for the study of society and history*. (R. Betanzos, Trans.). Harvester Wheatsheaf. (Original work published 1883).

Flick, U. (2014). *An introduction to qualitative research* (5th ed.). Los Angeles, CA: SAGE.

Gadamer, H.-G. (2006). *Truth and method*. (J. Weinsheimer & D. Marshall, Trans.). Continuum. (Original work published 1960).

Habermas, J. (1972). *Knowledge and human interest* (J. Shapiro, Trans.). Beacon Press. (Original work published 1968).

Habermas, J. (1973). *Theory and praxis*. (J. Viertel, Trans.). Beacon Press.

Hacking, I. (1994). The looping effects of human kinds. In D. Sperber, D. Premack, & A. J. Premack (Eds.), *Causal cognition: A multi-disciplinary approach* (pp. 351–383). Clarendon Press.

Hankins, J. (Ed.). (2007). *The Cambridge companion to Renaissance philosophy*. Cambridge, UK: Cambridge University Press.

Haraway, D. (1988, Autumn). Situated knowledges: The science question in feminism and the privilege of partial perspective. *Feminist Studies, 14*(3), 575–599.

Harding, S. (1991). *Whose science? Whose knowledge? Thinking from woman's lives*. Cornel University Press.

Horkheimer, M. (1937/2002). Traditional and critical theory. In *Critical theory. Selected essays* (pp. 188–244). (M. O'Connell et al., Trans.). Continuum.

Hume, D. (1998). In T. L. Beauchamp (Ed.), *An enquiry concerning human understanding*. Oxford University Press. (Original work published 1748).
Husserl, E. (1970). *The crisis of European sciences and transcendental phenomenology. An introduction to phenomenological philosophy*. (D. Carr, Trans.). Northwestern University Press. (Original work published 1936).
Jovanović, G. (2010). Historizing epistemology in psychology. *Integrative Psychological & Behavioral, 44*, 310–328. https://doi.org/10.1007/s12124-010-9132-9
Jovanović, G. (2011). Toward a social history of qualitative research. *History of the Human Sciences, 24*(2), 1–27. https://doi.org/10.1177/0952695111399334
Jovanović, G. (2019a). Cultural psychology as a human science. In G. Jovanović, L. Allolio-Näcke, & C. Ratner (Eds.), *The challenges of cultural psychology. Historical legacies and future responsibilities* (pp. 15–36). Routledge.
Jovanović, G. (2019b). The repression of cultural psychology in the history of psychology. In G. Jovanović, L. Allolio-Näcke, & C. Ratner (Eds.), *The challenges of cultural psychology. Historical legacies and future responsibilities* (pp. 169–185). Routledge.
Jovanović, G. (2019c). Wundt's forgotten legacy and epistemological foundations of critical psychology. In K. Murakami, J. Cresswell, T. Kono, & T. Zitoun (Eds.), *The ethos of theorizing* (pp. 96–105). Captus University Press.
Jovanović, G. (2021). How psychology repressed its founding father Wilhelm Wundt. *Human Arenas, 4*, 32–47. https://doi.org/10.1007/s42087-021-00186-2
Koyre, A. (1971). Introduction. In *Descartes philosophical writings* (E. Anscombe & P. T. Geach, Eds. and Trans). (pp. vii–xliv). Bobb-Merrill Educational Publishing.
Kuhn, T. (1962). *The structure of scientific revolutions*. University of Chicago Press.
Kusch, M. (2002). *Knowledge by agreement: The program of communitarian epistemology*. Oxford, UK: Oxford University Press.
Montaigne, M. (1923). *Essays* (C. Cotton, Trans,; W.R. Hazlitt, Ed.) Navarre Society. (Original work published 1580-1588). https://ia802902.us.archive.org/3/items/essaysofmontaign0001unse_p9k9/essaysofmontaign0001unse_p9k9.pdf
Peirce, C. S. (1931–1958). In C. Harshorn & P. Weiss (Eds.), *Collected papers*. Cambridge, MA: Harvard University Press.
Piaget, J. (1970). *Genetic epistemology*. (E. Cuckworth, Trans.). Columbia University Press.
Piaget, J. (1972a). *Psychology and epistemology. Towards a theory of knowledge*. Penguin.
Piaget, J. (1972b). *Epistémologie des sciences de l'homme*. Gallimard.
Plato. (1955). *Phaedo*. (R. S. Bluck, Trans.). Routledge & Kegan Paul. (Original work written between 387 and 376 B.C.)
Popper, K. (1972). *Objective knowledge. An evolutionary approach*. Oxford University Press.
Putnam, H. (2002). *The collapse of the fact/value dichotomy and other essays*. Cambridge, MA: Harvard University Press.
Quine, W. V. (1951). Two dogmas of empiricism. *Philosophical Review, 60*, 20–43. https://doi.org/10.2307/2181906
Quine, W. V. (1957). The scope and language of science. *British Journal for the Philosophy of Science, 8*, 1–17. Northwestern University Press.
Searle, J. (1995). *The construction of social reality*. Penguin.
Steinmetz, G. (Ed.) (2005). *The politics of method in the human sciences. Positivism and its epistemological others*. Durham, NC: Duke University Press.
Steup, M., & Neta, R. (2020). Epistemology. In Zalta, E (Ed.), *The Stanford encyclopedia of philosophy*. https://plato.stanford.edu/archives/fall2020/entries/epistemology/
Toulmin, S. (1992). *Kosmopolis*. Chicago, IL: The University of Chicago Press.
Valsiner, J. (2014a). Needed for cultural psychology: Methodology in a new key. *Culture & Psychology, 20*(1), 3–30. https://doi.org/10.1177/1354067X13515941
Valsiner, J. (2014b). *An invitation to cultural psychology*. Sage.
Vico, G. (1990). *On the study of methods of our time* (E. Gianturco, Trans.). Cornel University Press. (Original work published 1709).

Vico, G. (1984). *The new science* (T. Bergin & M. Fisch, Trans). Cornel University Press. (Original work published 1725, third edition. 1744).
Watson, J. (1913). Psychology as the behaviorist views it. *Psychological Review, 20*, 158–177. https://psychclassics.yorku.ca/Watson/views.htm
Wittgenstein, L. (1953). *Philosophical investigations* (G. E. M. Anscombe, Trans.). Oxford: Basil Blackwell.
Wundt, W. (1876). *Über den Einfluß der Philosophie auf die Erfahrungswissenschaften. Akademische Antrittsrede*. W. Engelmann.
Wundt, W. (1897). *Outlines of psychology*. (C. H. Judd, Trans.). Williams & Norgate, Stechert.
Wundt, W. (1900–1920). *Völkerpsychologie*. Eine Untersuchung der Entwicklungsgesetze von Sprache, Mythus und Sitte. (10 Vol.). Enke.
Wundt, W. (1913). *Die Psychologie im Kampf ums Dasein*. Kröner.
Wundt, W. (1921). *Logik der Geisteswissenschaften. Vierte umgearbeitete Auflage*. Enke.

Further reading

Adriana Kaulino, Teresa Matus (2021) Theoretical proposal for the relationship between epistemology and ethics in psychology. *T&P, 31*(2), 237–253. https://doi.org/10.1177/09593543211002267
David Borges Florsheim, Lívia Mathias Simão (2021) Towards rethinking the primacy of foundationalism: Epistemology, dialogue, and ethics in psychopathology. *T&P, 31*(2), 161–178. https://doi.org/10.1177/0959354320976918
Fairweather, A., & Zagzebski, L. (2001). *Virtue epistemology. Essays on epistemic virtue and responsibility*. Toronto, ON: Oxford University Press.
Goldman, A. (1985). The relation between epistemology and psychology. *Synthese, 64*(1), 29–68.
Grimm, S. (2016). How understanding people differs from understanding the natural world. *Philosophical Issues. A Supplement to Nous*, 209–225. https://doi.org/10.1111/phis.12068
Grimm, S., Baumberger, C., & Ammon, S. (Eds.) (2017). *Explaining understanding*. New York, NY: Routledge.
Medina, J. (2013). *The epistemology of resistance. Gender and racial oppression, epistemic injustice, and resuistant imaginations*. New York, NY: Oxford University Press.
Neisser, U. (1976). *Cognition and Reality: Principles and Implications of Cognitive Psychology*. San Francisco, CA: W. H. Freeman and Company.
Peiwei Li (2021) Knowing as being: Psychology, limits to knowledge, and an ethics of solidarity. *T&P, 31*(2), 199–219. https://doi.org/10.1177/0959354320978703
Pita King, Darrin Hodgetts, Danilo Silva Guimarães (2021) Towards rethinking the primacy of epistemology in psychology: Introduction to the special section. *Theory and Psychology, 31*(2), 153–160. https://doi.org/10.1177/09593543211003161
Theory and Psychology (2021, Vol 31 (2). Special section towards rethinking the primacy of epistemology in psychology.
Tore Dag Bøe (2021) Ethical realism before social constructionism. *T&P, 31*(2), 220–236. https://doi.org/10.1177/09593543211004756
Veronica Hopner, James H. Liu (2021) Relational ethics and epistemology: The case for complementary first principles in psychology. *T&P, 31*(2), 179–198. https://doi.org/10.1177/0959354320974103

Psychology in Health Science

47

Giulia Savarese, Luna Carpinelli, and Tiziana Marinaci

Contents

Abstract

This chapter discusses the characteristics, training programs, strengths, and critical aspects of health psychology, as it is taught in educational courses that concern health sciences. This document overviews the central theme of the issue: the adaptation of psychology to academic medical doctors. The first section addresses the history, fundamental objectives, and models of teaching and learning in health psychology. Then, we describe standards for professional sectors for university education, predominantly in a psychology degree, and graduate and postgraduate courses. We also describe theoretical approaches and strategies; survey the evidence for teaching, learning, and assessing fundamental skills; and lay out the best solutions for teaching and learning in psychology. Finally, we describe curriculum design and implementation, and recommendations for both psychology teachers and students.

G. Savarese (✉) · L. Carpinelli · T. Marinaci
Department of Medicine, Surgery, and Dentistry 'Scuola Medica Salernitana', University of Salerno (Italy), Fisciano/Baronissi, Italy
e-mail: gsavarese@unisa.it; lcarpinelli@unisa.it; tizianamarinaci@gmail.com

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Introduction

Health psychology is a relatively recent and rapidly expanding discipline that explores the psychological and behavioral aspects associated with changes in health and disease in humans. The thematic horizon of this discipline is the study of psychological factors that are related to how people stay healthy, why they become ill, and how they respond to becoming ill (Tran, 2013).

This is a relatively new subfield of psychology that initially grow within important historical, social, and cultural changes: the discarding of a strictly biomedical conception of health – typically thought of as the mere absence of disease – in conjunction with a growing awareness of the role that psychological and social factors play in the treatment and maintenance of many diseases.

The possibility of realizing the ideal of "health for all" (Mahler, 1981), proposed by the World Health Organization, moved early health psychologists towards a more holistic view of the concepts of health and disease, and informed Engel's (1977) biopsychosocial model, which remains an important lens into traditional health psychology.

Health psychology was formally established as a discipline in the late 1970s, when section 38 – labeled Health Psychology (1979) – was created within the American Psychological Association (APA). This formal recognition was followed in 1980 by the definition of the field of studies and research, as formulated by Matarazzo, the first president of the American Health Psychology section:

> Health psychology is the aggregate of the specific educational, scientific, and professional contributions of the discipline of psychology to the promotion and maintenance of health, the prevention and treatment of illness, and the identification of etiologic and diagnostic correlates of health, illness and related dysfunction and to the analysis and improvement of the health care system and health policy formation. (Matarazzo, 1980, p. 815)

To date, the psychology of health, as a discipline, encompasses research on medical, nursing, social work, community care and health, patients' perspectives throughout the life cycle (combined with the perspectives of health workers and patients' families), the "culture" of health, social determinants of psychophysical well-being, and disparities in health based on demographic characteristics, such as social class and gender. The health psychology division of the APA is dedicated to the promotion and maintenance of good health, and the prevention and treatment of illness. Health psychologists study issues that prevent people from practicing healthy behaviors and designs programs to assist individuals. These programs may be designed to help people stop smoking, lose weight, manage stress, prevent cavities, or stay physically fit. Medical centers, hospitals, health maintenance organizations,

rehabilitation centers, public health agencies, and private practices are possible employment settings for health psychologists (the APA Guidelines for Graduate and Postgraduate Psychology, 2020). Health psychology studies numerous psychological and social factors that are important for health-care systems to understand, such as the reasons that many patients do not fully cooperate with medical advice, errors in medical decision-making, or challenges in interpersonal relationships. Furthermore, it studies the effects of emotions, personality, and motivation on healing.

Health psychology teaching occurs at both the undergraduate and postgraduate levels and is experienced by both mainstream psychology students and those studying other health-related subjects (Ogden, 2012).

The education and training guidelines in professional psychology health service specialties were endorsed as a policy of the American Psychological Association in 2012. These guidelines have the potential for broad impact on the field by providing both a structure and recommendations for the consistent usage of language – definitions and terminology – to reduce current descriptive inconsistencies across education and training programs in professional psychology. The guidelines were not designed to define the specifics of the training or practice of individual psychologists; they are to be used only to describe programmatic structure in a consistent manner (Rozensky et al. 2015).

In Europe, generally, professional training in health psychology consists of a master's or advanced degree in health/medical psychology.

In America, the "National Institutes of Health" (2020) reported that most states require psychologists to hold a doctorate in psychology, have completed an extensive internship, and have accrued at least 2 years of professional experience in the field as part of a postdoctoral program. In addition to holding a mandatory state license, health psychologists can also obtain voluntary certification from the American Board of Professional Psychology.

In Asia, there is a degree in health psychology awarded by universities and colleges that lasts 3–7 years (website: https://www.bachelorstudies.com/Bachelor/Health-Care/Asia/).

The "South African College of Applied Psychology" (SACAP) (2020) reported that the health psychology bachelor's degree is a specialty within the discipline of psychology that is concerned with individual behaviors and lifestyles affecting physical health.

In Australia, the graduate certificate in health psychology explores health behaviors and connections with quality of life (website: https://www.open.edu.au/degrees/graduate-certificate-in-health-psychology-curtin-university-cur-hpy-gce).

A health psychology course is present in a lot of training curricula, for example, in medicine, nursing, motor, and physical disciplines. The broad focus is on the relationships between biopsychosocial processes (such as cognitions, emotions, and behavior, psychophysiological stress systems, and brain functioning) and health outcomes. More specifically, topics of interest are the prevention of disease and promotion of health and the diagnosis and treatment of psychological aspects of chronic somatic diseases.

Rarely, there are school training courses in health/medical psychology (website: https://www.psychologydegree411.com/degrees/health-psychology/). In the "Society for Health Psychology" (2020), it is possible to take public health and nursing classes (e.g., epidemiology and health policy), go to conferences (and watch health psychology pre-conferences at larger, more general conferences), and also seek out summer courses that are offered from time to time on related topics by national organizations.

Therefore, above all, health psychology has a clinical purpose and training is mainly associated with psychologists. For this reason, this chapter was centered on training in psychology.

Purposes and Rationale of the Curriculum in Health Psychology

In the report "EuroPsy: A Framework for Education and Training of Psychologists in Europe" (2011), which was approved by the *European Federation of Psychologists' Associations* (EFPA) General Assembly in 2011, the first education phase is typically devoted to orienting students in the various subspecialties of psychology. This may also include related disciplines. The second phase prepares students for independent professional practice as a psychologist. This portion of the curriculum may be undifferentiated and prepare students for further PhD training or for employment as a "general practitioner" in psychology. Alternatively, it may be differentiated and prepare students for practice within a particular professional area of psychology, such as clinical or health psychology, educational or academic psychology, or work and organizational psychology.

The aim of the internship (referred to as the "stage" in some European countries) is to provide introductory professional field training that enables students to integrate theoretical and practical knowledge, to learn procedures related to psychological knowledge, to begin practicing under supervision, and to be able to reflect upon and discuss their own and other people's activities and begin working in a setting with professional colleagues.

The third phase in the professional education of psychologists consists of supervised practice within a particular area of professional psychology. This professional field training seeks to prepare for independent practice as a licensed (or equivalent) psychologist, to develop working roles as a professional psychologist based on one's unique training and personality, and to consolidate the integration of theoretical and practical knowledge.

The curriculum must have a duration of at least 5 years (300 ECTS – university credits); this may be divided among 180 units for the first phase and 120 units for the second phase (which matches the Bologna "3 + 2" structure of Bachelor's + Master's). However, universities and countries differ in the structure of their education systems. The duration of the third phase (supervised practice) must be at least 1 year (60 ECTS) or its equivalent. This amounts to a total length of 6 years or 360 ECTS.

A distinction is made between four broad professional contexts: "clinical and health," "education," "work and organizations," and "other." The first three

categories encompass a wide range of activities, whereas the "other" category refers to all other contexts.

There are numerous primary competences that any psychologist should be able to demonstrate. These can be grouped into seven functional categories that relate to professional activities: goal specification, assessment, development, intervention, evaluation, communication, and enabling. There are nine additional enabling competences related to professional activity in general (professional strategy, continuing professional development, professional relations, research and development, marketing and sales, account management, practice management, quality assurance, and self-reflection); a practicing psychologist should demonstrate these in addition to the primary competences (EuroPsy: A Framework for Education and Training of Psychologists in Europe, 2011).

In the report "Mutual Evaluation of Regulated Professions: Overview of the *Regulatory Framework in the Health Services Sector* – Psychologists and Related Professions" (2015), the training requirements in most cases include completion of 5 years of a postsecondary training program. Often, a master's degree in psychology is required, which is then followed by a mandatory traineeship or professional experience. Mandatory traineeship is required in 8 of 17 countries (Belgium, France, Finland, Iceland, Italy, Liechtenstein, Portugal, and Sweden); whereas state-level examination was reported for only 3 of 17 countries (Denmark, Italy, and Sweden). No information is available for Croatia, Norway, and Greece.

In the area of psychology in health care, three member states report regulation using reserved activities – namely Finland, Slovakia, and Iceland. Two other countries (the Netherlands and the UK) reported the use of title protection without any reserved activities. Five member states (Austria, the Czech Republic, Malta, Slovenia, and Spain) protect both the use of the title and have reserved activities in this profession. Reserved activities reported by the member states are mostly generic, but in some instances they are specific (for example, see Slovakia concerning family and marital counseling, and Spain concerning issuance of various licenses and permits). In Lithuania, reserved activities relate to the provision of publicly funded health-care services. In the Czech Republic, activities are those in clinical psychology, but under the supervision of clinical psychologists. The training requirements in most cases include completion of 4–7 years of a postsecondary training program; often a master's degree in psychology or health psychology is required, sometimes followed by a mandatory traineeship, professional experience, or additional qualification course. Mandatory traineeship is required in 4 of 9 countries (Czech Republic, Malta, Slovenia, and Spain), whereas state-level examination was reported for only 2 of 9 countries (Austria and Slovenia).

The American Psychological Association, in the "National Standards for High School Psychology Curricula," proposes guidelines for the organization of the curriculum. The released document delineates the contents and performance standards that guide teachers in designing instruction. The standards are hierarchically organized to respond to increasing levels of specificity, such as domain standards, content standards, and performance standards. The domains represent overarching thematic areas that encompass broad areas of psychological knowledge and study;

the standard areas are unit topics that represent closely related theories and findings regarding more specific areas of knowledge and study; finally, the content standards are specific topics that teachers can use as starting points to build lessons (American Psychological Association (APA), 2011). As the same document suggests, the various domains are not envisioned within a rigid organization of the curricula – on the contrary, the general purpose of the project is to support teachers in a multiple-level conceptual organization, thus allowing teachers themselves "to keep the overarching themes in mind while they teach more specific content each day" (ibid. p. 2).

Each of these areas refers to a primary topic or unit in psychology. The respective standard areas within each general domain are listed in Fig. 1 and these are: scientific inquiry; biopsychology; development and learning; sociocultural context; cognition; individual variations; and applications of psychological science.

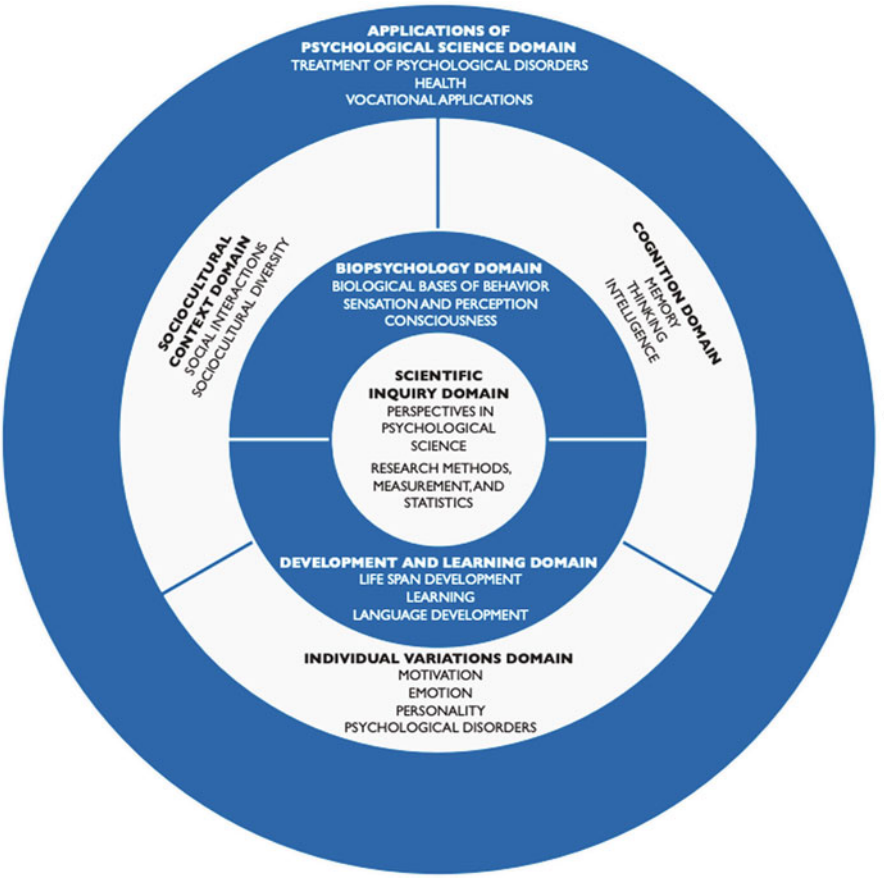

Fig. 1 Graphical illustration of the national standards for high school psychology curricula (APA, 2011)

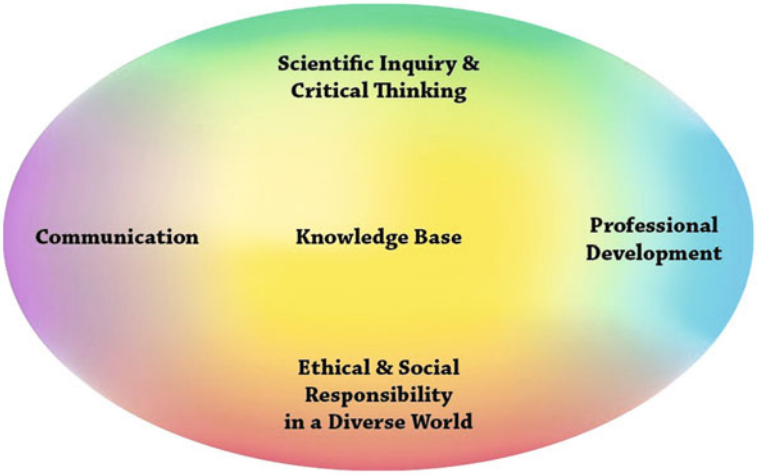

Fig. 2 Graphical Illustration of the "Psychology: Major Competencies," the APA Board of Educational Affairs Task Force (APA, 2011 – revised 2013)

Content standards and performance standards represent more specific sublevels that refer to each domain and are grouped within each standard area.

Regarding "Psychology: Major Competencies," the APA Board of Educational Affairs Task Force also indicated five inclusive goals (see Fig. 2) for the undergraduate major.

Each goal contains an appropriate range of explicit student learning outcomes that incorporate action verbs and measurement potential:

GOAL 1: KNOWLEDGE BASE
- 1.1 Describe key concepts, principles, and overarching themes in psychology
- 1.2 Develop a working knowledge of psychology's content domains
- 1.3 Describe applications of psychology

GOAL 2: SCIENTIFIC INQUIRY AND CRITICAL THINKING LEARNING GOALS AND OUTCOMES
- 2.1 Use scientific reasoning to interpret psychological phenomena
- 2.2 Demonstrate psychology information literacy
- 2.3 Engage in innovative and integrative thinking and problem-solving
- 2.4 Interpret, design, and conduct basic psychological research
- 2.5 Incorporate sociocultural factors into scientific inquiry

GOAL 3: ETHICAL AND SOCIAL RESPONSIBILITY IN A DIVERSE WORLD
- 3.1 Apply ethical standards to evaluate psychological science and practice
- 3.2 Build and enhance interpersonal relationships
- 3.3 Adopt values that build community at local, national, and global levels

GOAL 4: COMMUNICATION
- 4.1 Demonstrate effective writing for various purposes
- 4.2 Exhibit effective presentation skills for various purposes
- 4.3 Interact effectively with others

GOAL 5: PROFESSIONAL DEVELOPMENT
- 5.1 Apply psychological content and skills to career goals
- 5.2 Exhibit self-efficacy and self-regulation
- 5.3 Refine project management skills
- 5.4 Enhance teamwork capacity
- 5.5 Develop a meaningful professional direction for life after graduation (The APA Guidelines for the Undergraduate Psychology Major, 2011)

The APA "Guidelines for the Graduate and Postgraduate Psychology Major" (2011) encompasses master's and doctoral psychology programs (The APA Guidelines for Graduate and Postgraduate Psychology, 2020). The APA "Graduate and Postgraduate Education and Training" (2011) states that for psychologists to competently serve all members of the public now and in the future, professional psychology training programs must strive to ensure that psychology trainees demonstrate acceptable levels of knowledge, skills, and awareness to work effectively with diverse individuals. To prepare professional psychologists to serve a diverse public, the requirements must be commitment to a supportive training environment; transparency in educational expectations, policies, and procedures; establishing and maintaining standards for professional competence to protect the public; the professional standards to protect the public; and competent ethical practice and referral.

From the Clinical Model to "Functional" Well-Being

The first orientation can essentially be traced back to a real clinical model in which health is negatively understood as the absence of disease; disease is then defined by the conspicuous presence of pathological signs and symptoms. The model focuses on the dimension of treatment in relation to the conditions of overt pathology or a concrete threat of disease, minimizing prevention and the patient's role in treatment. Consistent with the clinical model is that of the well-being–malaise continuum. In this conception, well-being is a positive state that can be pursued by moving beyond a central, neutral point to the positive end of the continuum, where it is possible to improve the levels of physical and mental health and well-being. On the contrary, passing the central point in the opposite direction (towards the negative end of the continuum) one encounters disability and illness, crossing different decremental levels of abilities and functional conditions. However, this is a dichotomous model, in which health and disease are clearly differentiated and are substantially opposite and mutually exclusive.

A defining characteristic of life is the ability to function. Functionality – at physical, mental, and social levels – is an integral part of health. In turn, this has internal manifestations for performance and social expectations. Loss of function can

be a sign or symptom of a disease, and a good indicator that people require health intervention. It is easy to think that health and well-being consist of a lack of disease, and to consider malaise and disease to be interchangeable terms. "Dis-ease" literally means "without ease." It can be defined as the failure of a person's active mechanism to adequately counteract stimuli and stress, resulting in functional or structural disorders. This definition constitutes an ecological concept of disease that uses multiple factors to determine the cause of a disease rather than describing a single cause. This multifactorial approach increases the likelihood of addressing multiple intervention points to improve health.

It is precisely this broadening of perspective, therefore, that challenges the dichotomous conception of health/illness or well-being/sickness and requires a decisive orientation towards complexity. It is no longer realistic to restrict attention exclusively to clinical levels or individual factors; it is necessary to establish the concept of health with models based on social and environmental parameters.

The best-articulated evolutionary approach is probably represented by the ecological model of health, which is oriented primarily to supporting interventions and processes of health promotion at the individual family level within a community, and eventually at a societal level; this model devotes particular attention to quality of life and the social determinants of health. However, this approach is also approached through multiple concepts and lines of conceptual development, which can be categorized as having three prevailing directions: (a) from the model of role performance to capabilities; (b) from the adaptive model to overcoming the "normal pathological" dichotomy; and (c) from the eudaimonic model to the perspective of psychological well-being.

In detail, these can be described as follows:

From the model of role performance to capabilities: The role performance model defines health in terms of an individual's ability to play a role in family and work (or school) contexts, or in social and community life. This capacity is measured by performance according to expectations and social norms. In this view, "disease" is the failure to fulfill one's role at the level expected by society. This model is the basis for occupational health or occupational health assessment, certifications for physical activities at school, or for sick leave from work. The idea of a "patient role" is a vital component of the model. The role of the patient is indeed relevant in current systems of care (devis Italy, 2011; Shillling, 2002). This model is best expressed in the need to place health within the framework of functionalist dimensions linked to modern social and economic organization, with social models of functioning linked precisely to the role performance perspective as a fundamental variable for productivity in and of economic and social systems. In many ways, this position can be redefined in a contemporary context by focusing on the relationship between the social positions and resources that characterize the system of relations in the contemporary world. From this perspective, health refers to Amartya Sen's perspective of "capabilities": "different people have different needs and different abilities or possibilities to transform resources into" functioning, "that is, into real achievements in improving their health and own perspectives in the life project" (Shillling, 2002).

From the adaptive model to overcoming the "normal pathological" dichotomy: The adaptive model proposes that health is essentially measured by a person's ability to adapt positively to social changes and to the cultural models with which a person comes into contact. Illness occurs when a person fails to adapt to changes that challenge their physical, psychological, and social functioning. However, this reading seems to propose a distinction between health as adaptation and disease as a lack of adaptation; that is, it re-proposes a dichotomy between "normal" adaptation processes and "pathological" conditions characterized by an inability to adapt.

From the eudaimonic model to the perspective of psychological well-being: A eudaimonic approach considers a high level of well-being to be the equivalent of optimal health and strongly emphasizes interaction between the psychological, social, physical, and spiritual aspects of life and the environment, which help a person achieve goals and create meaning. The disease is regarded as denervation or wasting – a lack of involvement in life. This conception also refers to the question of the definition of well-being; the ambiguity contained in the expression "subjective well-being" also refers to the need to specify the relationship between resources and personal and social well-being. The broadening of the perspectives that intervene in these representations remains insufficiently comprehensive to overcome a certain one-sidedness; however, the perspectives pose the need for an ecological model of health that recognizes the interconnection between people and their physical and social environments.

From an ecological perspective, health is multidimensional, extending from the individual to the surrounding community, and encompassing the context within which a person functions. It incorporates a systemic approach in which the actions of part of the system influence the functioning of the whole. This view of health expands the concept of well-being, recognizing that social and environmental factors can promote health and healthy behavior.

Core Contents and Topics of Psychology in Health Science

Rodolfa et al. (2005) describe competency development in professional psychology by providing two *domains of professional competency*: foundational and functional competency. The foundational competency domain embodies what professional psychologists do, including reflective practice (self-assessment), scientific knowledge, methods, relationships, ethical and legal standards and policy, individual and cultural diversity, and interdisciplinary systems. This domain of competency prepares professionals for acquiring functional competency. Functional competency focusses on skills and knowledge that are vital for performing the psychologist role. This includes assessment and diagnosis of cases, intervention, consultation, research and evaluation, supervision and teaching, and management and administration. These characterize the everyday function of professional psychologists. This model is useful across the stages of professional development, including doctoral education, postdoctoral training, and continuing competency (de-Graft Aikins et al., 2019). Further details on the two competency domains are given below:

Functional Competency

Functional competency focusses on adequate training in diagnosis, assessment, clinical decision-making, case management, research, and teaching.

Foundational Competency

Four areas of foundational competency are explored: intellectual, emotional, cultural, and professional. We also explore challenges faced by practitioners (de-Graft Aikins et al., 2019).

We have identified four foundational competency areas that are unique to the practice of clinical health psychology and represent competency areas that clinical health psychologists acquire above and beyond those enumerated in the benchmarks document. The first is engagement in reflective self-assessment regarding one's degree of competency for working in health systems. The second involves basing practice on the biopsychosocial model, using the best available evidence and considering patients' individual differences, values, and preferences. The third foundational competency area (identified by Tempe Summit participants as being distinctive to clinical health psychology) is reliance on interdisciplinary collaboration in caring for patients and implementing practice-based research. The final foundational area of competence uniquely associated with practicing clinical health psychology is comprehension of the ethical and legal standards specifically associated with the health-care system (Larkin & Klonoff, 2014).

Generally, the primary recommendations are "to reduce the factual content of programmes, contextualise the learning and make better use of modern teaching and learning methods" (Cordingley et al., 2013).

Health Psychologist Job Requirements

To practice as an independent psychologist in the USA, a five-year doctoral degree in clinical or counseling psychology is necessary. During the training period, a standard one-year internship or residency specializing in health psychology must be completed. Doctoral and internship coursework must be completed from an APA-accredited program. Postdoctoral work may also be required and is available through medical centers, health programs, and universities.

In addition to a graduate degree, health psychologists must meet licensure or certification requirements within their state. Licensing requirements vary by state but typically include a graduate degree and passing an exam. Health psychologists must complete continuing education units, in state-specific durations, to renew or maintain their licenses.

Health psychology constitutes a disciplinary field of training, research, and professional applications concerning cognitive, affective/emotional, psychosocial, behavioral, social, and cultural factors that are at the origin of people's health (salutogenesis). These factors concern the promotion and maintenance of health from a biopsychosocial perspective, the prevention and treatment of diseases and

their psychological correlates, the analysis and improvement of health protection systems, and the development of health policies in favor of communities. In particular, some of the primary lines of investigation concern the identification of relevant behaviors for health (for example, risky and self-protective behaviors); risk perception and its effects on behavior throughout human development; beliefs, attitudes, intentions, and reactions to health and disease conditions; social representations of health and disease; emotions and their regulation in relation to health and disease, with specific regard to affective dysregulations; the relationships between stress, health, and disease; psychosocial coping strategies and resources; psychological and social well-being and quality of life in various social classes; the promotion of healthy lifestyles, disease prevention, and the most effective techniques to accomplish these purposes; compliance with therapeutic prescriptions; factors that facilitate or hinder treatments; interpersonal relationships in health practice, specifically the patient–therapist relationship; communicative competence in health practice (for example, communication with the patient and the family unit); proper functioning of the interprofessional health team; the health of the social health operator and family caregivers; the organization of health-care services and interventions; the evaluation of prevention programs and health promotion in various social contexts (school, work, and community); and the interaction of health psychology with other adjacent professional fields (e.g., medical psychology, psychosomatic medicine, and behavioral medicine).

At the operational level, health psychologists plan, implement, and evaluate the programs, interventions, and treatments.

The classic interventions aim at developing healthy lifestyles and skills for coping with stressful conditions; the psychoeducational interventions regard health and disease (carried out both individually and in institutional settings such as schools or working contexts); the other interventions promote individual development and psychophysical well-being throughout the entire lifespan, and community empowerment programs give individuals and social groups greater control over their health and enhance their quality of life.

The individual and group treatments correct unhealthy behavior (for example, persistence in smoking, consumption of drugs and alcohol, improper eating habits, and lack of physical exercise); the individual and group treatments are used for the best management of disease conditions, particularly chronic diseases such as diabetes or hypertension.

Although relatively common theoretical and practical frameworks exist, health psychology differs from clinical psychology in that it is more directly focused – on personal and social resources that can help people build and control their health by adopting healthy lifestyles; on the causes of and prevention methods for disorders; and on the processes of changing people's attitudes and conduct with respect to risks, disease management, reaction to stress, and pursuit of a state of well-being.

The international literature categorizes health psychology into *five major cognitive and practical subspecialties*. Clinical health psychology is linked to behavioral medicine; its clinical practice is oriented towards behavioral change through psychotherapeutic or psychoeducational treatment for individuals or small groups.

Community health psychology develops interventions and programs to promote physical and mental health at the community level. Public health psychology interacts with other health sciences, such as medicine and epidemiology, to promote health at the population level, with a specific interest in vulnerable and at-risk social groups. Critical health psychology focusses on social, cultural, gender, and socioeconomic inequalities in health systems, access to services, and health policies; this subspecialty seeks initiatives and programs to promote social change and improvements in equity and social justice. Occupational health psychology integrates with the psychology of work and organizations to change work factors that affect workers' physical and mental health. Adopting an interdisciplinary perspective, health psychologists collaborate with numerous professionals: doctors, epidemiologists, health sociologists, nurses, dieticians, rehabilitation therapists, other psychological health workers, educators, and social communication specialists.

Teaching, Learning, and Assessment in Health Psychology

Approaches and Strategies

Evidence-based practice (EBP) requires educators to inject significant new content into research, design, and methodology courses, and to further integrate research and practicum training (Bauer, 2007). The knowledge base is usually generated by applying particular inclusion criteria (for example, regarding the design type or type of outcome assessment); these criteria generally describe the impact of particular service practices on child, adolescent, or family outcomes. A scientist/practitioner training model is crucial, with a focus on teaching the basic principles of careful EBP selection. Selecting an appropriate EBP requires an understanding of the core psychological processes involved in various problems and disorders (in addition to the pertinent risk and protective factors) and the theoretical framework guiding the intervention. The procedures for evaluating an intervention should also match the problem features that are likely to change as a function of the intervention (Kratochwill & Shernoff, 2004).

Evidence-based practice in psychology merely requires process learning, with a focus on "just-in-time" knowledge. Despite a focus on the critical appraisal process in training, and the realization that just-in-time knowledge is important in many clinical situations, EBP also demands mastery of a core knowledge base. Clinicians must have broad knowledge of the science of behavior, the relationships between behavior and health, and the mechanisms of behavior change. Education and training must include a special focus on biological, cognitive, affective, and cultural factors that affect health and health-care delivery, in addition to issues surrounding diversity. This knowledge, which is foundational for all APA-accredited professional psychology programs, is essential for interpreting clinical observations, evaluating whether research results are appropriate to the current clinical situation, and integrating research findings with clinical expertise and patient values (Collins Jr, Leffingwell, & Belar, 2007).

Learning strategies can facilitate the design and implementation of intervention programs and procedures. An effective learning strategy is any cognitive, affective, or behavioral activity that facilitates encoding, storing, retrieving, or using knowledge. There are four important *categories of learning strategies*: knowledge acquisition, comprehension monitoring, active study strategies, and support strategies (Weinstein & Macdonald, 1986).

Good practices for effective teaching and learning are as follows (Nilson, 2016):

Lecture: The instructor presents material and answers questions that arise.

Interactive lecture: Lectures are presented with breaks of 2–15 min for student activities (such as answering a multiple-choice objective item, solving a problem, comparing and filling in lecture notes, debriefing a minicase, completing a pair-share exercise, or conducting a small-group discussion) every 12–20 min.

Recitation: Students answer knowledge and comprehension questions.

Directed discussion: A class discussion follows a generally orderly question set that the instructor has crafted to lead students to certain realizations or conclusions, or to help them meet a specific learning outcome.

Writing and speaking exercises: These informal assignments and activities, usually in class and ungraded, help students learn material, clarify their thinking, or make progress on a formal assignment.

Classroom assessment techniques: These informal assignments and activities, usually in class and ungraded, show the instructor how well students are mastering new material; these often overlap with writing and speaking exercises.

Group work/learning: Students complete a learning activity or create a product in small groups of 2–6 in or out of class; the instructor must carefully manage these activities.

Student-peer feedback: Students give mutual feedback on a written or orally presented product, usually a written draft or practice speech.

Cookbook science labs: Pairs or triads of students conduct a traditional, often predictable experiment following prescribed, cookbook-like procedures.

Just-in-time teaching: The instructor adjusts class activities and lectures to respond to misconceptions, as revealed by students' electronic responses to conceptual questions; this is an extension of electronic daily quizzes to motivate students to complete class readings.

Case method: Students apply course knowledge to devise one or more solutions to problems presented in a realistic story or situation; this is an individual, small-group, or class activity.

Inquiry-based or inquiry-guided learning: Students learn or apply material to meet a challenge, answer a question, conduct an experiment, or interpret data.

Problem-based learning: Student groups conduct outside research on student-identified learning issues (unknowns) to devise one or more solutions to difficult problems presented in a realistic story or situation.

Project-based learning: Students (as individuals or in groups) apply course knowledge to produce a report (written or oral), process or product design, research or program proposal, or computer code; this is often paired with cooperative learning.

Role plays: Students act out instructor-assigned roles, improvising the script in a realistic and problematic social or interpersonal situation.

Simulations: Students play out, either face to face or on a computer, a hypothetical social situation that abstracts key elements from reality.

Service learning with reflection: Students learn from performing community service and systematically reflecting on it.

Fieldwork and clinicals: Students learn how to conduct research and make sound professional judgments in real-world situations (Nilson, 2016).

Fieldwork may involve any of the following:

(a) Assessment of health promotion needs and priorities in the context of population subgroups, such as children, young people, or the elderly, within communities and organizations.
(b) Consultancy for analyzing psychological and behavioral risk factors and protection for biopsychosocial health in various social contexts of reference.
(c) Diagnosis of personality characteristics and assessment of personal characteristics, psychosocial resources, needs, and expectations at various age stages, using quantitative (inventories and tests) and qualitative (direct situation observation, clinical interviews, narrative interviews, and focus groups) techniques.
(d) Selection, construction, adaptation, standardization, administration, and interpretation of psychological investigation tools for psychodiagnostic synthesis (tests, inventories, and questionnaires on cognitive skills, interests, motivations, personalities, attitudes, group and social interactions, pathological syndromes, and psychological fitness for specific tasks and conditions).
(e) Psychoeducational interventions and social skills training for health promotion, health management, and healthy behavior among individuals, groups, and organizations.
(f) Psychotherapy and behavioral rehabilitation interventions for restoring biopsychosocial well-being among individuals, families, and social groups within a community context.
(g) Individual and group counseling to facilitate effective management of stressful situations to prevent long-term adverse health effects and promote better adaptation and quality of life.
(h) Individual and group counseling to correct unhealthy behaviors and increase compliance with therapeutic treatments, especially in the presence of chronic diseases.
(i) Counseling and psychological support for hospitalized patients, their families, and staff.
(j) Design, implementation, and evaluation of tools, interventions, and programs for community health promotion and the prevention of diseases and discomfort, with specific regard to educational, associative, and work contexts.
(k) Implementation of research/action programs within the community to involve citizens in developing health policies and formulating improvement objectives for prevention and treatment.

(l) Individual and group supervision interventions for various health operators to enhance communication skills and team functioning, and prevent burnout (Medichini et al., 2016).

Online Teaching and Learning

Online teaching and learning methods for health psychology necessitate several considerations. Upton and Cooper (2006) have described their experiences, saying that it is possible to ensure that students can access appropriate material for their course and level of study. "This material is developed around the concept of smaller *content chunks*, which can be combined into whole units of learning (topics), and ultimately, a module. Consequently, the key aim of this development is to stimulate and engage students, promoting better involvement with the academic material, and hence better learning. It is hoped that this was achieved through the development of material including linked programs and supporting material, small Java Scripts and basic email, forms, and HTML additions" (Upton & Cooper, 2006).

In the specific case of online health psychology, many authors have suggested designing the learning and teaching environment to promote greater student participation and engagement, thereby increasing deep learning among students. Some have suggested that web-based learning appeals to students both on and off campus. Online health psychology teaching material includes a range of health psychology resources coordinated through the *Blackboard Virtual Learning Environment (VLE)* (Upton & Cooper, 2004).

Blackboard is an online learning system that provides the functionality required to successfully manage distance, web-enhanced, or hybrid education programs. In essence, it provides a ready-made online shell for tutors to populate with content, together with a set of commonly used online tools. The range of facilities available in Blackboard are organized under the following headings:

- Announcements – to provide students with details of new online content, timetable changes, course reminders, etc.
- Course information – details on the syllabus, timetable, assessment procedures, and other course administration information
- Staff information – including photos and contact information for tutors
- Course material – flexible management of content such as lectures notes, handouts, presentations, and (as in this case) web pages
- Assignments – online summary and formative computer-marked assessments and tutor-marked essay assignment titles
- Communication tools – email, asynchronous discussion board, and synchronous chat (Upton & Cooper, 2004)

Upton and Cooper (2006) have reported an example of implementing online teaching:

Interactivity: A range of activities directed via web-based instructions with instantaneous feedback, provided with tutor–learner interaction.

Individualization for students and cohorts: A series of "gates" introduced to monitor and direct progression based on the cohort and skill/knowledge level of an individual student. Small chunks of information heighten student interest and lead them to more information.

Relevance of material: Differing pages and topics developed based on a student's professional course.

Student expectancy: Refers to the learners' perception of success and how much they consider it to be under their control; consists of several short quizzes based on the presented material prior to the final assessment.

Satisfaction: Intrinsic motivations enhanced via the interactive and light-hearted nature of the material, with external rewards developed.

Responses to stress: A small JavaScript program (a programming language for use in web pages to enable the use of dynamic content) in which students press a button and highlight an increasingly stressed response. There is thus an interaction between the computer and the learner; consequently, this small program increases the learner's stress response and provides relevant learning experience.

Email exercises: Small-scale exercises are presented throughout the web pages, which encourages students to assimilate their learning. These are completed on forms and emailed to the tutor. An instant response is provided, along with a more considered response within five working days. This is also a learner–tutor interaction that enables asynchronous discussion.

Games: A range of games are presented that have been developed to engage students, enhance learning, and allow for some light-hearted relief. For example, there are crosswords, hangman games, word searches, and jigsaw scramblers for pictorial health psychology models. In addition, the development of popular games such as "Who wants to be a health psychologist millionaire?" is under development.

All pages: All units begin with aims, essential materials, and access to further information on how to use pages. Links to a reference list and glossary are presented throughout.

Links to external sources: The full power and extent of the Internet is used. Students are directed to readings from an external source, which they must read, analyze, and respond to.

Questionnaires: A series of questionnaires (e.g., examining stressful life events or gender) are presented, marked, and given appropriate comments through a JavaScript programming language. This is another computer–learner interaction that presents learners with information in an informative and engaging manner and facilitates learning development rather than simply teaching.

Exercises: Each topic chunk ends with a short (four- or five-item) multiple-choice test that allows students to assess their learning. Feedback and directions are provided.

Graphs: Several graphs illustrating key points are presented throughout the pages. Each of these asks the student to interpret and respond (e.g., by clicking on the graph to indicate when an event occurred). Instant feedback is provided.

Thus, several key elements must be tackled to develop new material. Despite the numerous benefits of online learning, there are also potential drawbacks, notably including a reliance on student initiative and motivation, a need for a greater examination of the material, and an evaluation of how to present material to best engage the learner (Upton & Cooper, 2006). Disadvantages must also be considered and lecturers must be cautious in their enthusiasm for the subject to avoid overloading students with too much information.

In the same way that a traditional course is constrained by the number of contact hours, online courses are limited by the number of learning hours (Upton & Cooper, 2004).

Assessment

The guiding principles for assessing competence have been developed by members of the Task Force on the Assessment of Competence in Professional Psychology, sponsored by the American Psychological Association (APA). *The Board of Educational affairs* (BEA) has also established a Task Force on the Assessment of Competencies in Professional Education, Training, and Credentialing.

This movement has actually led to a major shift in the way the tasks, methods, and expected outcomes of vocational training are viewed today (McCutcheon, 2009). As Miller (1990) has pointed out, the assessment of competence in the training and career period of a professional psychologist facilitates the determination of what one knows, if one knows how, if one shows how, and how one does.

In summary, the guiding principles and recommendations for the assessment of competence promoted by the BEA try to overcome a simply summative approach of competence, to leave space for a more holistic approach, which is able to take into account the complexity and the dynamism of professional training in psychology.

The focus is on the acquisition of skills that go through all stages of the professional life span and which, more generally, are able to build a "culture of the competence of assessment," including the knowledge bases, practices, and ethics of the profession, through a continuous process of integration and revaluation. Simultaneously, this comprehensive approach is capable of enhancing the self-reflection and self-assessment process, and taking into account interpersonal functioning and professional development, in addition to individual and cultural diversity.

Overall, therefore, this represents a base of principles that, taken together, provide a valuable guide to understand and measure the development of students in terms of their actual performance.

Best Solutions for Teaching and Learning in the Psychology Area

In 1999, in Bologna (Italy) the Ministers of Education from 29 European countries agreed and committed to a vision of a *European Higher Education Area* (EHEA) where university-level education would follow shared principles to ensure high quality and comparability.

At present, the EHEA is made up of a group of 48 countries following the so-called Bologna Process directives to achieve these goals, implementing systems with three cycles of higher education qualifications (Bachelor's, Master's, and

Doctoral degrees), in addition to the introduction of the European Credit Transfer and Accumulation System (ECTS), facilitating student mobility between EHEA countries. The introduction of the EHEA has implied changes in higher education at all levels. It is therefore necessary to learn about the experience of teachers, who are one of the main players in this process (Ariza, Quevedo-Blasco, Ramiro, & Bermúdez, 2013).

It is clear that the EHEA has brought about important changes at all levels of higher education.

In this regard, Ariza et al. (2013) focused on teachers' experience, investigating their level of satisfaction with various aspects of the EHEA (for example, their views and attitudes about the process, and how the change affected their method of teaching) and identify possible needs that prevent them from performing their tasks well.

Among the respondents, 48.64% wanted to express their personal opinion in more detail and make suggestions for improvement (for further information, see the contents of Table 4 in Ariza et al., 2013, p. 203).

There are many key points to be strengthened, including establishing a curriculum common to all European universities; improving teacher training on new teaching techniques; and increasing financial funding for scholarships and research.

Challenges and Lessons Learned

We believe that the teaching of undergraduate health psychology should be evidence based, teaching theories with both empirical support and community and policy applications. Understanding methods such as randomized control trials is critical to appreciating how behavioral medicine interventions work. Similarly, a working knowledge of how stress affects multiple organ systems, culminating in allostatic load (McEwen, 2004), is essential for understanding the biopsychosocial model, which has been the guiding paradigm of the field since its inception. Although each professor has the freedom to design a customized syllabus, our data suggest that cornerstone topics must be covered for students to have a basic knowledge of the field – for example, models and strategies for health behavior change, stress and coping processes, and chronic illness and adjustment. Students would also benefit from being well versed in biobehavioral relationships linking cognition, behavior, and affect with disease. Whether incorporating key topics or a specific topic sequence will lead to better learning outcomes for students remains an empirical question.

Conveying these strengths, in addition to the central topics within health psychology, should be a priority for instructors; introductory topical psychology courses that create awareness of the field should also be considered (Panjwani, Gurung, & Revenson, 2017).

Designing curricula for psychology nonmajor programs requires tackling alignment issues for a program that is smaller and more poorly resourced than a major program. Thus, challenges related to the selection of curriculum content, and the

organization and implementation of curriculum delivery, are far more pronounced. This holds true, in particular, for the trade-off between breadth versus depth and multi-perspectivity. Moreover, psychology scholars mostly have limited expertise in professional fields outside the core psychology fields. Therefore, the challenge of aligning a psychology curriculum with the requirements of external professional fields is significant. Collaborating with nonpsychology experts to tackle this challenge is one possible approach to address this issue. Another approach would be using existent general and specific resources for curriculum design. For example, the *European Qualifications Framework for Higher Education (EQF;* for a comprehensive description see Hernández-Encuentra and Sánchez-Carbonell, 2005) provides general guidance regarding the overarching question mentioned above by distinguishing five core qualification goals for higher education.

Furthermore, (inter)national standards and competency frameworks, in addition to handbooks on teaching in the respective domain, may serve as valuable resources for analyzing the epistemic and practical needs of a professional domain. Finally, existent curricula may serve as a starting point. Thus, we briefly outline how the trade-off between breadth and depth has been addressed in the psychology curriculum of the teacher education program at TU Dresden. The curriculum consists of two mandatory modules that can be complemented by optional courses and a scientific thesis (Staatsexamensarbeit) under the guidance of a psychology scholar teaching in the teacher education program. The first mandatory module overviews the core scientific concepts, methods, and empirical evidence considered highly relevant in the professional field through three main lectures. The second provides a set of problem-oriented seminars covering school-relevant psychology topics, from which students select two courses to deepen their psychological knowledge and competences in at least two psychology fields (Narciss, 2019).

Teaching, Learning, and Assessment Resources

Advice for Supporting Teaching

Ware et al. (1993) provided a comprehensive review of advising in psychology and suggested that there are five key components: advising relationships, content areas, resources and training, student diversity, and evaluation. Johnson and Morgan outlined several goals that we considered when designing a plan. They wanted to (a) increase the effectiveness of face-to-face advising by reducing time spent on basic information; (b) increase the depth of advising interaction between faculty and students; (c) provide consistent and correct information in a timely manner; (d) increase and vary the types of information delivery systems; (e) focus on program requirements, career information, and planning as the most important content provision; (f) make advising resources more visible; and (g) evaluate our progress.

Johnson and Morgan (2005) described the components of an *advising coordinator.* Their department endorsed the position as a permanent part of staffing. The faculty member in this position advises all new majors, conducts outreach to students in the residence halls, supervises peer advisors, coordinates a mass-advising day

each semester, and organizes a graduate school information session in the fall and a career night in the spring. They also conduct in-service training on advising for faculty. Finally, the coordinator teaches a one-credit orientation to the major course (Johnson & Morgan, 2005).

For the *advising plan*, the strategy was to hold advising sessions for freshmen in the residence halls. In addition, freshmen are electronically blocked from registering until they have met with an advisor. Finally, a letter is mailed to all incoming freshmen containing advice on navigating the major and directing them to our website tutorials and information (Johnson & Morgan, 2005).

For the *administrative changes*, a policy was instituted whereby students must meet with an advisor before declaring the major. Before meeting with an advisor, new majors must also complete a web-based tutorial. As a second administrative change, a prerequisite of "declared major" was created for our fundamental sophomore/junior-level experimental psychology course. The department chair sends emails to all declared majors regarding staffing changes, advising and curricular information, and course sequencing advice (e.g., a change in the semester of a once-per-year course offering). The chair also sends a letter to all students who have just declared, indicating their assigned advisor and detailing the advising-related events offered every year. Prominent whiteboards installed in the main classroom area give psychology majors updated information (e.g., club meetings, course changes, and guest speakers). Administrators mail postcard reminders about major events such as mass advising. Finally, an extensive website links students to other useful psychology-related sites (Johnson & Morgan, 2005).

For *mass advising*, the university sends computerized progress reports, updated each semester, to students through their advisors. However, students are not required to meet with their assigned advisors. In response to students' complaints about locating their advisors, a 3-h mass advising session was initiated. This session is offered each semester and guarantees students that they will receive their report and be able to meet with an advisor, even if not their assigned advisor (Johnson & Morgan, 2005).

For the *interactive web advising tutorial*, a mandatory interactive web advising tutorial was launched. This includes three components: general advising, program advising, and career advising. The three interactive components require approximately 45 min to complete. Students complete forms (e.g., their educational goals) and quizzes (e.g., True or False: A course in statistics is required for a psychology degree) that promote interaction with the material (Johnson & Morgan, 2005).

Recommendations for Psychology Teachers

A course is intended to meet the following learning outcomes in the psychology major:

1. Describe, compare, and contrast major theoretical perspectives in psychology.
2. Distinguish observations from conclusions, and distinguish theories and findings based on evidence from those without support.
3. Give an oral presentation in front of a class or conference audience.

4. Explain how research helps develop the knowledge base within psychology.
5. Examine major ethical issues and standards for psychological research and practice, and determine the circumstances in which specific behaviors would or would not be ethical (Anderson, 2006).

Recommendations for Students

1. Read the syllabus and abide by the requirements.
2. Organize, summarize, and rewrite lecture notes in a way that makes sense and clarifies ideas.
3. Because students recall handwritten information better than typed information, students should handwrite their class notes.
4. Review lecture notes regularly and apply the various concepts learned to situations/examples in real life.
5. Read assigned chapters, take notes, and self-quiz with each section to reinforce and verbalize the main ideas; form a study group to explain material to each other, quiz each other, and practice.
6. Apply concepts and ask questions about anything you do not understand.
7. Come to class regularly and engage with the materials and assignments; do not miss lectures and exercises.
8. Submit a hard copy of assignments/papers during class on the due date.
9. Ask questions when in doubt about anything (Wachholtz, 2017).

Assessment Resources for Supporting Psychology Teachers and Constructing a Learning Environment

In 1996, under the leadership of high school psychology teacher Laura Maitland, a group from *Teachers of Psychology in Secondary Schools (TOPSS)* and several college advisors described a science-centered model for high school courses that would provide rigor and flexibility. Consistent with the original plan to create a living document that would undergo systematic revision, a second task force revised the model in 2005. They articulated outcomes consistent with five domains in psychology (methods, biopsychological, developmental, cognitive, and variations in individual and group behavior) (Dunn, McCarthy, Baker, Halonen, & Hill IV, 2007).

It is crucial to construct a learning environment that supports reflection and cooperation between group members. Here, the need is for formative rather than summative assessment, particularly in the initial stages of a problem-based learning curriculum. Helping students concentrate on assessment criteria paradoxically may encourage them to adopt a strategic approach and focus on the superficial aspects of their assessment tasks, rather than engaging in meaningful learning activity. One solution might be to reconceptualize assessment criteria as "learning criteria," using Biggs' principle of constructive alignment in curriculum development and delivery (Norton, 2004). Biggs (1987) proposed the *3P model*, with three fundamental learning stages: presage, process, and product. Presage factors are those prior to learning; process factors relate to the learning process; and product or performance factors refer to the learning outcome gained. Based on these three stages, Biggs

(1987) proposed a tool for measuring students' learning approach in tertiary levels, called the *Study Process Questionnaire (SPQ)*. The questionnaire operationalizes these approaches through their constituent motives and strategies. There are 42 items; each item represents either a surface motive, surface strategy, deep motive, deep strategy, achieving motive, or achieving strategy. The items in the SPQ have been revised and validated, producing 20 items. The surface approach is generally associated with memorizing facts and reproducing information; the deep approach often involves understanding meanings and utilizing information; and the achieving approach is merely the pursuance of good grades. Biggs, Kember, and Leung (2001) revised the SPQ into the R-SPQ-2F (with 20 items) by examining only two factors: surface and deep. This new model is claimed to have good psychometric qualities of internal reliability, consistency, and validity (Astika & Sumakul, 2020).

Cross-References

- ▶ Medical Education
- ▶ Psychology in Social Science and Education
- ▶ Psychology of Special Needs and Inclusion

References

African College of Applied Psychology (SACAP). (2020). Website: https://www.sacap.edu.za/blog/applied-psychology/applied-psychology/

American Psychological Association. (2011). *National standards for high school psychology curricula.* Washington, DC: Author. Website: https://www.apa.org/education/k12/psychology-curricula.pdf

American Psychological Association. (2013). National standards for high school psychology curricula. *The American Psychologist, 68*(1), 32.

American Psychological Association. (2016). Guidelines for the undergraduate psychology major: Version 2.0. *The American Psychologist, 71*(2), 102.

Anderson R. A. (2006). Website: https://teachpsych.org/resources/Documents/otrp/syllabi/ra06healthf.pdf

Ariza, T., Quevedo-Blasco, R., Ramiro, M. T., & Bermúdez, M. P. (2013). Satisfaction of health science teachers with the convergence process of the European higher education area. *International Journal of Clinical and Health Psychology, 13*(3), 197–206.

Astika, G., & Sumakul, T. Y. (2020). Students'profiles through learning approaches using Biggs'study process questionnaire. *ELTR Journal, 3*(1), 46–54.

Bauer, R. M. (2007). Evidence-based practice in psychology: Implications for research and research training. *Journal of Clinical Psychology, 63*(7), 685–694.

Biggs, J. B. (1987). Study process questionnaire manual. Melbourne: Australian Council for Educational Research. *ELTR Journal, 4*(1), 36–42.

Biggs, J. B., Kember, D., & Leung, D. Y. (2001). The revised two-factor Study Process Questionnaire: R-SPQ-2F. *British Journal of Educational Psychology, 71*, 133–149.

Collins, F. L., Jr., Leffingwell, T. R., & Belar, C. D. (2007). Teaching evidence-based practice: Implications for psychology. *Journal of Clinical Psychology, 63*(7), 657–670.

Consiglio ordine psicologi (CNOPP) – Italy. *Report: Lo Psicologo della salute Classificazione EUROPSY Clinical and Health Psychology – (Clinica, Salute e Benessere).* Website: https://www.psy.it/allegati/aree-pratica-professionale/psicologo_della_salute.pdf

Cordingley, A. (Ed.). (2013). *Self-translation: Brokering originality in hybrid culture*. A&C Black: London.

de-Graft Aikins, A., Osei-Tutu, A., Agyei, F., Asante, P. Y., Aboyinga, H., Adjei, A., ... & Edu-Ansah, K. (2019). Competence in professional psychology practice in Ghana: Qualitative insights from practicing clinical health psychologists. *Journal of Health Psychology.* Website: https://journals.sagepub.com/doi/pdf/10.1177/1359105319859060?casa_token=JmpdLp2cFjcAAAAA:jTm-fCH5YHbTnSAUgXAevVUg9NfrjPn8VY2q7en88gzZz54mlUhiaCy3LOOpgxJarwiwUw7ekv2E9A

Dunn, D. S., McCarthy, M. A., Baker, S., Halonen, J. S., & Hill, G. W., IV. (2007). Quality benchmarks in undergraduate psychology programs. *American Psychologist, 62*(7), 650.

Engel, G. L. (1977). The need for a new medical model: A challenge for biomedicine. *Science, 196*, 129–136.

EuroPsy: A framework for education and training of psychologists in Europe. (2011). Report. Website: http://www.inpa-europsy.it/

Hernández-Encuentra, E., & Sánchez-Carbonell, J. (2005). The Bologna process and lifelong education: Problem-based learning. *Higher Education in Europe, 30*(1), 81–88.

Johnson, E. J., & Morgan, B. L. (2005). Advice on advising: Improving a comprehensive university's program. *Teaching of Psychology, 32*(1), 15–18.

Kratochwill, T. R., & Shernoff, E. S. (2004). Evidence-based practice: Promoting evidence-based interventions in school psychology. *School Psychology Review, 33*(1), 34–48.

Larkin, K. T., & Klonoff, E. A. (2014). *Specialty competencies in clinical health psychology.* OUP Us: Oxford.

Mahler, H. (1981). The meaning of health for all by the year 2000. *World Health Forum, 2*(1), 2–21.

Matarazzo, J. D. (1980). Behavioral health and behavioral medicine: Frontiers for a new health psychology. *American Psychologist, 35*(9), 807.

McCutcheon, S. R. (2009). Competency benchmarks: Implications for internship training. *Training and Education in Professional Psychology, 3*(4S), S50.

McEwen, B. S. (2004). Protection and damage from acute and chronic stress: allostasis and allostatic overload and relevance to the pathophysiology of psychiatric disorders. *Annals of the New York Academy of Sciences, 1032*(1), 1–7.

Miller, G. E. (1990). Assessment of clinical skills/competence/performance. *Academic Medicine, 65*(Suppl), S63–S67.

Narciss, S. (2019). Curriculum design for (non-) psychology programs–a reflection on general and specific issues, and approaches on how to address them: Comment on Dutke et al., 2019. *Psychology Learning & Teaching, 18*(2), 144–147.

National Institutes of Health. (2020). Website: researchtraining.nih.go

Nilson, L. B. (2016). *Teaching at its best: A research-based resource for college instructors*. Wiley. Website: https://www.spu.ac.th/tlc/files/2016/02/Teaching-at-its-best.pdf

Norton, L. (2004). Using assessment criteria as learning criteria: A case study in psychology. *Assessment & Evaluation in Higher Education, 29*(6), 687–702.

Ogden, J. (2012). *Health psychology: A textbook*. Maidenhead, UK: McGraw-Hill Education.

Panjwani, A. A., Gurung, R. A., & Revenson, T. A. (2017). The teaching of undergraduate health psychology: A national survey. *Teaching of Psychology, 44*(3), 268–273.

Report: Mutual evaluation of regulated professions: Overview of the regulatory framework in the health services sector – psychologists and related professions. Report based on information transmitted by Member States discussion in the meeting of 6 March 2015 file:///C:/Users/Savarese%20Giulia/Downloads/ME_-_update_-_FINAL_report_psychologists_-_to_be_published.pdf

Rodolfa, E., Bent, R., Eisman, E., Nelson, P., Rehm, L., & Ritchie, P. (2005). A cube model for competency development: Implications for psychology educators and regulators. *Professional Psychology: Research and Practice, 36*(4), 347.

Rozensky, R. H., Grus, C. L., Nutt, R. L., Carlson, C. I., Eisman, E. J., & Nelson, P. D. (2015). A taxonomy for education and training in professional psychology health service specialties: Evolution and implementation of new guidelines for a common language. *American Psychologist, 70*(1), 21.

Shilling, C. (2002). Culture, the 'sick role' and the consumption of health. *British Journal of Sociology, 53*(4), 621–638.

Society for health psychology. (2020). Website: https://societyforhealthpsychology.org/councils-committees/education-training-council/

The APA Graduate and Postgraduate Education and Training. (2020). Website: https://www.apa.org/ed/graduate/

The APA Guidelines for the graduate and post-graduate Psychology. (2020). Website: https://www.apa.org/careers/resources/guides/college-students

The APA Guidelines for the Undergraduate Psychology Major. (2011). Website: https://www.apa.org/ed/precollege/about/learning-goals.pdf

Tran, V. (2013). Health psychology. In M. D. Gellman & J. R. Turner (Eds.), *Encyclopedia of behavioral medicine*. New York, NY: Springer.

Upton, D., & Cooper, C. D. (2004). Online health psychology: Do students need it, use it, like it and want it? *Psychology Learning & Teaching, 3*(1), 27–35.

Upton, D., & Cooper, C. (2006). Developing an on-line interactive health psychology module. *Innovations in Education and Teaching International, 43*(3), 223–231.

Ware, J. E., Snow, K. K., Kosinski, M., & Gandek, B. (1993). SF-36 health survey. Manual and interpretation guide. Boston: The Health Institute, New England Medical Center, 10–6.

Wachholtz, A. (2017). *Programme of course of health psychology*. University of Colorado Denver. Denver (USA).

Website: https://www.bachelorstudies.com/Bachelor/Health-Care/Asia/

Website: https://www.psychologydegree411.com/degrees/health-psychology/

Website: https://www.open.edu.au/degrees/graduate-certificate-in-health-psychology-curtin-university-cur-hpy-gce

Weinstein, C. E., & Macdonald, J. D. (1986). Why does a school psychologist need to know about learning strategies? *Journal of School Psychology, 24*(3), 257–265.

URLS References

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.473.8449&rep=rep1&type=pdf

http://www.inpa-europsy.it/moduli/EuroPsy%20Regulations%20July%202011.pdf

https://onlinelibrary.wiley.com/doi/pdf/10.1348/000709901158433?casa_token=CDIq8o_AeZoAAAAA:SPhh-poQCQdX_2zHaL2FVVeNebBazAL6cQt1u-Kl9XGDmr874qnGbTDlxKoCkMF796Hbm36IxpkeOg

https://societyforhealthpsychology.org/training/training-resources/teaching-resources-for-health-psychology/

https://teachpsych.org/page-1603066

https://teachpsych.org/resources/Documents/otrp/syllabi/aw17health.pdf

https://teachpsych.org/resources/Documents/otrp/syllabi/rubric%20revision%20FINAL%20with%20header.pdf

https://www.apa.org/education/k12/national-standards

https://www.psychologicalscience.org/members/teaching

https://www.redalyc.org/pdf/337/33727852004.pdf

https://www.tandfonline.com/doi/abs/10.1080/02796015.2004.12086229

Part III

General Educational and Instructional Approaches to Psychology Learning and Teaching

Basic Principles and Procedures for Effective Teaching in Psychology

48

Douglas A. Bernstein

Contents

D. A. Bernstein (✉)
Department of Psychology, University of South Florida, Tampa, FL, USA
e-mail: douglas.bernstein@comcast.net

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Abstract

This chapter is designed for the many new, or relatively inexperienced, psychology teachers who find themselves underprepared to assume their role in the classroom. It begins with an overview of the general principles underlying effective teaching in higher education and goes on to offer specific suggestions that are particularly relevant in teaching psychology. Topics include setting course goals, choosing reading assignments, writing a course outline, setting up a grading system, evaluating student learning, developing a teaching style, establishing and maintaining rapport with students, evaluating one's teaching skills, and integrating teaching in one's academic life.

Keywords

Teaching · Effective teaching · Course planning · Course evaluation · Student-teacher relationship

Many new psychology teachers in the United States enter their first classrooms with extensive content knowledge learned in graduate school, but with little or no formal preparation for their teaching role (Boice, 1996; Boysen, 2011; Buskist, 2013; Buskist, Tears, Davis, & Rodrigue, 2002; Chew et al., 2018; Mervis, 2001). This situation is at least as common in other countries (e.g., Padilla-Lopez et al., 2018). These first-time teachers may be asked to offer courses (that may or may not be within their primary area of expertise) without being told what topics to cover or how to create a syllabus (course outline), choose readings, prepare and conduct lectures and class activities, evaluate students' performance, or handle grading complaints. They may know nothing about what to do in the face of classroom disruptiveness, requests for special consideration, and students' needs for mental health services. They have to learn these and many other teaching skills by applying their wits and guts through trial and error, informed perhaps by the examples set by their own teachers, and whatever informal advice and readings they might find. No wonder so many graduate students and first-year teachers feel anxious, unprepared, or underprepared for their teaching responsibilities (Buskist, 2013; Davis & Huss, 2002; Meyers & Prieto, 2000; Wimer, Prieto, & Meyers, 2004).

This chapter is designed to help if you are one of those people. It presents some basic principles for effectively teaching psychology offers suggestions for applying those principles in as you plan, conduct, and evaluate your courses. The relevance of some of the advice contained here may vary depending on international differences in teaching cultures and traditions, psychology curricula, student characteristics, institutional policies, and other factors, but most of the material has universal applicability.

Characteristics of Effective Teachers

In the 1990s, a great deal of research in the United States found that the teacher behaviors most strongly associated with student learning are *enthusiasm*, *clarity*, and *good rapport* with students (e.g., Feldman, 1998; Junn, 1994; Lowman, 1998; McKeachie, 2001; Murray, 1997; Teven & McCroskey, 1996). More recent research has confirmed the importance of these behaviors and identified many others that are related to them (e.g., Beers, Hill, Thompson, & Tran, 2014; Hativa, 2013; Keeley, Ismail, & Buskist, 2016; Weimer, 2013a).

The 28 behaviors that are most consistently seen in excellent teachers formed the basis for an observation instrument called the Teacher Behaviors Checklist (TBC; Buskist et al., 2002; Keeley, Smith, & Buskist, 2006; see Table 1).

Factor analysis of the TBC revealed two main dimensions: (1) being caring and supportive and (2) having professional competency and communication skills (Keeley et al., 2006). In other words, whatever else you do, your chances of becoming an effective teacher are better if you care about your teaching and about your students, if you know your subject matter, and if you can clearly express what you know.

You can see video clips illustrating several categories of desirable teacher behavior at https://bit.ly/2VIOivF (Landrum & Stowell, 2013). If you watch some of these clips or observe other effective teachers in action, you will surely notice that they don't all follow the same script. Each has found a pathway to effective teaching that fits within the framework of their own personalities. Keep this in mind. You do not have to conform to someone else's ideal of a "good teacher" in order to be one. Students tend to like and respect teachers who display almost any interpersonal style as long as that style is authentic and as long as it is clear that the teacher is knowledgeable and cares about them and about teaching. The key to effective teaching, then, is to find your own way to communicate to students your caring, your content knowledge, your motivation, and your good intentions. The following sections suggest specific ways to do this.

Preparing Your Courses

Careful planning and preparation are vital if you are to minimize your teaching anxiety and maximize your teaching effectiveness.

Setting Goals

Your course goals should reflect both what you want your students to learn in the course and the purpose the course is designed to serve in your departmental and institutional curriculum.

You might begin thinking about your goals by taking the Teaching Goals Inventory (TGI; https://tgi.its.uiowa.edu/; Angelo & Cross, 1993). It lists 53 student

Table 1 The Teacher Behaviors Checklist

1. Accessible (posts office hours, gives out phone number and email information)
2. Approachable/personable (smiles, greets students, initiates conversations, invites questions, responds respectfully to student comments)
3. Authoritative (establishes clear course rules; maintains classroom order; speaks in a loud, strong voice)
4. Confident (speaks clearly, makes eye contact, and answers questions correctly)
5. Creative and interesting (experiments with teaching methods; uses technological devices to support and enhance lectures; uses interesting, relevant, and personal examples; not monotone)
6. Effective communicator (speaks clearly/loudly; uses precise English; gives clear, compelling examples)
7. Encourages and cares for students (provides praise for good student work, helps students who need it, offers bonus points and extra credit, and knows student names)
8. Enthusiastic about teaching and about topic (smiles during class, prepares interesting class activities, uses gestures and expressions of emotion to emphasize important points, and arrives on time for class)
9. Establishes daily and academic term goals (prepares/follows the syllabus and has goals for each class)
10. Flexible/open-minded (changes calendar of course events when necessary, will meet at hours outside of office hours, pays attention to students when they state their opinions, accepts criticism from others, and allows students to do make-up work when appropriate)
11. Good listener (doesn't interrupt students while they are talking, maintains eye contact, and asks questions about points that students are making)
12. Happy/positive attitude/humorous (tells jokes and funny stories, laughs with students)
13. Humble (admits mistakes, never brags, and doesn't take credit for others' successes)
14. Knowledgeable about subject matter (easily answers students' questions, does not read straight from the book or notes, and uses clear and understandable examples)
15. Prepared (brings necessary materials to class, is never late for class, and provides outlines of class discussion)
16. Presents current information (relates topic to current, real-life situations; uses recent videos, magazines, and newspapers to demonstrate points; talks about current topics; and uses new or recent texts)
17. Professional (dresses nicely [neat and clean shoes, slacks, blouses, dresses, shirts, ties] and no profanity)
18. Promotes class discussion (asks controversial or challenging questions during class, gives points for class participation, and involves students in group activities during class)
19. Promotes critical thinking/intellectually stimulating (asks thoughtful questions during class, uses essay questions on tests and quizzes, assigns homework, and holds group discussions/ activities)
20. Provides constructive feedback (writes comments on returned work, answers students' questions, and gives advice on test-taking)
21. Punctuality/manages class time (arrives to class on time/early, dismisses class on time, presents relevant materials in class, leaves time for questions, keeps appointments, and returns work in a timely way)
22. Rapport (makes class laugh through jokes and funny stories, initiates and maintains class discussions, knows student names, and interacts with students before and after class)

(continued)

Table 1 (continued)

23. Realistic expectations of students/fair testing and grading (covers material to be tested during class, writes relevant test questions, does not overload students with reading, teaches at an appropriate level for the majority of students in the course, and curves grades when appropriate)
24. Respectful (does not humiliate or embarrass students in class, is polite to students [says thank you and please, etc.], does not interrupt students while they are talking, and does not talk down to students)
25. Sensitive and persistent (makes sure students understand material before moving to new material, holds extra study sessions, repeats information when necessary, and asks questions to check student understanding)
26. Strives to be a better teacher (requests feedback on his/her teaching ability from students, continues learning [attends workshops, etc. on teaching], and uses new teaching methods)
27. Technologically competent (knows how to use a computer, knows how to use email with students, knows how to use overheads during class, and has a Web page for classes)
28. Understanding (accepts legitimate excuses for missing class or coursework, is available before/after class to answer questions, doesn't lose temper at students, and takes extra time to discuss difficult concepts)

competencies and gives you the opportunity to rate the importance of each of them in your course. The TGI generates an instant report that summarizes the goals that you rated as "essential," "very important," "important," or "unimportant" and allows you to compare your responses with those of thousands of other teachers.

The results of the TGI – and your reflections on it – should clarify what you want your students to learn and thus help you to plan your courses accordingly. For example, if you think it is important for your students to develop critical thinking skills, you will probably plan a course that allows them to critique and debate the validity of research results. If you want to give students collaborative learning experiences, you might plan to have them work in teams to summarize research articles or solve course-related problems. If you simply want to assure that students understand the terms and concepts you present in the course, you will probably create exams and class activities that test those skills.

The goals for your course will also be influenced by the role it plays in your department and on your campus. Is it a prerequisite for other courses and, if so, what are they? What courses, if any, are prerequisites for yours? Is your course part of a specialized sequence? Awareness of what your students should already know will help you establish a starting point and determine the appropriate level for your class presentations, activities, and reading assignments. Knowing what your department or institution expects students to learn in your course will also help you decide what to cover (and what to skip) and what level of detail is appropriate.

Choosing Course Materials

Once you have established the goals for your course, the next task is to decide which learning materials you want your students to use. In the United States, Canada, and

some countries in Europe and elsewhere, this involves choosing a textbook; in other countries, it involves creating a list of readings. Whatever the case, if you have not taught the course before, begin the selection process by reexamining the materials you learned from when you took the course yourself, and then review the materials previously assigned by your local colleagues. You can also explore the readings chosen by teachers at institutions similar to yours by visiting their departments' home pages and then following links to the relevant online syllabi. At the website of the Society for the Teaching of Psychology (STP), you will find additional reading lists on the Project Syllabus page at the Office of Teaching Resources in Psychology (OTRP) (https://bit.ly/2CYYsBd). Rating forms and other sources of advice about choosing textbooks are also available (e.g., Bernstein, Frantz, & Chew, 2020; Weimer, 2013b).

There are plenty of options if you want to use reading materials other than, or in addition to, a textbook, including sets of readings that can be assembled in custom-designed course packets from companies such as CoursePackets.com, Cognella, and XanEdu. You can create books of reading through sources such as the American Psychological Association's Custom Course Books (https://bit.ly/2QB46gf), and you may also be able to find additional resources through the websites of the European Federation of Psychology Teachers' Associations. If you wish to assign downloadable material, be sure that you understand relevant national and international copyright laws and restrictions that may apply (Davis, 2009; Hilton, 2003).

As you select your course materials, keep track of the total number of pages you plan to assign. Don't underestimate your students' abilities, but be reasonable. A comprehensive reading list might seem ideal at the beginning of the term, but it may not serve your goals if, in the context of all their other courses, students will not have time to read everything you assign, let alone think deeply about it (Davis, 2009).

Creating a Syllabus

Psychology teachers in some countries do not provide students with a syllabus, or course outline, but this is standard practice in North America and elsewhere. Consider doing so even if it is not traditional where you teach, because a syllabus has considerable value in promoting communication with your students. Distributing a syllabus on the first day of class (or on a course website beforehand) shows that you are organized and have other attributes seen in effective teachers, including being prepared and enthusiastic. A well-constructed syllabus serves as a preview and road map of the course and tells students what they can expect from you and what you will be expecting of them. Creating a syllabus can help you, too, because it forces you to think carefully about many details – including class projects, guest speakers, quiz, exam, and term paper assignments and deadlines, missed-deadline and make-up exam policies, and the like – that might otherwise slip through the cracks until students ask about them.

When deciding what to include on your syllabus, err on the side of completeness. The more information about the course you provide, the fewer questions you will have to answer in class and the easier it will be to refer students to the syllabus. The Project Syllabus website mentioned earlier contains numerous sample syllabi and a link to "Pointers for Preparing Exemplary Syllabi." As you will see there, your syllabus should include at least the following information:

1. The name, number, and title of your course (e.g., Psychology XXX, Cognitive Psychology)
2. The days, time, and location of class meetings (e.g., MWF, 10 a.m., room XX, Psychology Building)
3. Your name, office address, and how to contact you (if you include your personal phone number, indicate the hours during which calls are welcome)
4. Your scheduled office hours (these may not be traditional in your country, but they provide yet another way to communicate caring about your students)
5. The name(s), office location(s), phone number(s) or email addresses, and office hour(s) of anyone who will be helping you teach the course
6. A brief summary of the course and your goals in teaching it. For example:

This course offers an introduction to the more applied areas of psychology, including research methods, developmental psychology, learning and memory, thinking and intelligence testing, health psychology, personality, psychological disorders and their treatment, and social psychology. Throughout the course, you will be encouraged to develop your ability to think critically about psychology and about topics outside of psychology. You will get much more out of the lectures and discussions if you complete the assigned readings before each class.

7. A list of all required and recommended readings and other materials, along with information about whether, and where, any of these materials can be found on reserve in the library or elsewhere.
8. A list of what will occur at each class meeting, along with the readings or other assignments to be completed before each meeting.
9. A description of *exactly* how student performance will be evaluated and how final grades will be determined. List the number of exams and quizzes, whether they will be essay, multiple- choice, short-answer, or whatever, the number of items on each, how much each will contribute to the final grade, and whether grades will be affected by class attendance and participation.
10. A list of your course policies and rules of etiquette. These can include things such as "Please enter quietly if you come to class late," "No eating or drinking in class, please," "Late assignments will incur a 50 percent penalty," "Silence all mobile phones," and the like. In short, spell out everything you do and do not want to happen in class, and the consequences of rule violations. Some of these policies will be unfamiliar to your students, so don't leave them guessing, or discovering them the hard way.

Setting Up Your Grading System

Systems for evaluating student performance on course assignments and for arriving at final grades vary widely across the world, but there is one universal truth: most students care at least as much about how they will be graded as about what they are learning. There is no single best grading system, but there are some "golden rules" of grading that effective teachers everywhere tend to follow.

First, grading systems should be *accurate*, meaning that course grades reflect each student's level of performance as measured by clear criteria. Second, grading systems should be *fair*, and just as important, they should be *perceived* as fair. Your students should be confident that all those whose total scores, or percentage of available points, fall within certain ranges will receive certain grades. Third, grading systems should be *stable*, meaning that the system described at the beginning of the course is not subject to unannounced, unpredictable, or repeated changes.

Following these "golden rules" will make it easier to follow a final one, namely, that grades should be *defensible*. Your grading system should allow you to explain and justify – to students or anyone else who has a right to ask – how and why each student's grade was determined. If you heed these basic rules, you will find teaching less stressful, not only because your students will know what to expect, and thus be less likely to argue about grades, but also because you will be far less vulnerable to charges of capricious grading.

Types of Grading Systems. Assuming that – as is true in some places – you are not required to have a fixed distribution of grades in your course, the first step in setting up your grading system is to decide whether to use a norm-referenced system (also referred to as "grading on a curve"), a criterion-referenced system (also called "absolute" or "standards of excellence" grading), or some combination of the two.

Norm-referenced grades can be assigned using a planned distribution in which students who are, say, in the top 10 percent of the distribution of points earned get As; the next 20 percent get Bs, the next 40 percent get Cs, the next 20 percent get Ds, and the bottom 10 percent get Fs. Notice that, in this system, all possible grades will be assigned, but the actual number of points associated with each grade will vary from class to class, depending on how well the best students do. *Criterion-referenced* grades are assigned individually, regardless of the performance of any other student, or the class as a whole. The simplest form of criterion-referenced grading gives an A to anyone who earns, say, 90 percent of the points available in the course, or on a particular assignment; a B to those earning, say, 80–89 percent; and so on.

The advantages of criterion-referenced grading are that (1) students are evaluated on an absolute scale determined by the instructor's definition of what constitutes mastery of course material, (2) final grades indicate the degree to which students achieved that mastery, and (3) because students are not competing against each other, they tend to be more cooperative (Ory & Ryan, 1993). Potential disadvantages of criterion-referenced grading include the fact that it can be difficult to determine what criteria are valid in a given course, especially when you are teaching it for the first time. For example, is it reasonable to expect students to achieve at the 90 percent

level, given the difficulty of the material? If no one reaches that level, will you be comfortable assigning no As?

Norm-referenced grading has the advantage of rewarding students whose academic performance is outstanding relative to the class. It can also prevent grade distortions when, for example, even the best students perform poorly because a test or other assignment was flawed in some way. In such cases, the best of the poor performances would still earn As, whereas under a criterion-based system, everyone might receive an F. Norm-referenced grading can, however, lead to some unfortunate consequences, especially when there is little variability in the performance of a given class. Under such a system, even if all your students earned at least, say, 80 percent of the points available, some of them would still receive Cs, Ds, and Fs. And even if none of your students scored above 50 percent on any graded assignment, some of them would still get As, Bs, and Cs. In these (thankfully rare) cases, anyone unfamiliar with the characteristics of the class in question could easily be misled about the meaning of norm-referenced grades (Ory & Ryan, 1993).

Hybrid grading approaches are designed to exploit the strengths of both norm-referenced and criterion-referenced systems. In a modified norm-referenced system, for example, the benchmark for assigning grades is not based strictly on the overall point distribution (e.g., wherein the top 10 percent get A grades) but on the *average score* of the best students in the class. To establish this benchmark, the teacher calculates the mean of the scores earned by the top 10 percent of all students. If there are 50 students in the class, for example, the benchmark would be the mean score earned by the top five students. To earn an A, students would have to earn at least 95 percent of the benchmark, earning a B would require 85 percent of the benchmark, a C would require 75 percent of the benchmark, and so on. This hybrid system (a) allows all students to earn an A if they do well enough, (b) does not penalize students for poorly designed evaluation instruments, and (c) requires a high absolute level of achievement, not just a high relative standing within the class, to earn a high grade, and (d) can be used for any graded assignment, whether it be a quiz, an exam, or total points at the end of the term.

Evaluating Student Learning

Effective teachers link their grading systems to their course objectives and goals for student learning (Astin & Antonio, 2012; Suskie, 2018), a link that has been described as "teaching what you are grading and grading what you are teaching" (Walvoord & Anderson, 2010). This does not mean that you should teach only what will be on your exams but that you should evaluate students on the most important content in your courses. Further, your evaluations should ideally contribute to the learning process, helping students to discover what they do and do not yet know and what skills they have and have not yet developed (Brookfield, 2006).

Evaluation can be done in many ways and at various points in time. Graded or ungraded quiz and exam scores, comments on draft versions of term papers or research plans, and other kinds of evaluations that take place during a course provide

formative feedback that comes in time for students to use it to improve their performance. End-of-course evaluations such as scores on final exams, term papers, and research reports provide *summative feedback* that tells the story of what a student learned – as measured by those evaluative instruments. Overall, the greater the number of evaluative components that go into determining a final grade, and the more varied those components are, the more valid the final grade is likely to be (e.g., Davis, 2009; Suskie, 2018; Svinicki & McKeachie, 2014; Walvoord & Anderson, 2010).

Tests and Quizzes

The most commonly employed option for evaluating student performance is the written test and, its briefer cousin, the written quiz. These can be constructed in essay, short-answer, or multiple-choice formats.

Essay and short-answer tests can be constructed relatively quickly, they provide an assessment of students' writing ability, and they can present tasks that require high level analysis of course material, including problem-solving skills and complex thinking (Erickson, Peters, & Strommer, 2006). Essay tests can be scored using analytical or global quality methods (Ory & Ryan, 1993). The *analytical scoring method* is usually easier to defend when students raise challenges. It requires that you to write an "ideal answer," also known as a *grading rubric*, that contains specified elements with predetermined point values. You then compare each student's essay to the ideal answer and award points according to which, and how many, specified elements are present (Ory & Ryan, 1993). In the *global quality* scoring scheme, you assign a score to each student based on either the total quality of the response relative to other student responses or in relation to your own criteria (Ory & Ryan, 1993).

The main disadvantage of essay and short-answer tests is that they take an enormous amount of time to evaluate systematically. Before deciding on the essay or short-answer format, therefore, estimate how much time it will take to grade each question, increase that estimate to be on the safe side, and multiply the result by the number of students in your class. Then multiply that figure by the number of tests to be given in the course, and decide whether the resulting time commitment is realistic in light of your other academic responsibilities.

If the time required for grading essay or short-answer tests is likely to be unmanageable, consider using a multiple-choice format for some or all student performance evaluations. Multiple-choice tests completed on paper forms can be quickly scored by optical scanners, and those completed on a computer can be scored electronically and then downloaded into a computer-based gradebook. In addition, the difficulty level and other information about each multiple-choice item's performance can be assessed by item analysis programs available through most exam scoring software.

Among the disadvantages of multiple-choice tests are that they take a long time to write and an even longer time to write well (Jacobs & Chase, 1992; Ory & Ryan,

1993). Further, no matter how careful you are, some items may be misunderstood, interpreted in unexpected ways, or vulnerable to double meanings, all of which can confuse students and lead them to make inquiries during the test and raise challenges afterward. One way to minimize these problems, and also to spread out the item-writing workload, is to write two or three multiple-choice items immediately after each class period, when the material and students' reactions to it are fresh in your mind (e.g., Erickson & Strommer, 1991). This strategy helps ensure that all important material covered in class is also covered on the exam. It might also result in higher quality items that are more closely linked to your learning goals, because you will be concentrating more intensely on each item's wording, clarity, accuracy, and difficulty level than might be the case during a last-minute item-writing marathon.

Regardless of the format you choose, analyze your tests and quizzes using a *table of specifications* (Jacobs & Chase, 1992; Ory & Ryan, 1993; see Table 2). Each row of this table should represent one concept, phenomenon, principle, theory, or other content elements to be tested. Each column should represent a cognitive skill to be demonstrated, such as defining terms, comparing concepts, applying principles, analyzing information, and the like. Each of the table's cells thus represents the intersection of a particular bit of course content and the level of skill being tested. You can use this table to plan the content and level of the items you are about to write (or choose from a test-item bank). If you have already written or chosen a set of items, enter a digit representing each item into the cell that best represents its content and level. Tests and quizzes need not assess every possible concept at every possible cognitive level, but the resulting pattern of entries will tell you how well the test or quiz covers the lectures and assigned readings and at what level.

You may want to consult references on item-writing (e.g., Bernstein, Frantz & Chew, 2020; Jacobs & Chase, 1992; Ory & Ryan, 1993) before drafting your items. Also, before duplicating or posting any test or quiz for distribution, have it reviewed for typographical errors, double meanings, and other problems by an experienced colleague and also by someone who can read it from the perspective of a student.

Table 2 A sample table of specifications. This small table of specifications was created to plan a ten-item quiz on the principles of learning. Notice that, here, three items test basic knowledge (definitions), three more test deeper understanding, and four test students' ability to apply what they know about the concepts tested. Many teachers create tables like this one using Bloom's revised taxonomy of cognitive skills (Anderson & Krathwohl, 2001; Bloom, Englehart, Furst, Hill, & Krathwohl, 1956; Jacobs & Chase, 1992)

		Cognitive skills	
Content	Knowledge	Comprehension	Application
Classical conditioning	1	1	2
Shaping			1
Reinforcement	1	1	
Observational Learning		1	
Latent learning			1
Cognitive processes	1		

Writing Assignments

Making writing assignments will help your students to improve their writing and will help you to better evaluate their knowledge of course material. In small classes, these might include a ten-page term paper, whereas larger enrollments might only permit one-page assignments that can be graded relatively quickly using the analytical approach mentioned earlier. You might assign several of these "mini-papers" to cover a broad spectrum of course material.

As with exams and quizzes, your writing assignments should be tied to your learning objectives, and as already noted, it is essential that you develop grading rubrics for each of them. Discussions of rubrics, and templates for constructing them, are available elsewhere (e.g., Reddy & Andrade, 2010; Stevens & Levi, 2012).

Applying the Psychology of Learning to Student Evaluation

The fact that most students forget most of what they hear or read in a course within a few weeks or months (e.g., Landrum & Gurung, 2013; Rickard, Rogers, Ellis, & Beidleman, 1988) is consistent with the results of laboratory research on human learning and memory. While there is no way to ensure that students will forever remember everything you teach in your courses, research in cognitive psychology suggests that certain evaluation procedures might help students to retain course information longer and in a more useable format (Ambrose, Bridges, DiPietro, Lovett, & Norman, 2010; Bjork, 1979, 1999).

Massed versus Distributed Practice. Long-term retention is improved when students engage in numerous study sessions (*distributed practice*) rather than when they "cram" during a single session on the night before a quiz or exam (*massed practice*) (e.g., Bjork, 1979; Cepeda et al., 2006; Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013). With this in mind, consider giving enough exams and quizzes that students will be reading and studying more or less continuously. You can also promote distributed practice by including a few unannounced quizzes. If you are concerned that such quizzes will create a stressful classroom atmosphere, consider instead sprinkling your lectures with quick questions about both current content and content from earlier in the course.

Retrieval Practice: The Testing Effect. There is overwhelming evidence that the more students practice retrieving information, especially in different settings, the more they will learn and the longer they will retain it (Dunlosky et al., 2013; Karpicke & Blunt, 2011; Roediger & Karpicke, 2006a, 2006b; Rohrer & Pashler, 2010). This *testing effect* occurs even when students receive no feedback on the results of the test (Roediger & Karpicke, 2006a). In other words, frequent testing can promote learning as well as assess it.

Desirable Difficulties. Robert Bjork (2013) coined the term *desirable difficulties* to describe training conditions that are difficult for the student, appear to impede performance during training, but result in long-term retention. He argues that to be most effective in the long run, we should intertwine the concepts to be learned rather

than teaching them in separate blocks. If material is important, says Bjork, it should not just be "covered" and then dropped; it should be presented throughout the course and interwoven with other concepts.

You can take advantage of desirable difficulties by giving cumulative exams and quizzes that require students to retrieve information about past as well as current course material. Similarly, you can teach your content as an integrated whole, rather than in separate units. So, in a course on biological psychology, you could present neurotransmission as it relates not only to neural communication, but also to learning, drug effects, stress and coping, and mental disorders. Creating desirable difficulties requires doing things (like cumulative testing and shuffled reading assignments) that students may not like at first, but as in the case of frequent testing, they will accept and even appreciate your research-based methods if you describe them as pathways to long-term retention of information.

Prompt Feedback. Learning is enhanced when students receive prompt and constructive feedback that helps them to identify and correct their mistakes (e.g., Chickering & Gamson, 1987, 1991; Dinham, 1996). If many days, or even weeks, pass between taking a test and receiving feedback on it, an important learning opportunity will have been missed. At the very least, you should describe and discuss in class the most frequently missed items (on multiple-choice and short-answer tests) and the most misunderstood concepts on essay tests. You should also offer to have individual discussions with students about their exam results and/or provide an opportunity for students to work individually or in groups, in class or outside of class, to find the correct answers and correct their mistakes. This process can help them learn more from the exam they just took and may improve their scores if they are tested on the same material later.

The First Day of Class

Once you have established your goals for teaching your course, selected your teaching materials, set up your grading system, and created your syllabus, it is time to prepare for the first day of class. The anxiety that you might feel on that day can stem partly from the fact that you are going to be meeting a group of strangers. Once you and your students get to know one another and begin to form a working relationship, class sessions typically become much less stressful, and a lot more enjoyable and productive. Luckily, there are some things you can do both before and during the first class meeting to hasten this process.

Exploring Your Classroom

Visit each of your classrooms at least a week before the new term begins to familiarize yourself with their layouts and systems. If a room is normally locked, be sure you have the key. Locate the switches for lighting, projection screens, temperature, and anything else that you will need to control during class. Does

everything work properly? Is there a podium or table for your notes and other teaching materials and equipment? If you will want to darken the room during audiovisual presentations, be sure that window shades work properly. If you plan to use a chalkboard, dry-erase board, or flip chart, confirm that there is chalk or felt-tipped pens, and just in case, plan to bring your own supply. Finally, be sure that there is enough seating in the room to accommodate all the students enrolled in your class. Contact the appropriate campus office to report any malfunctions or request any items you will need.

If a room is equipped with audiovisual devices, be sure you know how they operate and where spare parts such as projection bulbs are located. If you are not sure about any of these things, contact the campus office that services instructional equipment, and while you are at it, ask for information about Internet passwords, any lock codes needed to access stored equipment, and the like. If you will be using your own projector, laptop computer, or other equipment, check the location of electrical outlets, and decide if you will need an extension cord, perhaps with multiple receptacles. If you plan to stream videos from the Internet, make sure the campus network is fast enough to do so. If it isn't, put the videos on your computer's hard drive. If possible, try out all your presentation slides, videos, and audios to be sure that no hidden problems will interfere with your presentation.

Establishing Yourself as a Teacher

The first day of class will be your first opportunity to shape your students' perceptions of you, to establish your rules for the course, and to illustrate the kind of classroom environment you want to create. Some teachers assume that students will like them better if, on the first day of class, they merely distribute a syllabus, describe the course's grading system, make a reading assignment, and dismiss the students early. However, this strategy can give the impression that you don't see class time as particularly valuable, that you may not care much about teaching (or them), and that they can expect you to do most of the talking while they sit passively and listen. Like other kinds of first impressions, once formed, these perceptions and expectations are difficult to change (Kassin, Fein, & Markus, 2017). Here are some tips for establishing a more desirable impression.

First, arrive early, with everything you will need for the entire class period, including sample copies of the reading materials you will be assigning. Put your name, and the name and number of your course, on the chalkboard, overhead projector, or computer screen. While waiting for class to begin, greet and chat with students as they enter. These simple things suggest that you care enough about your teaching to show up on time, fully prepared.

Second, once class begins, introduce yourself, and perhaps say a few words about your background, your academic and scholarly activities, maybe even your hobbies and other outside interests. This information helps to establish you as a person as well as a teacher. You might also let your students know how to address you, as Dr., Mr., Miss, Mrs., Ms., Professor, or perhaps by your first name.

Third, distribute your syllabus and go over its most important elements. Once you have covered the course basics, ask for questions by saying something like "OK, what questions do you have for me?" This way of asking conveys your expectations that there will be questions and your interest in answering them. Simply saying "Any questions?" suggests that you hope there are not any. After you invite questions, scan the classroom so as to further demonstrate that you want students to respond. Be sure to wait long enough for students to work up the nerve to raise their hands (believe it or not, some students will be as nervous in addressing you as you are in addressing them!). If no one asks a question, have a few in mind to get the ball rolling, for example, "You might be wondering if the exams are cumulative (or whether attendance is mandatory, or what to do if you have to leave class early, or how to choose a paper topic, or where the lab is)." Then give the answers in a friendly way. In short, if you want your students to feel free to ask questions throughout the course, offer them genuine opportunities to do so on the first day, and then reward them when they respond.

Finally, you can encourage your students to participate actively in your course by planning something for the first day that requires them to do so. For example, if your class is small, ask the students to say a few words about themselves and their interests, perhaps including something about themselves that is unique, or about why chose to take your class. In larger classes, you can ask students to form small groups in which they introduce themselves and their interests, and possibly exchange contact information that could help establish study groups. You can also simply ask students to call out the topics they are most interested in learning about, and then write each one on the classroom display and say a few words about whether, and when, those topics will be covered in the course (McKeachie, 1986).

Another good first-day option is to present some course content. There may not be much time left to do this, but a short preview of particularly interesting material can whet the students' appetite for what you will be covering later. For example, you can present a case study, problem, or controversy and ask the students to form small groups to analyze, solve, or discuss it (Erickson & Strommer, 1991). You might even administer a short quiz designed to test students' knowledge of – or misconceptions about – the content of your course. If you have two minutes left at the end of the first class, ask your students to jot down and turn in their reactions. This little exercise not only shows that you care what your students think, it also provides you with immediate feedback on how the first day went (McKeachie, 1986).

Whatever else you do in that first class, be sure to bring it to an organized conclusion by assuring the students that you will never keep them past the end of the time period, and reminding them of the topic of the next class and the assignment(s) they are to complete for it.

Developing Your Teaching Style

Just as no two personalities are exactly alike, no two teachers have exactly the same teaching style. In developing yours, you might at first find yourself imitating some of your favorite teachers. That strategy might help to some extent, but in the long run it

is best to simply be yourself. Being genuine is a good first step in developing your teaching style, but you will also need to have skill at presenting lectures, asking and answering questions, generating class discussion, and conducting classroom demonstrations and activities.

Effective Lecturing

Becoming a good lecturer takes some effort, and though there is no guaranteed prescription for achieving this goal, there are some guidelines (e.g., Smith & Valentine, 2012).

First, decide what content you want to cover in each lecture, and then prepare more material than you will need. Overpreparation will assure that you have plenty to talk about if nervousness causes you to speak too quickly, or if some part of the lecture is not working and you decide to skip ahead. Although you should *prepare* a lot of material, don't try to *cover* too much of it in any single class (Zakrajsek, 1998). Remember that students don't learn through lectures alone. They also learn through reading, talking to teachers and fellow students, and doing lab work, class projects, papers, and other activities. So don't feel obligated to rush your lectures in order to cover everything in detail. If you try to do so, you will be exhausted, and your students will be overwhelmed. There is evidence that most students can only comprehend three to five major points in a 1-hour lecture, and four to five major points in a 90-minute lecture (Lowman, 1995). The best lecturers tend to concentrate on those few important points and to present them in several ways to assure that everyone understands.

Second, as you prepare your notes, keep in mind that students' attentiveness is usually high at first but fluctuates over time (Bunce, Flens, & Neiles, 2010; Davis, 2009; Johnstone & Percival, 1976; McKeachie, 1999; Risko et al., 2012; Wilson & Korn, 2007). With this in mind, consider organizing each class period in four to five segments of ten to fifteen minutes each, and plan something near the end of each segment that is likely to recapture attention. For example, pose a problem, a dilemma, a mystery, or a question or assign a class activity. Audiovisual stimuli help hold attention, too, so don't depend on your words alone to hold students' attention. A compelling photo or a dramatic video can bring even day-dreaming students back to class. Remember, also, that you can lose students' interest if you use unfamiliar terms without defining them and showing how they are spelled. To help hold your students' attention as you lecture, scan the room and make eye contact with everyone from time to time. Sprinkle your lectures with vivid, offbeat, or funny examples of, or analogies to, the concept or phenomenon or principle that you are describing. Despite your best efforts, though, you will have a few students who appear bored, fall asleep, or leave class early. This happens to even the best teachers, so don't be too hard on yourself when it happens to you.

Third, as you lecture, be sure that all your students can see and hear you. In larger classes, or if you have a soft voice, you may need a microphone. Don't sit or stand where you can't be seen from certain seats. Moving around the room a bit as you

lecture can help you to hold attention, but be aware that rapid or repetitive pacing can be distracting.

It is ideal to present each lecture as a fascinating, spontaneous story, without depending heavily on notes or appearing to give a canned speech. Reaching this level of comfort and smoothness takes time and practice, however, and some people are better at it than others. To help reach your own full potential, present some or all of your lectures to an audio or video recording device, and then review the recordings to identify any mannerisms, vocal patterns, disfluencies, or repetitious words or phrases that might be distracting or annoying. Then repeat all or part of each lecture to see if you can improve it. You will be amazed at how much easier it is to give a lecture in class when it is not the first time you tried it.

As you lecture, keep checking on your students' reactions. Do they appear to understand you or are they confused? Are they "with you" or are they thinking of other things? Students' facial expressions and posture will tell you a lot about their level of interest and involvement, but show your students you care how the lecture is going by stopping now and then to ask something like "OK, what terms have I used that you don't understand?" or "What questions do you have at this point?" or "Am I going too fast? Too slow?" You might also ask a question about something you just talked about; the quality of the students' responses will help you to assess how clearly you presented that content.

Finally, bring each lecture to an organized close by summarizing its key points or asking the students to do so. And don't hesitate to generate some curiosity about your next lecture by offering a "tease" about something it will contain. "Next time, we'll find out how many of you are colorblind."

Answering and Asking Questions

If your lecturing style lets students know that you truly want them to understand the course material, they will inevitably ask questions. The way you handle those questions can solidify or undermine your relationship with the class. First, listen carefully to each question – without interrupting – to be sure you understand it. Second, reward students for asking questions by looking at them in a friendly way as they speak and perhaps telling them that they have asked a good question. Third, if you can answer the question, do so. If not, don't be afraid to say that you are not sure of the answer. Above all, don't demean the questioner or make up an answer. Instead, promise to provide an answer at the next class or via email to the group. Then keep your promise! Students don't expect you to know everything there is to know about psychology, and they will appreciate your openness and willingness to find answers for them. (You can also encourage the class to do their own research on particularly interesting questions, but don't make it mandatory; otherwise students will perceive the assignment as punishment for asking questions.)

Some new teachers hesitate to ask questions of their students in class for fear that no one will respond. You can minimize this problem by (a) asking questions that students will need some time to think about and (b) as mentioned earlier, giving them

enough time (at least five seconds) to think of a response. If your "wait time" is too short, the students will not only find it hard to answer your question but may get the message that you don't really want them to try. It is ideal if all students generate a response, even if they don't verbalize it (Abel & Roediger III, 2018). You can promote this level of engagement by asking everyone to jot down an answer and perhaps giving them a minute or so to share their answer with a classmate before you ask a volunteer to respond. Comparing answers with another student first may make it easier for even relatively shy students to speak up.

Promoting Class Discussion

Like other classroom skills, learning how to generate discussion of course material takes some practice. Here are just a few guidelines (for more details, see Bernstein, Frantz, & Chew, 2020, and Forsyth, 2003).

First, if discussions of particular topics are planned for certain class sessions, tell your students what reading or other preparation is required. You might also want to hand out a list of questions on which discussion will focus or assign students to write a "one-minute paper" about the discussion topic immediately beforehand to ensure that they have given it at least a minimal amount of thought.

Second, let your students know if there are to be discussion rules – such as about raising hands before speaking. If highly charged topics are to be discussed, you will also want to explain that there is no place in class for racist, sexist, homophobic, or other ad hominem remarks.

Third, begin each discussion with a clear focus. For example, you might start by asking students to comment on or analyze a reading assignment, a newspaper story, a controversial idea, a case study, or a clinical interview. You can pose a specific question about this material, or just ask students to react to it. As the students begin to speak, encourage their participation by nodding your head, making eye contact with the speakers, and, especially in large classes, rephrase what they have said to be sure everyone heard it. If others do not join in, ask the class to react to what has been said. Keep track of key points by silently writing them where everyone can see them, but once the discussion develops, don't feel obligated to respond to every comment – or at least leave plenty of "wait time" before doing so. If you don't dominate the situation, your students will eventually begin to respond to each other. If you fill brief silences with a mini-lecture, discussion will probably dry up (Brookfield & Preskill, 1999).

Fourth, remember that some discussions start more easily in small groups (Erickson & Strommer, 1991). Thus, you might want to divide larger classes into groups of three to six, have them discuss a topic for a while, and then ask a representative from each group to report on the results and invite reactions from other groups.

Finally, end the discussion a few minutes before the end of class period so that you will have time to clear up any misconceptions or misinformation that might have been created, to summarize the most important points raised, and to suggest additional reading or Internet research that will help students follow up on what they have learned.

Conducting Classroom Demonstrations

Telling students about the course material is important, but the material can be made more memorable if you conduct demonstrations that allow students to experience a concept or phenomenon for themselves. To take just one example, after lecturing about the "blind spot" at the point where the optic nerve exits the human eye, you can take a minute to allow each student to find his or her own blind spot. There are more opportunities than you might think to use demonstrations. Websites associated with many psychology textbooks are filled with ideas and detailed instructions for conducting demonstrations. General tips for using demonstrations can be found in journals such as the Society for the Teaching of Psychology's *Teaching of Psychology,* through its Facebook group, through the PsychTeacher listserv, and by asking colleagues in your department and elsewhere to tell you about demonstrations that they have found useful. Having a large set of demonstrations available can help to maintain student engagement by spicing up and reinforcing the content of virtually every lecture. Just remember to rehearse every new demonstration before trying to use it in class. Procedures that seem simple on paper can be complex and tricky in practice.

Faculty-Student Relationships

Most students will enter your courses with positive expectations about you and with high hopes of enjoying themselves and doing well. These expectations provide the foundation for a good learning experience and a good teaching experience. The suggestions presented so far should help you build on that foundation by offering a well-organized course in a consistent, planful, and caring manner. But as described earlier, your success as a teacher also depends on creating positive, constructive relationships with your students. Let's now consider some suggestions for doing so, and for preventing and dealing with the relationship problems that can arise.

The Ethical Use of Teacher Power

Even if you have never taught before, your students will (correctly) perceive you as having power and authority, if for no other reason than that you will be assigning grades. The power differential that pervades all aspects of your relationship with students is valuable because, for one thing, it allows you to conduct your class according to your plan. Students do not want you to abdicate your authority, but it is important that you do not abuse your power (Keith-Spiegel, et al., 1993; Wilson, Smalley, & Yancey, 2012).

For example, it goes without saying that you should not have romantic relationships with your students. Even when initiated with the best of intentions on both sides, such relationships contain inherently coercive elements that can be harmful to students. Further, once the relationship becomes public (as it eventually will), it will

undermine your relationship with the rest of the class by raising doubts about your character and the fairness of your grading system.

You should also be careful not to inadvertently impose your political, moral, or religious beliefs upon students. It is all too easy to err in this regard, because the views you express in a lecture or discussion will carry the weight of authority, and students may feel coerced to accept them – or even adopt them – on papers and exams, at least.

You should also try to create a classroom atmosphere in which all your students feel accepted and included. For example, use classroom examples that are diverse enough to let your students know that you don't presume they are all born in your country, heterosexuals, members of your dominant ethnic, racial, and religious groups, or of one particular gender. Avoid even well-intentioned remarks or jokes that are likely to be offensive to any subgroup of students. If you plan small group discussions in class, *assign* students to those groups rather than letting them self-select in a way that might be too homogeneous or that excludes certain individuals based on gender, ethnicity, disability, or whatever. On quiz and exam questions, use ethnically diverse names for hypothetical people and make sure that the examples and terms used are gender balanced and familiar to everyone. For example, students who are not Jewish might be clueless about a test item that refers to a Seder.

Dealing with Student Requests, Complaints, and Problems

Inevitably, some of your students will come to you with requests, excuses, and problems. How well you are prepared for these encounters and how you handle them is another aspect of your teaching style. Remember, first, that you do not have to accommodate every request or accept every excuse in order to preserve good relationships with your students. If students perceive that you make your decisions carefully, fairly, and reasonably, even an unwelcome outcome need not harm faculty-student rapport. In fact, dealing with students in a firm but fair fashion can go a long way toward reinforcing students' perceptions of you as a caring teacher.

Student Disabilities. In the United States, at least, more students than ever are reporting special needs related to learning disabilities, attention deficit hyperactivity disorder, and the like (Vickers, 2010). Accommodating these students typically involves allowing them extra time or providing a distraction-free location in which to take quizzes or exams. Your department administrators and the campus rehabilitation center (if you have one) can provide advice and guidelines about how best to respond to requests from these students.

Excuses. When students offer excuses for failing to show up for a class, a quiz, or an exam, or missing the deadline for a term paper or other assignment, take a firm, rational, but caring approach. Accept the excuse, but before offering a make-up exam or other accommodation, ask for verification using a form like the one shown in Table 3. This authoritative solution tends to reduce the number of students who offer phony excuses (Bernstein, 1993).

Table 3 Excuse documentation form. You can use a form like this to help students establish the legitimacy of their excuse for missing an exam. You can create versions of this form for dealing with excuses relating to any academic situation

Application for a Psychology [course number] Make-Up Examination
Fall/Spring/Summer Semester, 20xx
[Your Name Here]

After completing the information requested below and obtaining the necessary signature(s), please return this form to me. Once I have verified the accuracy of the information you have provided, and confirmed that your reason for requesting a make-up exam is acceptable in accordance with the policies of my course, the department, and the university, an alternate exam date, time, and place will be arranged. All make-up exams will take place after the regular exam.

Important note: Unless you are requesting a make-up exam because of a last-minute illness or emergency, this form must be turned in at least 5 days before the date of the regularly scheduled exam. If you miss this deadline you will not be eligible for a make-up exam.

Please provide the following information:
I, _____certify that I am unable to take the Psychology xxx exam scheduled for_____ , 20xx because (please be clear and specific when describing your reason and be sure to obtain a confirming signature):

[Leave about half a page blank here]

Your name:_____ Your signature: _____
Your ID# _____ Your phone number: _____
Your e-mail address:_____
Confirmed by (please print name):_____
Signature: _____
Position or relationship to student:_____
Telephone number:_____
E-mail address:_____

Complaints About Test Items. When you return multiple-choice tests or quizzes in class, some students who are unhappy with their scores may shout out questions about items they missed and argue with you about correct answers. This process can create chaos in the classroom and tension in the teacher. To prevent such conflict and maximize student learning, rank the test's items from most-missed to least-missed. Then, after returning the results, tell the class that you will now review the items, beginning with the most-missed. Present the items in large font on your computer display or transparencies, one at a time, and explain why each correct answer is correct. For short quizzes, review all the items. For longer exams, review the 10 to 20 most difficult items – or whatever number you have time to cover; this will address the vast majority of questions; you can invite students to discuss other items during your office hours or by appointment.

Table 4 A test item review form. Allowing students to submit forms like this one not only eases tension and emotional distress during in-class test reviews, but it lets students know that you will seriously consider their questions, comments, and alternative interpretations about item grading

Request to Review Grading of An Exam Item

Name_____ Student ID #_____
Instructor's Name_____ Section_____
Item #_____ Test Form_____

I believe that response option ____ should also be considered correct because:

[Leave page blank here]

I found supporting evidence on page(s) _____ in the textbook or in the following source below.

If students have questions that are easily answered, answer them. If they raise more involved objections, ask them to fill out and return a test item review form such as the one shown in Table 4. Tell them that you will read all submitted forms and announce your final decisions in class. Typically, only students with well thought-out complaints will take the time to complete these forms. If you decide that a complaint is valid, announce that you will give credit to everyone whose response deserves it. If you reject an appeal, announce that, too, and if you have time, jot a brief response on all review request forms before returning them to the students.

A different version of the same system can be used to handle complaints about grades on essay exams or other written assignments. Here, too, it is important to give your students time to reflect on their grade and your reasons for assigning it before they raise objections (Svinicki, 1998). So ask students to carefully re-read their written work and your comments about it and then – if they still feel you have been unfair or misguided – to resubmit the work along with a detailed statement indicating why you should reconsider your grading decision. Requiring students to carefully evaluate both their writing and your response to it tends to prevent complaints by students who become aware of the mistakes or misstatements that led to the grade they received. At the same time, reading the reasons that students offer when requesting an improved grade gives you the opportunity to thoughtfully reconsider your earlier judgment and to correct any mistakes you might have made.

Dealing with Student Behavior Problems

Some students occasionally display annoying, disruptive, irresponsible, or otherwise inappropriate behavior. The most common of these "classroom incivilities" involve talking during lectures, making disparaging remarks, failing to silence cell phones,

using phones to talk or text, and the like (Bjorklund & Rehling, 2010). It is important to deal with inappropriate behaviors as soon as you detect them and to make your first steps firm, but not extreme (Knepp, 2012). For example, in the case of inappropriate talking, you can ask the offending student if something you said was unclear, you can stroll over near the offender while lecturing, and you can ask individual offenders to discuss the situation with you after class (see Bernstein, Frantz, & Chew, 2020, Goss, 1995, and Mann et al., 1970 for a more detailed list of potential classroom problems and how to deal with them).

Whatever tactics you choose, remember that the way you deal with one student's problematic behavior can have a ripple effect on other students' perceptions of you (Kounin, 1977; Silvestri & Buskist, 2012). If your methods are reasonable and measured, they will solidify your standing as an authoritative, but fair, teacher. If they are excessive, capricious, or abusive, you run the risk of alienating the entire class. If you are in doubt about how to handle particular classroom behavior problems, underreact the first time, and then seek advice from more experienced colleagues about what to do next. If you encounter students whose behavior suggests a mental disorder or other serious problem, seek advice from your campus student counseling center or a local mental health facility.

Assessing and Improving Your Teaching

Your teaching skills will improve with practice, especially if you collect and pay attention to evaluative feedback on how you are doing. Like the evaluations you give your students, evaluations of your teaching can be *summative* (e.g., end-of-term evaluations designed to "grade" your teaching) or *formative* (e.g., comments from students or others designed to guide your teaching during the term).

Evaluations by Students

The third or fourth week of classes is an ideal time to ask your students to evaluate your course and your teaching because you will probably have given and returned a quiz or some other graded assignment. Their evaluations need not be elaborate or time-consuming. You can simply ask students to list three things they like about the class so far, three things they don't like, and three things they would like to see changed.

To promote honest and thoughtful responses, be sure to explain that the evaluations are anonymous and that you will use the feedback to improve *this* course as well as your teaching skills in general. You won't want to, or be able to, follow every student recommendation and correct every perceived fault, but after you have read and considered these formative evaluations, take a few minutes in class to thank your students for their comments, discuss their feedback, and explain any changes you will (or won't) be making.

Even the best teachers leave some students dissatisfied, and because new teachers, especially, tend to agonize over negative comments, it is a good idea to review formative comments systematically. Categorize them as Positive Comments, Negative Comments, Suggestions for Improvement, and Factors Beyond My Control. A comment that "lectures are interesting" would go in the Positive Comments category, while "quizzes are difficult" could go in either the Negative Comments or Positive Comments category, depending on how much you want to challenge your students. "I hate having class at 8:00 a.m." would go into the Factors Beyond My Control category. "I wish you would keep a lecture outline on the screen" would go in the Suggestions for Improvement category. Now count the number of students making each kind of statement. If only one person claims the pace of class is too slow, the problem probably lies with that student, so during your class discussion of student feedback, ask whoever made that comment to visit you. If *all* but one student finds the class boring, you will want to consider ways to address the problem. When in doubt about how to respond to student feedback, discuss it with an experienced colleague or someone at your campus instructional development office, if you have one.

Evaluations by Colleagues

Constructive feedback from more experienced teachers can be of enormous benefit in improving your teaching, so consider asking a colleague to visit one or two of your classes. Meet with the visitor beforehand to describe your goals for the class to be observed, outline and explain the methods you will be using, and identify the aspects of your teaching that you are most interested in improving. After the visit, arrange another meeting to discuss the visitor's observations.

Self-Evaluation

Watching yourself teach is another valuable way to evaluate your teaching (Centra, 1993), so you might want to arrange to make periodic videos in your classes. Watch these videos in private first, then in the company of a colleague or teaching expert in order to identify your teaching strengths and weaknesses and discuss ideas for improvement.

Integrating Teaching into Your Academic Life

If this chapter has left you wondering how you will find the time to deal with everything that it takes to be an effective teacher while still meeting all the other academic and nonacademic obligations you face, you are not alone. No matter how much time you plan to devote to teaching responsibilities, it will be less than you need. New teachers, especially, will find that it always takes longer than they think it

will to plan class sessions, meet with students (or answer their email), grade exams or papers, set up and administer record-keeping systems, accommodate students with special needs, and the like. As you gain experience and build your arsenal of teaching materials, methods, and systems, teaching will become progressively easier and less time-consuming, though it will never be effortless or without occasional problems.

Teaching can best be integrated into your academic life by following a few basic rules. First, save everything. Don't delete or discard grade rosters, exams, quizzes, papers, student correspondence, the results of student evaluations, or anything else related to a course for at least 2 years and perhaps longer. Having these materials handy may save a lot of time and trouble when a student asks to see a hand-scored paper from the last term or claims that there was an arithmetical error on a final grade.

Second, keep good records about how each class went, not only in terms of what worked and what didn't, but also whether you were ahead or behind the schedule listed in the syllabus. Spend a few minutes after each class marking your class notes to remind yourself what to do, and what not to do, the next time you teach that material or conduct that demonstration. Also note how much material you actually covered during each class, so you can compare it to what you had planned to cover. These few minutes of *post-mortem* reflection can help you to avoid mistakes and fix problems, thus saving time when you start planning the next version of the course. In addition, create a physical or electronic folder for each class session and use it to store the notes, presentation slides, and other materials that you used, or plan to use, for that session. These folders can also be used to file newspaper articles, notes on good examples or interesting applications of concepts, and any other information that will help you to update and freshen each class session the next time it comes around.

Third, create your own versions of the forms presented above for dealing with student excuses and complaints about test items. Developing form-driven routines for handling these matters will not only save you time but also reduce the number of ad hoc decisions that you have to make each time you teach.

Fourth, build a directory of useful phone numbers, email addresses, and websites that will help you to refer students to various kinds of help, to campus services and facilities, and to sources of additional course-related information. Having these handy – and keeping copies on your smartphone as well as at the office – can make discussions and email exchanges with students more efficient and more valuable.

Finally, don't try to re-invent the wheel. Whatever you encounter in your courses – whether it is students calling you at midnight or dogs mating in your classroom – has probably already happened to other teachers. So find a senior mentor in your department, and take advantage of that person's knowledge and expertise. By doing so, and by taking to heart the other advice offered in this chapter, your teaching experience can be one of the most rewarding aspects of your academic life. And if it is, remember to do what you can to pass on what you have learned to those new teachers who, with sweaty palms and hopeful hearts, will follow in your footsteps.

References

Abel, M., & Roediger, H. L., III. (2018). The testing effect in a social setting: Does retrieval practice benefit a listener? *Journal of Experimental Psychology: Applied, 24*(3), 347–359.

Ambrose, S., Bridges, M., DiPietro, M., Lovett, M., & Norman, M. (2010). *How learning works: Seven research-based principles for smart teaching*. San Francisco, CA: Jossey-Bass.

Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching and assessing: A revision of Bloom's taxonomy.* New York, NY: Longman Publishing.

Angelo, T., & Cross, K. P. (1993). *Classroom Assessment techniques: A handbook for college teachers* (2nd ed.). San Francisco, CA: Jossey-Bass.

Astin, A., & Antonio, A. (2012). *Assessment for excellence: The philosophy and practice of assessment and evaluation in higher education* (2nd ed.). Lanham, MD: Rowman & Littlefield with American Council on Education.

Beers, M., Hill, J., Thompson, C. A., & Tran, P. (2014). La formation dans l'enseignement de la psychologie pour les étudiants de cycle supérieur: les compétences essentielles pour les nouveaux enseignants (Graduate training in the teaching of psychology: Essential skills for new instructors). *Pratiques Psychologiques, 20*(3), 181–196.

Bernstein, D. A. (1993). Excuses, excuses. *APS Observer, 6*, 4.

Bernstein, D. A., Frantz, S., & Chew, S. L. (2020). *Teaching psychology: A step by step guide* (3rd ed.). New York, NY: Routledge.

Bjork, R. A. (1979). An information-processing analysis of college teaching. *Educational Psychologist, 14*, 15–23.

Bjork, R. A. (1999). Assessing our own competence: Heuristics and illusions. In D. Gopher & A. Koriat (Eds.), *Attention and performance XVII. Cognitive regulation of performance: Interaction of theory and application* (pp. 435–459). Cambridge, MA: MIT Press.

Bjork, R. A. (2013). Desirable difficulties perspective on learning. In H. Pashler (Ed.), *Encyclopedia of the mind*. Thousand Oaks, CA: Sage Reference.

Bjorklund, W., & Rehling, D. (2010). Student perceptions of classroom incivility. *College Teaching, 58*(1), 15–18.

Bloom, B. S., Englehart, M. D., Furst, E. J., Hill, W. H., & Krathwohl, D. R. (1956). *Taxonomy of educational objectives: The classification of educational goals*. New York, NY: David Mckay.

Boice, R. (1996). *First-order principles for college teachers: Ten basic ways to improve the teaching process*. Boston, MA: Anker.

Boysen, G. A. (2011). The prevalence and predictors of teaching courses in doctoral psychology programs. *Teaching of Psychology, 38*, 49–52.

Brookfield, S. (2006). *The skillful teacher: On technique, trust, and responsiveness in the classroom* (2nd ed.). San Francisco, CA: Jossey-Bass.

Brookfield, S., & Preskill, S. (1999). *Discussion as a way of teaching: Tools and techniques for democratic classrooms*. San Francisco, CA: Jossey-Bass.

Bunce, D., Flens, E., & Neiles, K. (2010). How long can students pay attention in class? A study of student attention decline using clickers. *Journal of Chemical Education, 87*, 1438–1443.

Buskist, W., Tears, R., Davis, S. F., & Rodrigue, K. M. (2002). The teaching of psychology course: Prevalence and content. *Teaching of Psychology, 29*, 140–142.

Buskist, W. (2013). Preparing the new psychology professoriate to teach: Past, present, and future. *Teaching of Psychology, 40*(4), 333–339.

Centra, J. (1993). *Reflective faculty evaluation: Enhancing teaching and determining faculty effectiveness*. San Francisco, CA: Jossey-Bass.

Cepeda, N., Pashler, H., Vul, E., & Wixted, J. (2006). Distributed practice in verbal recall tasks: A review and quantitative synthesis. *Psychological Bulletin, 132*(3), 354–380.

Chew, S. L., Halonen, J. S., McCarthy, M. A., Gurung, R. A. R., Beers, M. J., McEntarffer, R., & Landrum, R. E. (2018). Practice what we teach: Improving teaching and learning in psychology. *Teaching of Psychology, 45*, 239–245.

Chickering, A., & Gamson, Z. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin, 39*(7), 3–7.

Chickering, A., & Gamson, Z. (1991). Applying the seven principles for good practice in undergraduate education. *New Directions for Teaching and Learning, 47*, 1–69.

Davis, S., & Huss, M. (2002). Training graduate teaching assistants. In S. F. Davis & W. Buskist (Eds.), *The teaching of psychology: Essays in honor of Wilbert J. McKeachie and Charles L. Brewer*. Mahwah, NJ: Erlbaum.

Dinham, S. (1996). What college teachers need to know. In R. Menges & M. Weimer (Eds.), *Teaching on solid ground* (pp. 297–313). San Francisco, CA: Jossey-Bass.

Dunlosky, J., Rawson, K., Marsh, E., Nathan, M., & Willingham, D. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest, 14*(1), 4–58.

Erickson, B., & Strommer, D. (1991). *Teaching college freshmen*. San Francisco, CA: Jossey-Bass.

Erickson, B., Peters, C., & Strommer, D. (2006). *Teaching first-year college students*. San Francisco, CA: Jossey Bass.

Feldman, K. (1998). Identifying exemplary teachers and teaching: Evidence from student ratings. In K. Feldman & M. Paulsen (Eds.), *Teaching and learning in the college classroom* (2nd ed., pp. 391–414). Boston, MA: Pearson Custom Publishing.

Forsyth, D. (2003). *The professor's guide to teaching: Psychological principles and practices*. Washington, DC: American Psychological Association.

Goss, S. (1995). Dealing with problem students in the classroom. *APS Observer, 8*(26-27), 29.

Hativa, N. (2013). *Student ratings of instruction: Recognizing effective teaching*. Charleston, SC: Oron Publications.

Hilton, J. (2003). *You can run but you cannot hide: What every teacher needs to know about copyright*. Presented at the National Institute on the Teaching of Psychology, St. Petersburg Beach, FL.

Jacobs, L., & Chase, C. (1992). *Developing and using tests effectively*. San Francisco, CA: Jossey-Bass.

Johnstone, A., & Percival, F. (1976). Attention breaks in lecture. *Education in Chemistry, 13*, 49–50.

Junn, E. (1994). Experiential approaches to enhancing cultural awareness. In D. Halpern (Ed.), *Changing college classrooms* (pp. 128–164). San Francisco, CA: Jossey-Bass.

Karpicke, J., & Blunt, J. (2011). Retrieval practice produces more learning than elaborative studying with concept mapping. *Science, 333*, 772–775.

Kassin, S., Fein, S., & Markus, H. R. (2017). *Social psychology* (10th ed.). Boston, MA: Cengage Learning.

Keeley, J. W., Ismail, E., & Buskist, W. (2016). Excellent teachers' perspectives on excellent teaching. *Teaching of Psychology, 43*(3), 175–179.

Keeley, J., Smith, D., & Buskist, W. (2006). The teacher behaviors checklist: Factor analysis of its utility for evaluating teaching. *Teaching of Psychology, 33*, 84–91.

Keith-Spiegel, P., Wittig, A., Perkins, D., Balogh, D., & Whitley, B. (1993). *The ethics of teaching: A casebook*. Muncie, IN: Ball State University.

Knepp, K. (2012). Understanding student and faculty incivility in higher education. *The Journal of Effective Teaching, 12*(1), 32–45.

Kounin, J. (1977). *Discipline and group management in classrooms*. Huntington, OH/New York, NY: Robert E. Krieger Publishing Company.

Landrum, R. E., & Gurung, R. A. R. (2013). The memorability of introductory psychology revisited. *Teaching of Psychology, 40*(3), 222–227.

Landrum, R. E., & Stowell, J. R. (2013). The reliability of student ratings of master teacher behaviors. *Teaching of Psychology, 40*, 300–303.

Lowman, J. (1995). *Mastering the techniques of teaching* (2nd ed.). San Francisco, CA: Jossey-Bass.

Lowman, J. (1998). What constitutes masterful teaching. In K. Feldman & M. Paulsen (Eds.), *Teaching and learning in the college classroom* (2nd ed., pp. 503–513). Boston, MA: Pearson Custom Publishing.

Mann, R. D., Arnold, S., Binder, J., Cytrynbaum, S., Newman, B., Ringwald, B., & Rosenwein, R. (1970). *The college classroom: Conflict, change, and learning*. New York, NY: Wiley.

McKeachie, W. J. (1986). *Teaching tips: Strategies, research, and theory for college and university teachers* (8th ed.). Boston, MA: Houghton Mifflin.

McKeachie, W. J. (1999). *Teaching tips: Strategies, research, and theory for college and university teachers* (10th ed.). Boston, MA: Houghton Mifflin.

McKeachie, W. J. (2001). *McKeachie's teaching tips: Strategies, research, and theory for college and university teachers* (11th ed.). Boston, MA: Houghton Mifflin.

Mervis, J. (2001). Student survey highlights mismatch of training, goals. *Science, 291*, 408–409.

Meyers, S. A., & Prieto, L. R. (2000). Training in the teaching of psychology: What is done and examining the differences. *Teaching of Psychology, 27*, 258–261.

Murray, H. (1997). Effective teaching behaviors in the college classroom. In R. Perry & J. Smart (Eds.), *Effective teaching in higher education: Research and practice* (pp. 171–204). New York, NY: Agathon.

Ory, J., & Ryan, K. (1993). *Tips for improving testing and grading*. Newbury Park, CA: SAGE Publications.

Padilla-López, A., de Souza, L. K., Zinkiewicz, L., Taylor, J., Binti Jaafar, J. L. S., & Rich, G. (2018). *Teaching psychology around the world* (Vol. 4). Newcastle Upon Tyne, UK: Cambridge Scholars Publishing.

Reddy, Y., & Andrade, H. (2010). A review of rubric use in higher education. *Assessment & Evaluation in Higher Education, 35*(4), 435–448.

Rickard, H. C., Rogers, R., Ellis, N. R., & Beidleman, W. B. (1988). Some retention, but not enough. *Teaching of Psychology, 15*, 151–152.

Risko, E. F., Anderson, N., Sarwal, A., Engelhardt, M., & Kingstone, A. (2012). Everyday attention: Variation in mind wandering and memory in a lecture. *Applied Cognitive Psychology, 26*(2), 234–242. https://doi.org/10.1002/acp.1814

Roediger, H., & Karpicke, J. (2006a). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science, 17*, 249–255.

Roediger, H., & Karpicke, J. (2006b). The power of testing memory: Basic research and implications for educational practice. *Perspectives on Psychological Science, 1*, 181–210.

Rohrer, D., & Pashler, H. (2010). Recent research on human learning challenges conventional instructional strategies. *Educational Researcher, 39*, 406–412.

Silvestri, M., & Buskist, W. (2012). Conflict in the college classroom: Understanding, preventing, and dealing with classroom incivilities. In W. Buskist & V. Benassi (Eds.), *Effective college and university teaching: Strategies and tactics for the new professoriate* (pp. 135–143). Los Angeles, CA: SAGE.

Smith, D., & Valentine, T. (2012). The use and perceived effectiveness of instructional practices in two-year technical colleges. *Journal on Excellence in College Teaching, 23*(1), 133–161.

Stevens, D., & Levi, A. J. (2012). *Introduction to rubrics: An assessment tool to save grading time, convey effective feedback, and promote student learning* (2nd ed.). Sterling, VA: Stylus Publishing.

Suskie, L. (2018). *Assessing Student Learning: A Common Sense Guide* (3rd ed.). San Francisco, CA: Jossey-Bass.

Svinicki, M. (1998). Helping students understand grades. *College Teaching, 46*, 101–105.

Svinicki, M., & McKeachie, W. (2014). *McKeachie's teaching tips: Strategies, research & theory for college and university teachers* (14th ed.). Belmont, CA: Wadsworth, Cengage Learning.

Teven, J., & McCroskey, J. (1996). The relationship of perceived teacher caring with student learning and teacher evaluation. *Communication Education, 46*, 1–9.

Vickers, M. (2010). Accommodating college students with learning disabilities: ADD, ADHD, and dyslexia. Pope Center on Higher Education. Retrieved from www.popecenter.org/acrobat/vickers-mar2010.pdf.

Walvoord, B., & Anderson, V. J. (2010). *Effective grading: A tool for learning and assessment in college* (2nd ed.). San Francisco, CA: Jossey-Bass.

Weimer, M. (2013a, February 6). Defining teaching effectiveness. *Faculty Focus*. Retrieved from www.facultyfocus.com/articles/teaching-professor-blog/defining-teaching-effectiveness/.

Weimer, M. (2013b). Choosing and using textbooks. *The teaching professor blog.* Retrieved at https://www.facultyfocus.com/articles/teaching-professor-blog/choosing-and-using-textbooks/

Wilson, J. H., Smalley, K. B., & Yancey, C. T. (2012). Building relationships with students and maintaining ethical boundaries. In R. E. Landrum & M. A. McCarthy (Eds.), *Teaching ethically: Challenges and opportunities* (pp. 139–150). Washington, DC: American Psychological Association.

Wilson, K., & Korn, J. (2007). Attention during lectures: Beyond ten minutes. *Teaching of Psychology, 34*, 85–89.

Wimer, D. J., Prieto, L. R., & Meyers, S. A. (2004). To train or not to train; that is the question. In W. Buskist, B. C. Beins, & V. W. Hevern (Eds.), *Preparing the new psychology professoriate: Helping graduate students become competent teachers* (pp. 2–9). Retrieved from: http://teachpsych.org/resources/e-books/pnpp/html/pnpp01.html

Zakrajsek, T. (1998). Developing effective lectures. *APS Observer, 11*, 24–26.

Recommended Readings

Bernstein, D. A., Frantz, S., & Chew, S. L. (2020). *Teaching psychology: A step by step guide* (3rd ed.). New York, NY: Routledge.

Curzan, A., & Damour, L. (2000). *First day to final grade: A graduate student's guide to teaching*. Ann Arbor, MI: University of Michigan Press.

Davis, B. (2009). *Tools for teaching* (2nd ed.). San Francisco, CA: Jossey-Bass.

Forsyth, D. (2003). *The professor's guide to teaching: Psychological principles and practices*. Washington, DC: American Psychological Association.

Royce, D. D. (2000). *Teaching tips for college and university instructors: A practical guide*. Saddle River, NJ: Prentice Hall.

First Principles of Instruction Revisited

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M. David Merrill

Contents

M. D. Merrill (✉)
Utah State University, St. George, UT, USA

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Abstract

First Principles of Instruction were introduced by the author in 2002. He asserted that implementation of these principles promotes effective, efficient, and engaging (e^3) instruction and that failure to implement these principles results in less effective, less efficient, and less engaging instruction. These principles and their corollaries are Merrill's attempt to develop a prescriptive theory of instructional design. He subsequently elaborated these principles and their implementation in several articles since the initial paper. This chapter brings together some of the more important elaborations of this theory including its historical background and rationale, a summary of the *First Principles of Instruction*, levels of instructional strategy, the challenge of measurement for complex problem-solving performance, the *Pebble-in-the-Pond* model for instructional design based on First Principles of Instruction, assessing the quality of existing instruction, and a summary of some of the research exploring the benefits and constraints of applying the *First Principles of Instruction*.

Keywords

Instructional design · Instructional design theory · Instructional content · Instructional interaction · Instructional strategies · Problem-solving · Problem-centered · Tell-show-ask-do · DOidentify · DOexecute

Introduction

As a child, the author's father demonstrated that a beautiful painting could be created using only three colors: red, yellow, and blue. He learned that only a few elements could be combined into complex outcomes. At the end of his undergraduate studies, a class on number theory helped him realize there are many different types of number systems beyond base 10 and that number systems are merely logical systems to help up explain the world around us. In graduate school, a comment by B.F. Skinner provided a guide for the author's professional life. "What I've tried to do," explained Skinner, "is make only a few assumptions and then see how much of human learning we can explain with only these assumptions." The author realized that all the different theories about learning didn't have to agree; that, just like there were many different number systems, there were many different theories of learning; and that, like number systems, these were inventions to help us explain the world. He also realized that just like a painting could be created with only three crayons, effective learning could be explained by combining only a few fundamental elements. Early in his career, it occurred to him that one could build a logical system, a

theory, about instruction. This chapter presents his attempt to build such a theory for instructional design (Merrill, 1994, 2017a, b).

Historical Context and Rationale

In 1972, the invitation to contribute a chapter to Volume 1 of the American Educational Research Association *Annual Review of Research in Education* provided the author with an opportunity to attempt developing a logical system, a theory, about instruction. With one of his first graduate students, Richard C. Boutwell, they proposed a two-dimensional, behavior by content, task classification system. They also proposed a classification of instructional variables for promoting higher cognitive instructional outcomes such as acquiring real-world concepts, e.g., the psychology concepts of positive and negative reinforcement, or executing complex procedures, e.g., putting a dog into a harness for conducting a classical conditioning experiment, or solving a real-world problem, e.g., diagnosing a mentally disturbed client. These constituted their attempt "to make only a few assumptions and then see how [they might be able to unambiguously describe instructional strategies using these classifications]." The remainder of this chapter reviewed instructional research studies using these classifications and instructional variables to describe the instructional strategies involved (Merrill & Boutwell, 1973).

Brigham Young University established an Instructional Psychology PhD program in collaboration with the Instructional Research and Development Laboratory. During the 1970s, many research studies conducted within this PhD program tested hypotheses related to the instructional variables and task classification system identified in Merrill and Boutwell (1973). During this period, BYU was awarded a major research contract from the National Science Foundation to develop a computer-based instruction system called TICCIT, Two-way Interactive Computer-Controlled Instructional Television (Merrill, Schneider, & Fletcher, 1980). The research team agreed to build a system with built-in instructional design based on the instructional variables previously identified. This system was unique in that it implemented learner control not just of content but also of the instructional strategies involved. During this project in consultation with his colleagues, the author attempted to formalize an instructional design theory which was called *Component Display Theory* (Merrill, 1983, 1987a, b, 1994).

Charles Reigeluth published a collection of papers on instructional design theories and models (Reigeluth, 1999), in order to provide an overview on the many kinds of instructional theories that instructional designers need to be familiar with to select the best approach or combination of approaches that they felt were appropriate for their particular instructional situation. The author challenged Dr. Reigeluth suggesting that while these different theories stressed different aspects of instruction and used different vocabulary to describe their model and methods, fundamentally, at a deep level, they were all based on a common set of principles. Dr. Reigeluth kindly suggested that he didn't think that the assumption was correct, but he

challenged the author, "if you feel strongly about it that perhaps you should try to find evidence for that assumption."

The author took the challenge and reviewed these instructional design theories to identify prescriptive principles that are common to the various theories. A second purpose for this review was to determine the extent to which *Component Display Theory* principles were consistent with these prescriptive principles. The result was the publication of the often-referenced paper on First Principles of Instruction (Merrill, 2002a). The author has spent the time since in refining his proposition in a series of papers and chapters on First Principles of Instruction (Merrill, 2006a, b, 2007a, b, 2009a, b, 2013, 2020; Francom, Bybee, Wolfersberger, Mendenhall, & Merrill, 2009; Francom, Wolfsberger, & Merrill, 2009; Mendenhall et al., 2006; Merrill & Gilbert, 2008). In 2013, he published his book, *First Principles of Instruction*, that elaborated these principles, provided a set of suggestions for how these principles might be implemented in various models of instruction, and provided a wide variety of instructional samples that illustrate the implementation of First Principles in a wide range of content areas and at different levels of education including training, public schools, and higher education (Merrill, 2013). In 2020, he wrote a revised edition of this book that simplified the presentation to make it more accessible to interested educators (Merrill, 2020).

Design Issues and Approaches

Instructional Design Theory

Early in his career, the author determined that there is a difference between learning theory and instructional theory. Learning theory is about what the learner does to acquire some knowledge or skill; instructional theory is about what the instructor does to promote acquisition of some knowledge or skill. Learning theory is descriptive in that it explains how learning occurs. Instructional theory is prescriptive in that it prescribes what the instructor does to promote effective, efficient, and engaging (e^3) learning. Instruction is effective to the degree that the learning goals are accomplished by the learner, it is efficient when effective learning occurs in the shortest time possible, and it is engaging when learners demonstrate a desire to learn more. This chapter focuses on instructional design theory and does not attempt to interrelate these two types of theory.

Instructional Goals

There have been many attempts to identify categories of content or knowledge that can be learned from instruction. Bloom (1956) represented one of the earliest attempts to define a taxonomy of cognitive knowledge to be learned: knowledge, understanding, applying, analyzing, evaluating, and creating. Gagne (1965, 1970, 1977, 1985) identified categories of learning outcomes including verbal association, multiple discrimination, concept learning, principle learning, and problem-solving.

Anderson and Krathwohl (2001) identified four kinds of content or knowledge to be taught: factual knowledge, conceptual knowledge, procedural knowledge, and conditional knowledge. The audience for *First Principles* is instructional designers. The author and his colleagues found that these designers, many of whom are not trained in psychology, often found terms like *concept* or *procedure* difficult to understand. After careful consideration, the author and his colleagues decided to use everyday terms that were easier for these practitioners to grasp. Therefore, *First Principles* identified five kinds of content to be taught: *information-about* (factual knowledge), *part-of* (factual knowledge), *kind-of* (conceptual knowledge), *how-to* (procedural knowledge), and *what-happens* (conditional knowledge) (see Table 1 column 1). These categories of knowledge are appropriate for most subject matter areas and are independent of the specific content of the different areas. Most of the cognitive skills in almost all subject matter areas can be described using these five categories of content or knowledge to be learned.

Elements of Content

Content can be represented at two levels: a general *information* level and a specific *portrayal* level (see Table 1 row 1). Information applies to many different situations. Portrayals or examples apply to a specific object or situation. Both levels of representation are necessary for e^3 learning to occur. Too much instruction is information rich but example poor; that is, we provide lots of information that applies to a wide range of situations, but we fail to provide sufficient specific illustrations of the ideas presented by the information. The cells in Table 1 are the specific content elements representing information and portrayals appropriate for each type of content (see Merrill, 2013, Chapter 3).

Instructional Interaction

Instructors can provide opportunities for interacting with the content in four different instructional interaction modes: *Tell*, *Show*, *Ask*, and *DO* (Table 2). The interaction

Table 1 Instructional content

Knowledge outcome	General information	Specific portrayal
Information-about	Facts, associations	NA
Part-of	Name, description	Location of parts with regard to a specific whole
Kind-of	Definition – list of defining property values	Instances – specific examples and non-examples that illustrate property values
How-to	Steps and sequence	Illustrate a specific example of the procedure
What-happens if	Conditions and consequences	Illustrate a specific example of the process

Table 2 Instructional interaction modes

Demonstration	Tell	Show
	Provides information	Provides portrayal
Application	Ask	DO
	Requires recall or recognition of information	Requires using information with a specific portrayal

mode *Tell* presents information to the student. Information can be presented in many ways: speech, text, graphics, animation, and video. The interaction mode *Show* demonstrates portrayals or specific examples of the information. Portrayals can also be demonstrated in many ways: auditory, text, graphics, animation, and video.

The interaction mode *Ask* requires the learner to remember general information. You are familiar with tests that require learners to remember information. Such remember-tests are a primary way to assess student learning. However, *Ask* fails to assess a learner's ability to recognize a new portrayal, perform a new task, or solve a new problem. The interaction mode *DO* requires the learner to apply the general information to a specific object or situation. The interaction mode *DO* enables the instructor to assess a learner's ability to recognize a new portrayal ($DO_{identify}$), perform a new task ($DO_{execute}$), or solve a new problem (see Merrill, 2013, Chapter 4).

Instructional Strategies

When instructional interactions are combined with elements of instructional content, they form *instructional events* (see the cells in Table 3). A set of instructional events for a given type of content comprise an *instructional strategy* for teaching a particular kind of knowledge. Thus, each row in Table 3 identifies an instructional strategy for each type of knowledge outcome (see Merrill, 2013, Chapter 5).

Problem-Solving Model

The study of problem-solving is an important area of psychology, and there had been significant research to investigate how both novices and experts solve problems. This research also investigated how to promote general problem-solving skills in both novices and experts. The model of problem-solving presented here is not an attempt to promote general problem-solving skill but rather an attempt to provide tutorial guidance to help students acquire the skills necessary to solve a specific class of problems important to a given subject matter domain. Relating the learning theory on problem-solving and the instructional prescription for tutoring students in solving a particular class of problems is beyond the scope of this chapter.

A problem-centered approach differs from problem-based learning or case-based learning as they are typically described in the instructional literature (e.g., Savery,

Table 3 Instructional strategies

	Information		Portrayal	
	Tell	Ask	Show	DO
Information-about	Tell associations	Ask associations		
Part-of	Tell name + description	Ask name + description	*Show* location	DO identify location
Kind-of	Tell definition	Ask definition	*Show* examples	DOid identify examples
How-to	Tell steps and sequence	Ask steps and sequence	*Show* specific steps in sequence	DOex execute steps in sequence
What-happens	Tell conditions + consequence	Ask conditions + consequence	*Show* conditions + consequence	Do predict consequence or Do find missing or faulted conditions

2006; Tawfik & Kolodner, 2016). A problem-centered approach is much more structured. It involves presenting a specific whole complex problem to the learners, demonstrating successful completion of the problem, providing information plus demonstration plus application for each of the component skills required by the problem, and then showing learners how these component skills apply to the problem. This is a guided approach to problem-solving as recommended by Kirschner, Sweller, and Clark (2006).

Instructional strategies for the different kinds of knowledge outcomes can be combined to form a model for teaching a specific problem-solving skill (Fig. 1). This problem-solving instructional model was constructed by combining the instructional events previously identified and described into a coherent whole that leads to the ability to solve a given class of problem within a specific subject matter domain. A primary component of problem-solving is a set of *conditions* that when true lead to the desired *consequence* or problem solution. We identified this particular type of problem-solving skill as *what-happens*. This *what-happens* component skill requires learners to predict the consequence from a set of conditions or to find faulted or missing conditions when there is an unanticipated consequence.

In order to identify conditions that lead to a problem solution, learners must be able to determine if the condition shares all the necessary *properties* required to lead to the consequence. This *kind-of* component skill is prerequisite to being able to identify the conditions in a problem-solving situation. When conditions are not adequate or missing, then it is necessary for learners to execute *steps* that modify inadequate conditions or supply the missing conditions required for the consequence or problem solution. This how-to component skill is the third component of a problem-solving strategy. However, learners cannot execute appropriate steps until they are able to recognize those properties that characterize an adequate execution of the step such that it produces the desired condition. This is another *kind-of* prerequisite for a model of problem-solving (see Merrill, 2013, Chapter 6).

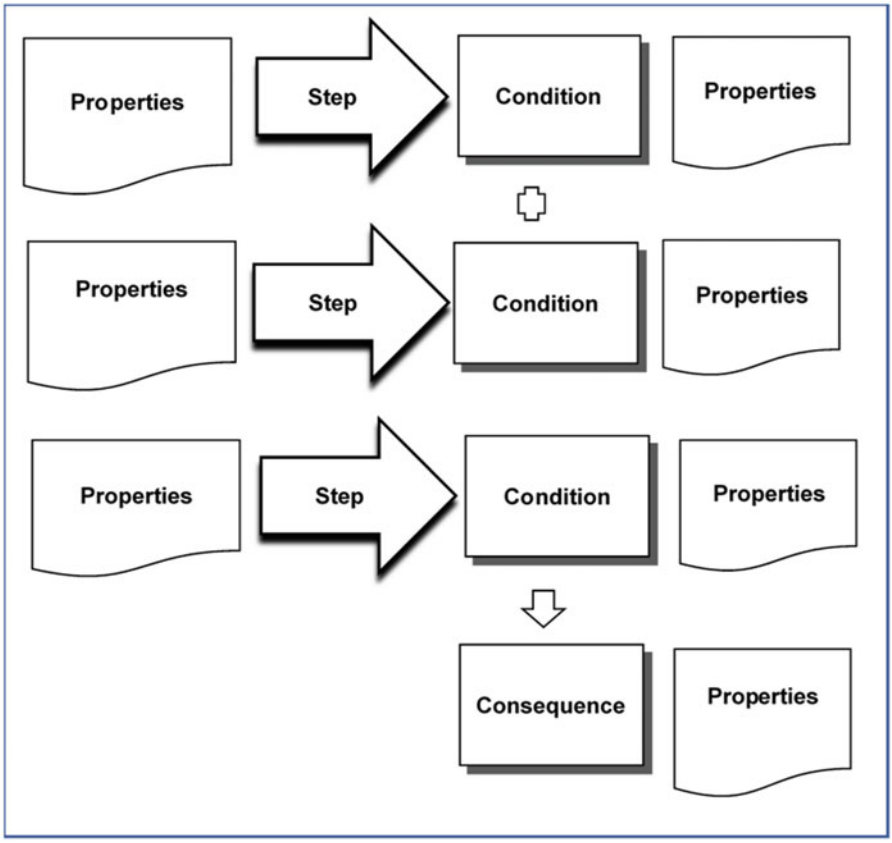

Fig. 1 Content elements for whole problem

A model of problem-solving requires an integrated combination of at least three different component skills: what-happens, how-to, and kind-of. Some conditions may also require prerequisite information-about or part-of component skills. The demonstration and application required to acquire a problem-solving skill therefore involve the prescriptive strategies for each of the component skills involved in the problem-solving task (see Merrill, 2013, Chapter 6).

Helping a daughter with an eating disorder is an example of a problem-solving task. There are certain conditions, when accomplished, that increase the probability that the daughter can overcome her eating disorder. Figure 2 summarizes the elements of this task. K. Melvin, a nurse who works with eating disorders, suggested the conditions that can lead to overcoming the eating problem: the young woman demonstrates the symptoms of an eating disorder, she recognizes the problem, she accepts treatment, and she undergoes a period of recovery. Teaching this complex problem-solving skill requires several different instructional strategies. The instruction focuses on the steps (how-to) that parents should take that lead to each of the

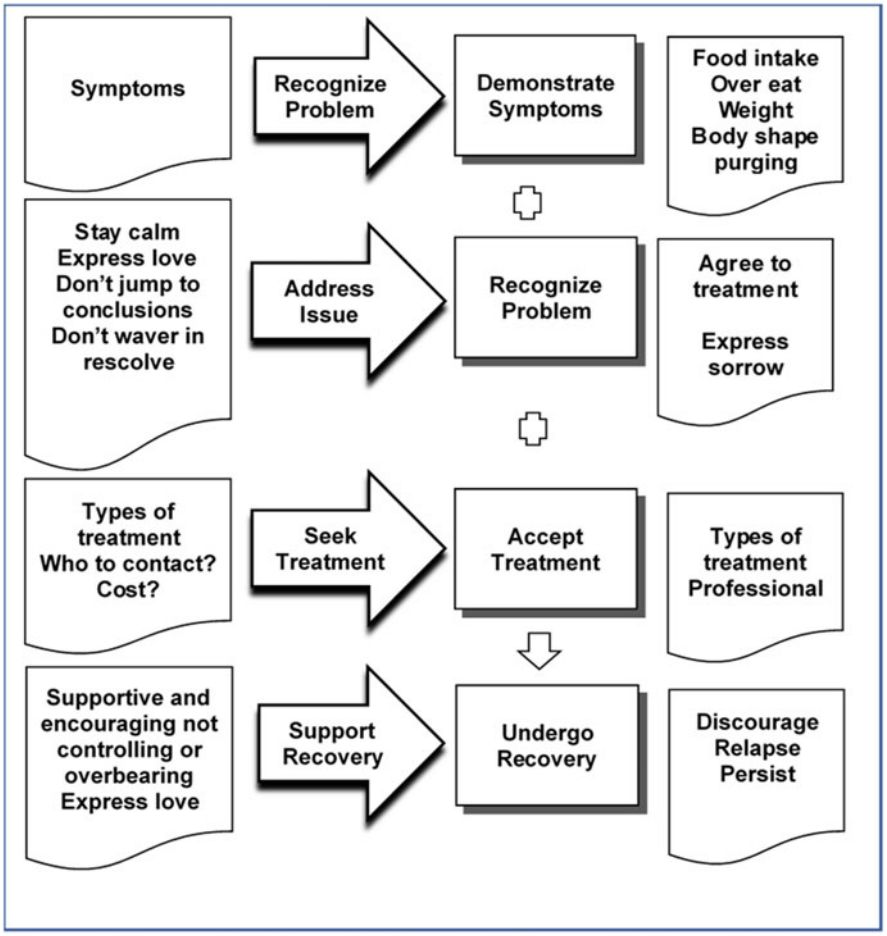

Fig. 2 Content elements for eating disorder treatment

conditions. The step for the first condition is to recognize the symptoms that indicate that there is a problem. But before the parent can acquire this step, they must first learn to recognize the symptoms when they observe them (kind-of). The properties they need to learn to recognize include dramatic reduction of food intake or excessive overeating, preoccupation with weight or body shape, dramatic weight loss or gain, and evidence of purging behaviors (vomiting, fasting, laxative or diuretic use, over-exercising). Once they recognize that there is a problem, the next step is to address the issue with their daughter to help her acknowledge that she has a problem. The properties for this step are challenging to execute and are oversimplified here for brevity but include express love, stay calm, listen, don't jump to conclusions, and more. When the daughter acknowledges that she has a problem, then the next step is to seek professional treatment. The properties for this step

include knowing what types of treatment are available, knowing who to contact, and knowing how to pay for the treatment. When the treatment has concluded, the daughter will be in a period of recovery. The important step for a parent during this recovery period is to provide support. The properties of this support include being supportive and encouraging rather than controlling or overbearing, expressing love, and more.

Helping a daughter overcome an eating disorder is a complex problem-solving task. The presentation here is extremely abbreviated and simplified for our purposes. Hopefully it is sufficient to demonstrate the problem-solving strategy advocated by First Principles of Instruction.

Problem-Progression Model

Finally, problem-solving models for a progression of increasingly complex problem portrayals can be combined into a model for a problem-centered module or course (see Fig. 3; see Merrill, 2013, Chapter 7).

First Principle of Instruction deliberately chose the term problem-centered rather than problem-based. There is a large literature on problem-based learning, but the instructional model from that literature differs with the instructional model illustrated in Fig. 3. (1) In problem-based learning (PBL), learners set their own goals or outcomes; in problem-centered learning (PCL), the instructional outcome is set by the instructional system. For First Principles of Instruction, one of the defining

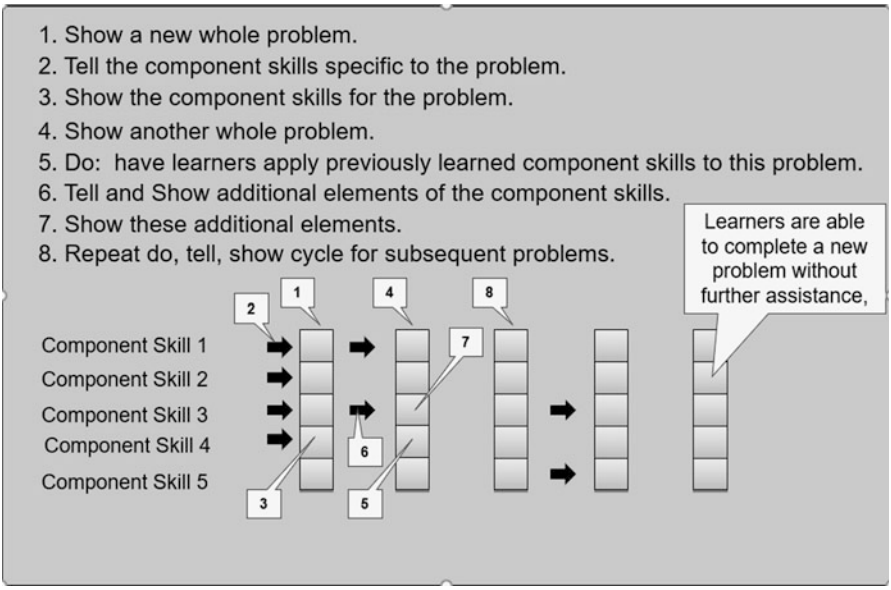

Fig. 3 Model for problem-centered module or course

characteristics of instruction is that it is goal-oriented. (2) In PBL, students seek for information; in PCL, the information required is provided by the instruction. (3) In PBL, problems must be ill-structured; in PCL, problems can be either ill-structured or well-structured. (4) In PBL, collaboration among student is required; in PCL, collaboration is encouraged but not essential. (5) In PBL, student self-assessment and peer assessment are required; in PCL, student or peer assessment is encouraged but not required. (6) Both stress the need for real-world problems. (For a description of problem-based learning, see Savery, 2006.) Problem-based learning too often provides minimal guidance to students, and research has shown that problem-based learning often fails to accomplish its goals because of this lack of guidance. First Principles of Instruction combines a tutorial guided approach to the teaching of problem-solving in specific knowledge domains (see Kirschner et al., 2006).

First Principles of Instruction

As a result of his review of instructional design theories (Merrill, 2002a), he identified five general principles of instruction: the activation principle, the demonstration principle, the application principle, the integration principle, and the problem-centered principle (see Fig. 4). Merrill (2007a) analyzed additional research and instructional design theories that provide more conceptual and empirical support for these principles.

Figure 4 arranges these principles to show a cycle of instruction, to indicate that when activation, demonstration, application, and integration are implemented in that order in the context of solving one or more real-world problems, the instruction is more effective, efficient, and engaging in promoting the acquisition of the ability to solve complex problems or complete complex tasks.

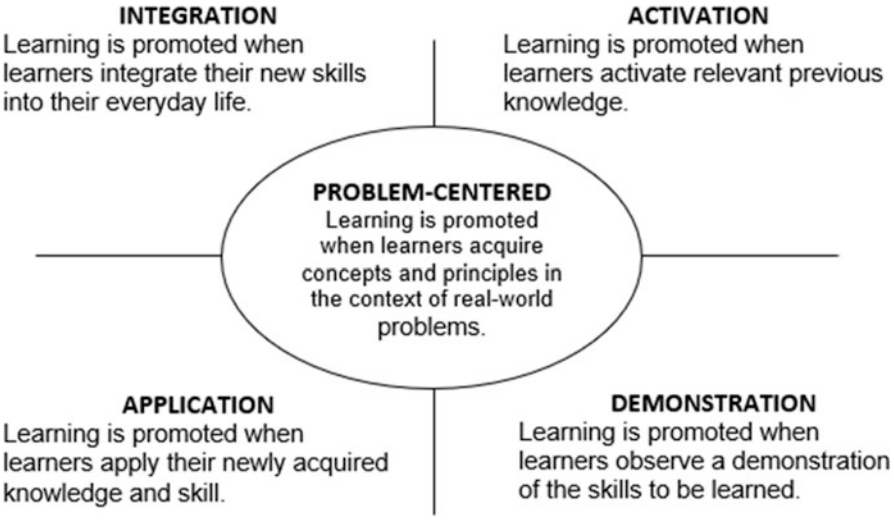

Fig. 4 First Principles of Instruction

These principles are very general and can be applied in many ways in a variety of instructional situations. Merrill (2002a) identified corollaries for each principle that elaborate additional concepts that need to be considered that restrict the implementation of these principles. Merrill (2007a) identified empirical research that supported and elaborated each of these corollaries and some additional considerations. The following paragraphs, quoted from Merrill (2007a, pp. 65–69), present these corollaries as a series of questions. The following paragraphs also cross-reference the First Principles of Instruction corollaries with the instructional design theory described previously. The reader is encouraged to consult Merrill (2002a, 2007a) for details of the supporting instructional design theories and related empirical research that support these principles and their corollaries.

Problem-Centered (Let Me Do the Whole Task!)

- Does the instruction involve authentic real-world problems or tasks?
- In place of a formal objective, does the instruction show the learners the whole task they will be able to do or the whole problem they will be able to solve as a result of completing the instruction?
- Does the instruction teach the components of the problem or task and then help the learner use these components in solving the whole problem or doing the whole task?
- Does the instruction involve a progression of problems not just a single application?

Activation<!–ITerm100--?> (Where Do I Start?)

- Does the instruction direct learners to recall, relate, describe, or apply prior knowledge from relevant past experience that can be used as foundation for the new knowledge? If learners have limited prior experience, does the instruction provide relevant experience that can be used as a foundation for the new knowledge?
- Does the instruction help learners see its relevance and to have confidence in their ability to acquire the knowledge and skill to be taught?
- Does the instruction provide or encourage the recall of a structure that can be used to organize the new knowledge?

Demonstration (Don't Just Tell Me; Show Me!)

- Does the instruction demonstrate (show examples of) what is to be learned rather than merely telling information about what is to be learned?
- Are the demonstrations (examples) consistent with the content being taught? (see Table 3)
  - Are there examples and non-examples for kinds-of (concepts)?
  - Are there demonstrations for how-to (procedures)?
  - Are there visualizations for what-happens (processes)?
- Are some of the following learner guidance techniques employed?
  - Is learner's attention directed to relevant information?
  - Are multiple representations included and explicitly compared?

  - Are learners assisted to relate the new information to the structure that was recalled or provided?
- Are the media relevant to the content and used to enhance learning?

Application (Let Me Do It!)

- Do learners have an opportunity to practice and apply their newly acquired knowledge or skill?
- Are the application (practice) and assessment (tests) consistent with the stated or implied objectives? (see Table 3)
  - Does information-about (factual knowledge) practice require learners to recall or recognize information?
  - Does parts-of (factual knowledge) practice require learners to locate, name, and/or describe each part?
  - Does kinds-of (conceptual knowledge) practice require learners to identify new examples of each kind?
  - Does how-to (procedural knowledge) practice require learners to do the procedure?
  - Does what-happens (conditional knowledge) practice require learners to predict a consequence of a process given condition or to find faulted conditions given an unexpected consequence?
- Is the practice followed by corrective feedback and an indication of progress not just right-wrong feedback?
- Does the application or practice enable learners to access context-sensitive help or provide coaching when they are having difficulty in solving the problem or doing the task? Is coaching gradually diminished with each subsequent task until learners are performing on their own?

Integration (Watch Me!)

- Does the instruction provide techniques that encourage learners to integrate (transfer) the new knowledge or skill into their everyday life?
- Does the instruction provide an opportunity for the learner to publicly demonstrate their new knowledge or skill?
- Does the instruction provide an opportunity for learners to reflect on, discuss, and defend their new knowledge or skill?
- Does the instruction provide an opportunity for learners to create, invent, or explore new and personal ways to use their new knowledge or skill?

Implementation

[Considerations for implementing the instruction, not a First Principle]

- Does the instruction facilitate learner navigation through the learning task?
- Is the degree of learner control appropriate for the learning goals and your learners?
- Is collaboration used effectively?
- Is the instruction personalized?

Evaluation Issues and Approaches

Levels of Instructional Strategy

First Principles of Instruction provide a guidance for designing e^3 instruction. However, these principles can also be used to assess the e^3 potential of existing instruction. The author has had the opportunity to review many courses. Figure 5 illustrates a common instructional sequence that he has observed. You may have also observed this common instructional sequence and may have used a variation of this sequence in your own courses. The course or module consists of a list of topics representing the content of the course. Information about the topic is presented, represented by the arrows. Occasionally a quiz or exercise is inserted to help illustrate the topic, represented by the boxes. The sequence is to teach one topic at a time. At the end of the course or module, there is a culminating final test or in some cases a final project that asks the students to apply the topic to complete some task or solve some problem.

Sometimes this sequence is very effective in enabling students to gain skills or to learn to solve problems. Too often, however, this sequence is ineffective and not engaging for students. The effectiveness of this sequence and the degree of engagement it promotes for learners depend on the type of learning events that are represented by the arrows and the boxes in this diagram.

There are many different types of instructional events (see Table 3). Perhaps the most frequently used instructional event is to present information or *Tell*. This *Tell* can take many forms including lectures, videos, textbooks, PowerPoint presentations, etc. The next most frequent instructional event is to have learners remember what they were told, what they read, or what they saw. This remember instructional event is labeled *Ask*.

If in Fig. 5 the presentation instructional events (arrows) are labeled with *Tell* and the practice or test instructional events (boxes) are labeled with *Ask*, then this module is not going to be very effective and most likely will not prepare learners to

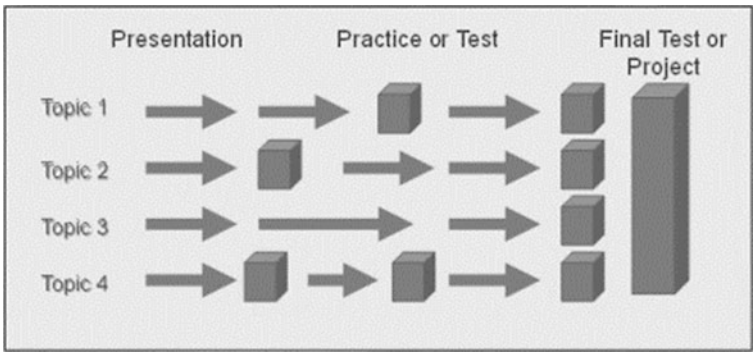

Fig. 5 Common instructional sequence

adequately complete a project using the content taught. If the last event is an *Ask* final exam rather than a final project, then students may be able to score well on the final exam, but this does little to prepare them to apply the ideas taught to the solution of a complex problem or completion of a complex task.

Merrill (2006a) suggested that applying First Principles one by one provides a scaled set of instructional strategies each one more effective than its predecessor. Bernstein (2018) advocates active learning as contrasted with passive learning but indicates that the question is not just "Does active learning work?" but that a more nuanced comparison is required to indicate the relative contribution of active learning. The following scaled set of instructional strategies represents hypotheses that might help provide insight into active learning. Merrill (2006a) presents these scaled strategies as a series of hypotheses. Following are the scaled hypotheses quoted from Merrill (2006a; pp. 272–279).

Figure 5 representing a *Tell-Ask* instructional strategy is considered an information-only level 0 strategy. Even though it is the least effective and engaging instructional strategy, it is the most commonly used (see Barclay, Gur, & Wu, 2004; Margaryan, Bianco, & Littlejohn, 2015; Merrill, 2020).

Hypothesis 1: A level 1 instructional strategy that adds consistent demonstration to a level 0 information-only strategy promotes a higher performance level on complex tasks [Demonstration Principle].

- Hypothesis 1.1: Adding learner guidance to demonstration promotes an additional increment in the level of efficient and effective performance on complex tasks.
- Hypothesis 1.2: Relevant media included in a demonstration promotes learning efficiency, effectiveness, and engagement. Irrelevant media included in a demonstration results in a decrement in learning efficiency, effectiveness, or engagement.

Hypothesis 2: A level 2 instructional strategy that adds consistent application with corrective feedback to a level 1 instructional strategy consisting of information plus demonstration promotes an additional level of performance on complex real-world tasks [Application Principle].

- Hypothesis 2.1: Adding gradually diminishing coaching to application promotes an additional increment in learning efficiency, effectiveness, and engagement.

Hypothesis 3: A level 3 instructional strategy that consists of a problem-centered instructional strategy that includes consistent demonstration and consistent application with corrective feedback promotes an additional increment in the level of performance on problem-solving and complex tasks [Problem-Centered Principle].

- Hypothesis 3.1: Adding task progression to a task-centered instructional strategy promotes an additional increment in learning efficiency, effectiveness, and engagement.

Hypothesis 4: Providing or recalling relevant experience promotes an additional increment in learning efficiency, effectiveness, and engagement when added to a level 1, level 2, or level 3 instructional strategy [Activation Principle].

Hypothesis 5: Providing activation-structure promotes an additional increment in learning efficiency, effectiveness, and engagement when added to level 1, level 2, or level 3 instructional strategies [Activation Principle].
Hypothesis 6: Adding reflection-integration to any of the above instructional strategies promotes an additional increment in learning efficiency, effectiveness, and engagement [Integration Principle].
Hypothesis 7: Adding create-integration to any of the above instructional strategies promotes transfer of the newly acquired knowledge and skill to performance on similar tasks in the real world beyond the instructional situation [Integration Principle].
Hypothesis 8: Adding go-public-integration to any of the above instructional strategies promotes engagement that in turn promotes an additional increment in learning efficiency, effectiveness, and engagement [Integration Principle].

Measurement of Complex Task or Problem-Solving Performance

First Principles of Instruction form an integrated set of prescriptions, which are designed to promote the acquisition of all the knowledge and skill necessary for the learner to complete whole, integrated, complex tasks. The common types of measurement that require learners to remember-what-I-told-you, or to perform individual steps in isolation from the whole procedure, or to make isolated predictions from a limited set of circumstances are not sufficient forms of measurement to get at the complexity of real-world tasks or to assess the contributions of instructional strategies based on these First Principles of Instruction. Adequate measurement of performance in complex real-world tasks requires that we can detect increments in performance demonstrating gradually increased skill in completing a whole complex task or solving a whole complex problem (Merrill, 2006a, p. 269). The literature refers to this form of assessment as competency-based assessment, measuring how the learner can perform real-world tasks and solve real-world problems that they will encounter long after the instruction has ended (Hager, Gonczi, & Athanasou 1994).

Three possible approaches for designing scaled measurement of performance in a complex task are briefly described in Merrill (2006a, p 270).

1. Identify a progression of tasks, arranged so that the number or complexity of operations required for completion increases incrementally. The learner then completes the tasks in succession until [he/she] is unable to complete a task. Appropriate scoring measures the highest level in the progression of tasks at which the student completes the whole task in an acceptable manner.
2. For complex tasks that don't lend themselves to a progression, the learners are given a task with various levels of coaching available. When the learner is unable to proceed, the first level of coaching is provided. If the learner has difficulty, the second level of coaching is provided and so forth until the learner is able to complete the task. The score is an inverse of the amount of successively more

elaborate coaching required for the student to solve the problem or complete the task.

3. [A single staged complex task is involved.] "Each stage toward the complete solution requires an incremental increase in expertise . . . . The student is scored on the number of stages completed toward the problem solution."

Pebble-in-the-Pond Model for Instructional Design

The Pebble-in-the-Pond model of instructional design (Merrill, 2002b, 2007b) was developed to provide a more appropriate approach for designing problem-centered instruction than the more typical ISD model (Dick, Carey, & Carey, 2009). The Pebble-in-the-Pond model of instructional design attempts to overcome of the limitations of the more traditional Instructional Systems Development (ISD) model of instruction design

Principle-Oriented. The steps emphasized in the Instructional Systems Development (ISD) procedure are not what lead to an e^3 learning consequence; rather, it is the products that these steps produce that are the conditions for the desired learning outcomes. The Pebble-in-the-Pond model prescribes the instructional products that are the conditions that result in an e^3 learning consequence.

Content-First. A content-first approach designs with the *portrayals of the content r*ather than with *information about the content*. The Pebble-in-the-Pond approach begins the design process with a portrayal of an instance of the problem learners will learn to solve. This problem is a portrayal of the goal to be accomplished, rather than an abstract description of the problem and its solution.

Problem-Centered. The Pebble-in-the-Pond approach provides a portrayal of an actual problem and a demonstration of its solution that is more easily understood by learners than an abstract statement describing the problem.

Prototyping. The Pebble-in-the-Pond model produces a prototype mock-up that includes actual content material and that allows learner interaction with the instructional strategies, rather than an abstract design document.

In the Pebble-in-the-Pond model (Fig. 6), the pebble is an instance of a real-world problem. The resulting ripples are the elements of instructional design. Ripple 1 is a demonstration and application of one instance of the problem. Ripple 2 is a demonstration or application for each instance in a progression of problems. Ripple 3 is a demonstration and application for each of the component skills required to solve the problems. Ripple 4 is strategy enhancement – a structural framework and/or peer interaction. Ripple 5 is design finalization including interface, navigation, and supplemental materials. Ripple 6 is formative evaluation and revision (see Merrill, 2013, Chapter 11, p. 271).

Designing a problem prototype includes the following activities:

- Identify the content area, primary goal, and learner population for the instruction.
- Identify a class of problems that, when solved, accomplish the learning goal.

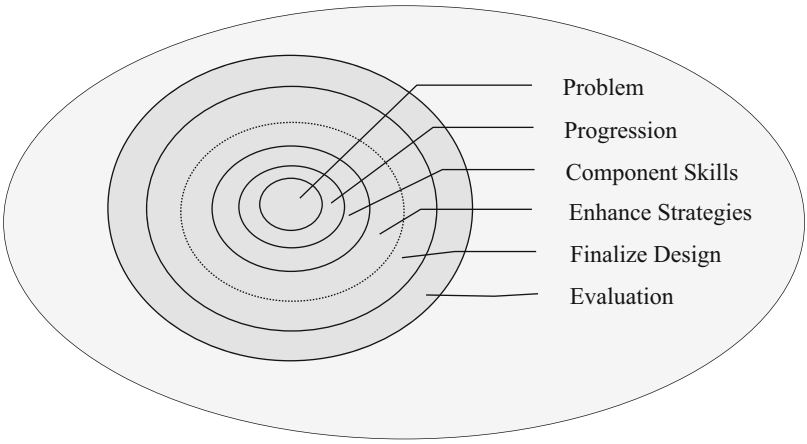

Fig. 6 Pebble-in-the-Pond instructional design

- Collect a sample of problem portrayals.
- Identify the content elements – consequence, conditions, steps, and properties – of your problems.
- Design a prototype demonstration for a portrayal of the problem.
- Design a prototype application for a portrayal of the problem.

Designing a problem progression includes the following activities:

- Design a progression of divergent problem portrayals from simple to complex.
- Identify the component skills required to solve each problem portrayal in the sequence.
- Adjust the progression to include sufficient opportunity for learners to acquire all of the desired component skills.

Designing component skills includes the following activities:

- Determine the distribution of demonstration and application for each condition and step required for the portrayals in the progression.
- Based on this strategy distribution, design demonstration and application instructional events for each condition and step of the portrayals in the problem progression.
- Use the Course Critique Checklist to check the adequacy of the instructional strategies you have designed.

Designing structural framework enhancement includes the following activities:

- Design a structural framework.
- Design guidance based on this structural framework.

- Design coaching based on this structural framework.
- Design reflection based on this structural framework.

Designing peer interaction enhancement includes the following activities:

- Assign peer interaction groups.
- Design peer sharing for activation.
- Design peer discussion for demonstration.
- Design peer collaboration for application.
- Design peer critique for integration.

Finalize your functional prototype by completing the following steps:

- Review your course using the Course Critique Checklist.
- Design missing course components.
- Design a title page and introductory learning events.
- Design a structural framework for guidance and coaching.
- Design peer interaction for use with groups of learners.
- Design overall course structure.
- Design an appealing appearance.
- Design unambiguous navigation and directions.
- Design links or supplemental representations for extensive portrayals.
- Design take-away materials for future learner review.

Take the following steps to **implement adequate assessment**:

- Identify assessment opportunities and design response events for gathering learner performance data.
- Design or revise response events to identify specific data that will be collected.
- Design or modify your functional prototype so that it will collect and save learner performance data.
- Conduct ongoing evaluation to acquire learner interaction and performance data including professional review, one-on-one trials, and small group trials.
- Use your evaluation data to engage in ongoing revision of your functional prototype.

Core Findings and Current Trends

The following papers review the instructional design theories that were reviewed and from which First Principles of Instruction were derived and summarize research support for many of the propositions of First Principles of Instruction: Merrill, 2002a, 2007a; and Merrill, 2013, Chapter 21. Some studies that directly tested First Principles of Instruction are reviewed below (see also

Merrill, 2013, Chap. 22). More recent studies from around the world are referenced at the end of this section.

Are First Principles of Instruction Widely Implemented?

A study by Barclay et al. (2004) analyzed over 1400 web sites in 5 countries that claimed to provide instruction on marriage relationships. A few of these sites implemented the application principle or the demonstration principle, but most of these sites do not implement any of these principles.

MOOCs are a recent very popular way to deliver instruction. How well do these *massive open online courses* implement First Principles of Instruction? Margaryan and her colleagues (Margaryan et al., 2015) carefully analyzed 76 MOOCs representing a wide variety of content sponsored by several different institutions to determine the extent that these courses implemented First Principles of Instruction. There overall conclusion was that most of these courses failed to implement these principles.

The author reviewed 129 syllabi representing courses taught by 52 faculty members at an International American University (Merrill, 2020). The syllabi were divided into four types: inadequate, typical, instructional, and problem-centered. A typical syllabus often includes remember or ambiguous objectives, a topic-centered schedule, *tell-ask* learning assignments, and a final experience or test. An instructional syllabus includes *DO-identify* or *DO-execute* objectives, a task-centered schedule, *DOid* or *DOex* assignments, and a final activity that required completing *DOid* or *DOex* tasks. A problem-centered syllabus includes problem-centered objectives, a problem-progression schedule, assignments involving solving whole problems or doing whole tasks, and a final activity requiring a doing new whole task or solving a new whole problem. A typical syllabus fails to implement First Principles of Instruction; an instructional syllabus implements levels 1 and 2 from First Principles of Instruction; a problem-centered syllabus implements level 3 from First Principles of Instruction. The findings showed that there were 7 inadequate syllabi, 82 traditional syllabi, 27 instructional syllabi, and 13 problem-centered syllabi. The faculty that submitted instructional and problem-centered syllabi had all participated in workshops provided by the author on First Principles of Instruction.

Do First Principles of Instruction Promote More e^3 Instruction?

A study conducted by NETg, a company that sells instruction to teach computer applications, compared their off-the-shelf version of their Excel instruction, which is topic-centered, with a problem-centered version of this course, which was developed based on First Principles of Instruction. Participants in the experiment came from several different companies that were clients of NETg. The assessment for both groups consisted of developing a spreadsheet for three real-world Excel problems.

The problem-centered group scored significantly higher (89% vs 69%), required significantly less time to complete the problems (29 min vs 49 min), and expressed a higher level of satisfaction than the topic-centered group. All differences are statistically significant beyond the .001 level (Thompson Inc., 2002).

A doctoral student at Florida State University completed a dissertation study comparing a topic-centered course teaching Flash programing with a problem-centered course. This study was carefully controlled so that the variable was merely the arrangement of the skill instruction in the context of problems or taught skill-by-skill. The learning events for both groups were identical except for the order and context in which they were taught. On a transfer Flash problem that required students to apply their Flash programing skills to a new problem, the problem-centered group scored significantly higher than the topic-centered group and felt the instruction was more relevant and resulted in more confidence in their performance. The problem-centered group also reported reduced cognitive load for the transfer task. There was no time difference between the two groups for completing the final project (Rosenberg-Kima, 2012).

Frick and his associates developed an online MOOC (massive open online course) on plagiarism based on First Principles of Instruction (see https://plagiarism.iu.edu). Frick and Dagli (2016) assessed the performance of 2016 students in this course to determine the effect of First Principles of Instruction. Students could study all of part of the tutorials in preparation for the test. An assessment instrument enabled students to indicate which First Principles they experienced during their study of the tutorials. The authors provide the following results:

In the graduate student (GR) group, participants who agreed that they experienced First Principles of Instruction and ALT were about five times more likely to be high masters, when compared to those who did not agree that they experienced First Principles and ALT. Similarly, participants in the high school and undergraduate (H&UG) student group who agreed that they experienced First Principles of Instruction and ALT were about three times more likely to achieve high mastery than did those who did not agree. Moreover, based on the relative contribution of each principle, the H&UG test takers relied more on the demonstration and application principles to achieve mastery, while the GR students tended to experience all First Principles of Instruction; in addition, GR students rated their experience of the authentic problems principle and the integration principle more highly than other First Principles for achieving mastery (Ibid p.271).

The authors conclude that:

> These findings are consistent with Merrill's claims and his prediction that First Principles of Instruction promote learning. Results from Study 1 indicate that employing First Principles of Instruction in the design of MOOCs is likely to yield high-quality instruction and satisfaction with MOOCs, as well as to promote what students learn within MOOCs.

The conclusion that can be drawn from these studies of First Principles of Instruction is that courses based on First Principles do facilitate learning effectiveness, efficiency, and learner satisfaction.

Following is a sample of research studies that implemented First Principles of Instruction in a wide variety of subject matter content and in a number of different countries.

Emamiyan et al. (2016). Ardebil Medical University, Tehran, nursing students divided into experimental and control groups. The experimental group that received instruction that implemented First Principles of Instruction performed better than the control group in both recall and application.

Jalilehvand (2016). Tehran Iran – high school boys. A biology class that implemented First Principles of instruction was compared to a "conventional method" group. Findings indicated that students of the experimental group were better than the control group students in terms of four components of creativity.

Jghamou et al. (2019). University Hassan II de Casablanca. ELECTRE 1 is a method for selecting among various training alternatives. In this approach, the corollaries of First Principles of Instruction are the criteria applied to each pair of training alternatives to determine if they are equivalent or if one is better than the other. This decision tool is then used to select the best training alternatives for two large companies.

Lo and Hew (2017). University of Hong Kong. First Principles of Instruction was used to design two flipped classrooms in mathematics. Significant learning gains are reported for both groups.

Lo, Lie, and Hew (2018). University of Hong Kong. First Principles of Instruction were used to design flipped classrooms. The levels of student achievement were improved in Chinese language, mathematics, and physics.

Nelson (2015). Brigham Young University. Three essential reading texts for museum educators were reviewed to the extent that they included First Principles of Instruction.

Truong, Elen, and Clarebout (2019). Hanoi University, Vietnam. Developed a coding scheme to use to review the extent to which courses implement First Principles of Instruction. They applied this instrument to the analysis of an intensive English language course.

Tu and Snyder (2017). Santa Monica College and Nova Southeastern University. A blended college-level statistic course was designed guided by First Principles of Instruction. The course promoted conceptual understanding in terms of literacy, reasoning, and thinking statistically.

Yorganci (2020). Ataturk University, Turkey. Three courses, e-learning, blended learning, and flipped learning, versions of a mathematics course were designed using First Principles of Instruction. The flipped learning group's achievement scores were higher than the other groups.

Are First Principles of Instruction Useful to Evaluate Existing Instruction?

Collis and Margaryan (2005a, b) used First Principles of Instruction as a foundation to develop assessment criteria to measure the quality of 60 corporate training courses

for a multinational company. They used their First Principles instrument for formative evaluation when courses were being developed and for post-course evaluation for those already developed. They concluded First Principles could "serve as an evaluation framework for quality improvement of training oriented towards business needs and workplace tasks" (p. 734).

Frick and his associates (Frick, Chadha, Watson, Wang, & Green, 2008; Frick, Chadha, Watson, Wang, & Green, 2009; Frick, Chadha, Watson, & Zlatkovska, 2010a, b; Frick & Dagli, 2016; Frick, Watson, Cullen, & Han, 2002) designed a student evaluation questionnaire that had student indicate whether the course being evaluated included First Principles of Instruction. The correlations all show that the extent to which First Principles are included in a course correlates with student rating of instructor quality and their rating of satisfaction with the course. Students also spent more time on task and were judged by their instructors to have made more learning progress when the courses involved First Principles of Instruction.

Tanner (2015) explored "a validation of a First Principles-based rubric as a quality standard, which can be used to measure inherent course quality based on its pedagogical design. This study answers Merrill's (2009a) stated need to verify these principles in a wide variety of settings, audiences, and subject matter domains. This study also sought to examine relationships among accepted measures of expertise and course developers' application of Merrill's (2002a, b, 2009a, 2013) *First Principles of Instruction* to provide further insight into instructional designer expertise, and the possibility of validating existing measures of that expertise" (Tanner, 2015, p. 3).

Tanner found significant correlations between application of First Principles of instruction and self-assessed knowledge of instructional design concepts which included adult learning, multimedia theory, instructional design theory, and level of instructional design knowledge. He found that First Principles of Instruction could be used in instructor-led classrooms, online, and blended (combined lecture and online). He also found that First Principles were more easily applied in some disciplines than others. He concluded that this research validated the use of a First Principles of Instruction rubric (see Merrill, 2009b) as a quality standard for measuring inherent pedagogical quality based solely on the course's design.

Challenges, Lessons Learned, and Implications

Challenges and Lessons Learned in Developing a Prescriptive Instructional Design Theory

There are some areas of human expertise that are so pervasive that everyone feels that they can already perform the tasks; all it requires is common sense. After Merrill (2002a, b) was published, it was not uncommon to be told, "I agree with First Principles, I'm already using these principles in my instruction." On some occasions, the speaker would offer the opportunity to review or critique their instruction. In almost every case, my review revealed that what the instructional designer thought was *demonstration* fell far short of what I thought I had described as demonstration

and that what the instructional designer thought was "application" failed to meet my criteria for e^3 application. Demonstration and application are common words, and many people upon reading these words assume that they know what they mean and thus equate their design activities with these principles. These instructional designers seemed to have skipped or forgotten the corollaries that accompanied these principles. This observation of instruction that was thought to implement First Principles, but failed to do so, was verified by carefully conducted survey studies. These studies attempted to determine the extent to which existing instruction implemented First Principles of Instruction. Each of these survey studies found that most of the courses surveyed did not implement these principles (Barclay et al., 2004; Margaryan et al., 2015; Merrill, 2020).

First Principles is an attempt to present a prescriptive instructional design theory that can be used as a guide for designing or evaluating instruction. To be as precise as possible, a theory must carefully define the concepts and propositions involved. This requires concise and consistent terms referring to these concepts and propositions. In formulating my *Component Display Theory*, I used concise but esoteric terms (*expository generality*, *inquisitory generality*, *expository instance*, *inquisitory instance*) with the hope that these unusual terms would require readers to attend to the referents for these terms without confusing them with more common vocabulary (Merrill, 1983). Readers often complained that there was too much jargon that was difficult to understand or remember. Therefore, in the later versions of this theory, I used everyday terms (*Tell information*, *Ask information*, *Show example*, *Do example*). Because these terms are so common, readers often assume they know what they mean and fail to restrict their meaning to the precise concepts of the theory.

Implications for Learning and Teaching Psychology

I have not had the opportunity to review the psychology classes in several universities or even all the psychology classes in a single university. However, the reviews of courses to determine the use of First Principles of Instruction cited in this chapter have shown that most of these courses implement only a level 0 instructional strategy. Therefore, I'm confident that a review of psychology courses, except at the highest graduate level, is also most likely to implement primarily a level 0 instructional strategy, that is, they likely do not implement *First Principles of Instruction*. If this is the case, then I'm also confident that adding appropriate demonstration (*show*) and appropriate application (*DO*) would significantly increase the e^3 learning outcome of these courses. A recent article in *Psychology Learning & Teaching* (Stark, 2018) described an attempt to introduce more effective *demonstration* via worked examples into a course. This indicates that there is some effort to implement First Principles in the teaching of psychology.

While many of the courses reviewed gave lip service to involve problem-solving, most did not implement a level 3 problem-centered instructional strategy. While problem-based learning is often described in the professional literature (Savery, 2006), the reviews reported in this chapter found that most of the courses reviewed

did not involve problem-solving or when they did it was very inadequately implemented. I'm confident that this may also be true of psychology courses. Implementing a guided problem-centered strategy, especially in introductory classes, will likely increase the e^3 learning in these courses. Rumain and Geliebter (2020) describe a "process-oriented guided-inquiry learning-based curriculum for experimental psychology laboratory" which is a good example of implementing a level 3 problem-centered instructional strategy.

Teaching, Learning, and Assessment Resources

To facilitate the use of First Principles of Instruction, the author provided a set of rubrics for reviewing the adequacy of the instructional events in an existing course or in a course that is under development (Merrill, 2009b). Table 4 is the rubric for demonstration instructional events, and Table 5 is the rubric for application instructional events.

Learning Events Review Rubric

Syllabus Review Checklist

Merrill (2020) developed a Syllabus Review Checklist to determine the extent to which the syllabus of a university course reflected the use of First Principles of Instruction. The checklist was accompanied by a documentation which explained and elaborated the items on the checklist. Table 6 is an abbreviated syllabus for a course in Descriptive and Illustrative Drawing. Table 7 is the checklist that was used to review this syllabus.

Bibliography

The following sources will provide more detailed description, examples, and research supporting First Principles of Instruction.

Complete Description of First Principles of Instruction

Merrill (2002a, b) The initial paper introducing First Principles of Instruction and citing the instructional design theories on which these principles were based.

Merrill (2009a) A second look at First Principles of Instruction that tried to present a more complete description of the theory.

Merrill (2013) My attempt to present a complete description of First Principles of Instruction directed at those who evaluate existing instruction or develop new instruction. One important feature of this book is the many examples illustrating

Table 4 Demonstration e^3 quality rubric

	Tell	*Show*	*Multimedia*	*Guide*	*>3*	*Structure*
Kinds	Does the demonstration tell learners the name and **definition** of each category?	Does the demonstration show learners **examples** of each category?	Does the demonstration use effective multimedia principles?	Does the demonstration provide guidance by highlighting **discriminating properties** or by showing **matched examples** among categories?	Does the demonstration include at least **three examples** from each category?	Does **guidance** during demonstrations show learners how the defining properties and portrayals relate to an organizing structure?
How to	Does the demonstration tell learners the **steps and sequence** in the procedure?	Does the demonstration show a specific instance of the task and **demonstrate each of the steps** required to complete the task?	Does the demonstration use effective multimedia principles?	Does the demonstration provide **guidance** by calling attention to the execution of each step?	Is the procedure demonstrated in a **progression** of at least three increasingly difficult situations?	Does **guidance** during demonstrations show learners how the steps in the procedure relate to an organizing structure?
What happens	Does the demonstration tell learners the **conditions and consequence** of the process?	Does the demonstration show the **process** in a specific real or simulated situation?	Does the demonstration use effective multimedia principles?	Does the demonstration provide **guidance** by helping learners relate the events in the process to the conditions and consequence?	Is the demonstration of the process repeated for a **progression** of at least three increasingly complex scenarios?	Does **guidance** during demonstrations show learners how the conditions and consequence relate to an organizing structure?
Whole task	Does the demonstration describe a **whole problem** or task indicating some of the major steps involved?	Is the **whole task** or problem demonstrated to the learners?	Does the demonstration use effective multimedia principles?	Are the **component skills** of the whole task demonstrated to learners in the context of the whole task using a problem- or task-centered instructional strategy?	Is there a **progression** of at least three increasingly difficult whole tasks or problems demonstrated to the learners?	Does **guidance** during demonstrations show learners how the steps in the whole task relate to an organizing structure?

Table 5 Application e[3] quality rubric

	Ask	*Do*	*Feedback*	*Coach*	*>3*	*Peer interaction*
Kinds	Are learners asked to remember the definition?	Does the application require learners to classify new examples?	Does the application provide corrective feedback that focuses learners' attention on discriminating properties?	Does the application provide coaching early in the sequence and gradually withdraw this coaching as the application continues?	Does the application require learners to classify a series of three or more divergent examples?	Does the application allow for peer collaboration and peer critique?
How to	Are learners required to remember the steps in the sequence?	Does the application require learners to do the task by executing each step in a real or simulated situation?	Does the application provide intrinsic feedback and extrinsic feedback?	Are tasks early in the progression coached and is this coaching gradually withdrawn as for successive tasks in the progression?	Does the application require learners to do a simple to complex progression of at least three tasks?	Does the application allow for peer collaboration and peer critique?
What happens	Are learners required to remember the conditions and consequence of the process?	Are learners required to predict the consequence? OR are learners required to troubleshoot an unexpected consequence in a specific situation?	Are learners able to receive intrinsic feedback by being able to test their predictions or test their troubleshooting?	Is coaching provided for problems early in the progression and gradually withdrawn as the progression continues?	Are learners required to make predictions or troubleshoot a series of at least three increasingly complex problems?	Does the application allow for peer collaboration and peer critique?
Whole task	Are learners asked to remember information about the whole problem or task?	Do learners have to apply the component skills to the completion of a new whole task or problem?	Are learners able to receive intrinsic feedback on their performance by seeing the consequences of their activities?	Is coaching provided for problems early in the progression and gradually withdrawn as the progression continues?	Are learners required to solve a progression of at least three increasingly complex whole problems or tasks?	Does the application allow for peer collaboration and peer critique?

Table 6 Syllabus for Descriptive and Illustrative Drawing

Course Description: This course introduces students to the fundamental principles of observational and analytical drawing. Various representational and analytical approaches are explored through assignments that encourage the development of skills needed to effectively represent and communicate visual information.

Learning Outcomes:

- Comprehend the significance of line as the fundamental element in multimedia and communication.
- Visualize and technically illustrate the characteristics and attributes of lines.
- Display more proficiency in free hand drawing.
- Approach and apply drawing as a universal visual language.
- Demonstrate an increased sense of art appreciation.

Course Schedule/Topics:

Week	Activities
1 – 2	Drawing as a fundamental skill in multimedia and communication Unit 1: Basic reasons for drawing and the abilities developed from it Unit 2: Defining the line and analyzing its anatomy Unit 3: Visual rhetoric in line drawing
3 – 4	The effects of line Unit 1: The emotional and structural attributes of line, texture, and shape Unit 2: The uses of Lines to express a variety of phenomena Unit 3: Line connotations Unit 4: The study of Facial expressions with lines
5 – 6	Ways of seeing Unit 1: Laws of composition Unit 2: Mark making with pencil
7 – 8	Understanding perspective Unit 1: The fundamental law of perspective Unit 2: The study of perspective as visual illusion Unit 3: The technique of perspective drawing
9	The characteristics of drawing materials and tools
10	Tonality and the illusion of 3D Unit 1: Common variations in the tonal scale Unit 2: The techniques of tonking and pointillism
11	*Composition in drawing*
12	*The technique of still life drawing*
13	*Studies in plant life*
14	*Studies in figure drawing*
15	*The study of broad structures*

Course materials/tools	
Derwent tinted charcoal pencil (white)	2
Lily drawing pencil 101 (3B), (4B), (5B), (6B)	2 each
Charcoal pencil: Camlin neutral	2
White charcoal	2
Gioconda charcoal pencil	2
Surwin 6151 pencil (2B)	2
Staedtler Noris Club pencils (144) assorted color	1 pk
Graphite pencils	2
White drawing cardboards	10 pc
Black drawing cardboards	10 pc
Black glossy cardboards	10 pc
Drawing pads	10
Erasers	10

Assessment Criteria:
All drawings and illustrations will be evaluated on the following criteria:

- Technical skill and creativity
- Originality in approach of visual representation
- Clear visual and aesthetic expression
- Strong portfolio of exhibition quality.

Required Reading: Ruskin J. (2001). *The Elements of Drawing.* New York: Dovers Publishers
Recommended Reading: . . .

the technical terms, the propositions, and the models of First Principles of Instruction.

Merrill (2020) A revised edition of the 2013 book that attempts to provide a more readable and concise presentation of First Principles of Instruction for Instructional Developers.

Pebble-in-the-Pond Model of Instructional Design

Merrill (2002b) The initial paper introducing the Pebble-in-the-Pond Model of Instructional Design.

Merrill (2007b) A more complete presentation of the Pebble-in-the-Pond model for instructional design with an example illustrating this development procedure.

Levels of Instructional Strategy

Table 7 Syllabus Review Checklist for Descriptive and Illustrative Drawing

Inadequate	Typical	Instructional	Problem centered	Reviewer Dave Merrill Date Faculty Course Descriptive and Illustrative Drawing	Comments
				Objectives	"Comprehend the significance of" is ambiguous; "Visualize and technically illustrate" is DOex; "Display proficiency" is DOex; "Approach and Apply" is ambiguous but might mean DOex in apply. Why are these DOex objectives? Why are they more effective?
☐				None	
	☒			Remember or ambiguous	
		☒		DOid or DOex	
			☐	Problem-centered	
				Schedule	Appears to be organized around tasks to accomplish but because only topics are listed rather than assignments we don't know. But the fact that drawing materials are required and that a rubric for evaluating drawings is given leads one to suspect that each of these topic areas involved one or more drawing tasks. What would be a better schedule?
☐				None	
	☐			Topic-centered	
		☒		Task-centered	
			☐	Problem progression	
				Assignments	No assignments are listed; this would be a great addition to the schedule. But the fact that materials are required and a rubric for evaluating drawings is given suggests that there are a number of specific tasks required for each of these topic areas. Why would the syllabus significantly improve if these assignments were specified and described?
☐				None	
	☐			Tell/Ask activities	
		☒		DOid or DOex tasks	
			☐	Whole problem task	
				Final activity	No indication is given about how grades will be determined, but the rubric suggests that drawings will be evaluated and that they provide the basis for evaluation. Why? How could this syllabus be modified to provide very powerful instructional syllabus? Ans: If the specific drawing assignments were identified and described
☐				None	
	☐			Final paper and/or test	
		☒		DOid or DOex tasks	
			☐	New problem-solving task	
Comments: Note that this is not problem-centered because it appears that the course consists of a set of individual drawing assignments that may or may not be related to a greater whole. I suspect not.					

Merrill (2006a, b) suggests that the application of First Principles is cumulative; as each principle is implemented in succession, the quality of the resulting instruction improves.

Research Support for First Principles of Instruction

Merrill (2002a) This initial paper that cites the theories and research from which First Principles of Instruction were derived.

Merrill (2007a) This paper takes each of the propositions of First Principles of Instruction and cites research findings supporting each principle.

Merrill (2013) Chapters 21 and 22. These chapters summarize indirect and direct support for First Principles of Instruction.

Checklists for using First Principles of Instruction to evaluate existing instruction or guide development of new instruction.

Merrill (2009b) This paper presented a checklist for using First Principles of Instruction to evaluate the quality of instructional products. The evaluation of Collis and Margaryan (2005a, b) was an expansion and modification of this checklist. The work of Tanner (2015) also concluded that this checklist was a valid tool for assessing the quality of instruction based on IT design.

Demo Courses That Were Specifically Developed by Applying First Principles of Instruction

- (Francom, Bybee, et al., 2009) Biology 100 course redesigned based on First Principles of Instruction for a general education course in an international university.
- (Mendenhall et al., 2006) Entrepreneur Course based on First Principles of Instruction for college students in developing countries.
- The most successful course designed using First Principles of Instruction is "How to Recognize Plagiarism: Tutorials and Tests" designed and administered by Ted Frick and his associates at Indiana University. In 2016, the original course developed in 2002 was completely revised based on First Principles of Instruction (see https://plagiarism.iu.edu). In September 2019, Dr. Frick provided the following information to me about this course: "FYI, the numbers of students using our plagiarism tutorials and tests (IPTAT) is astonishing—since 2016 we've had over 60 million page views, over 3 million register from over 200 countries, and approaching 600,000 who have passed a Certification Test." In the frequently asked questions associated with this course, they cite the following information: "Undergraduate and advanced high school students are 3 times more likely to pass a Certification Test, if first they successfully do *most or all* of the tutorials. Master's and doctoral students are 5 times more likely to pass, if they complete the tutorials first. Students who do not complete the tutorials and practice tests are between 90 and 95 percent likely to *fail* their first Certification Test."

Cross-References

► Basic Principles and Procedures for Effective Teaching in Psychology
► Educational Psychology: Learning and Instruction
► Problem-Based Learning and Case-Based Learning

References

Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching and assessing: A revision of Bloom's Taxonomy of educational objectives*. New York, NY: Longman.

Barclay, M. W., Gur, B., & Wu, C. (2004). The impact of media on the family: Assessing the availability and Quality of instruction on the World Wide Web for enhancing marriage relationshjips. In *Paper presented at the World Congress of the Family: Asia Pacific Dialogue, Kuala, Malaysia*.

Bernstein, D. A. (2018). Does active learning work? A good question, but not the right one. *Scholarship of Teaching and Learning in Psychology, 4*(4), 290307.

Bloom, B. S. (1956). *Taxonomy of educational objectives, handbook: The cognitive diomain*. New York, NY: Dvid McKay.

Collis, B. M., & Margaryan, A. (2005a). Design criteria for work-based learning: Merrill's first principles of instruction expanded. *British Journal of Educational Technology, 36*(5), 725–738.

Collis, B. M., & Margaryan, A. (2005b). Merrill plus: Blending corporate strategy and instructional design. *Educational Technology, 45*(3), 54–58.

Dick, W., Carey, L., & Carey, J. O. (2009). *The systematic design of instruction* (7th ed.). Hoboken, NJ: Pearson.

Francom, G., Bybee, D., Wolfersberger, M., Mendenhall, A., & Merrill, M. D. (2009). A task-centered approach to Freshman-level general biology. *Bioscene, Journal of College Biology Teaching, 35*(1), 66–73.

Francom, G., Wolfsberger, M., & Merrill, M. D. (2009). Task-Centered peer-interactive redesign. *TechTrends, 533*, 35–100.

Frick, T., Chadha, R., Watson, C., Wang, Y., & Green, P. (2009). College student perceptions of teaching and learning quality. *Educational Technology, Research and Development, 57*(5), 705–720.

Frick, T., Chadha, R., Watson, C., & Zlatkovska, E. (2010a). Improving course evaluations to improve instruction and complex learning in higher education. *Educational Technology Research and Development, 58*(2), 115–136.

Frick, T., Chadha, R., Watson, C., & Zlatkovska, E. (2010b). *New measures for course evaluation in higher education and their relationships with student learning*. Denver, CO: Paper presented at the annual meeting of the American Educational Research Association. Retrieved from https://www.indiana.edu/~tedfrick/TALQ.pdf.

Frick, T., & Dagli, C. (2016). MOOCs for research: The case of the Indiana University plagiarism tutorials and tests. *Technology, Knowledge and Learning, 21*(2), 255–276. https://doi.org/10.1007/s10758-016-9288-6.

Frick, T., Watson, C., Cullen, T., & Han, S. (2002). 5-Star instructional design evaluation of web-based instruction in medical science. In M. Simonson & M. Crawford (Eds.), *Annual proceedings of selected research and development papers presented at the national convention of the association for educational communications and technology* (Vol. 1, pp. 167–172). Dallas, TX.

Gagne, R. M. (1965, 1970, 1977, 1985). *The conditions of learning and theory of instruction.* New York, NY: Holt, Rinehart & Winston.

Hager, P., Gonczi, A. and Athanasou, J. (1994). General issues about the assessment of competence. Assessment and Evaluation in Higher Education, 19, 1, 3-16.

Merrill, M. D. & Gilbert, C. G.(2008). Effective peer interaction in a problem-centered instructional strategy. *Distance Education, 29*(2), 199–207.

Kirschner, P. A., Sweller, J., & Clark, R. E. (2006). Why minimal guidance during instruction does not work: An analysis of the failure of constructivist discoverym, problem-based, experiential, and inquiry-based teachihng. *Educational Psychologist, 41*(2), 75–86.

Margaryan, A., Bianco, M., & Littlejohn, A. (2015). Instructional quality of massive open online courses (MOOCs). *Computers and Education, 80*, 77–83.

Mendenhall, A., Buhannan, C. W., Suhaka, M., Mills, G., Gibson, G. V., & Merrill, M. D. (2006). A task-centered approach to entrepreneurship. *TechTrends, 53*(3), 84–89.
Merrill, M. D. (1983). Component Display Theory. In C. M. Reigeluth (Ed.), *Instructional design theories and models; An overview of their current status* (pp. 279–333). Hillsdale, NJ: Lawrence Erlbaum Associates.
Merrill, M. D. (1987a). A lesson basded on Component Display Theory. In C. M. Reigeluth (Ed.), *Instructional design theories in action* (pp. 201–244). HIllsdale, NJ: Lawrence Erlbaum Associates.
Merrill, M. D. (1987b). The new Component Display Theory; instructional design for courseware authoring. *Instructional Science, 16*, 19–34.
Merrill, M. D. (1994). *Instructional design theory*. Engle Wood Cliffs, NJ: Educational Technology Publicatiions.
Merrill, M. D. (2002a). First principles of instruction. *Educational Technology Research and Development, 50*(3), 43–59.
Merrill, M. D. (2002b). A pebble-in-the-pond model for instructional design. *Performance Improvement, 41*(7), 39–44.
Merrill, M. D. (2006a). Hypothesized performance on complex tasks as a function of scaled instructional strategies. In J. Elen & R. E. Clark (Eds.), *Handlking complexity in learning environments: Theory and research* (pp. 265–281). Amsterdam, The Netherlands: Elsevier.
Merrill, M. D. (2006b). Levels of instructional strategy. *Educational Technology, 40*(4), 5–10.
Merrill, M. D. (2007a). First principles of instruction: A synthesis. In R. A. Reiser, J. V. Dempsey, R. A. Reiser, & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (Vol. 2, 2nd ed., pp. 62–71). Upper Saddle River, NJ: Merrill/Prentice Hall.
Merrill, M. D. (2007b). A task-centered instructional strategy. *Journal of Research on Technology in Education, 40*(1), 33–50.
Merrill, M. D. (2009a). First principles of instruction. In C. M. Reigeluth & A. Carr (Eds.), *Instructional design theories and models: Building a common knowledge base* (Vol. III, pp. 41–56). New York, NY: Routledge Publishers.
Merrill, M. D. (2009b). Finding e3 (effective, efficient, and engaging) instruction. *Educational Technology, 49*(3), 15–26.
Merrill, M. D. (2013). *First principles of instruction: Identifying and designing effective, efficient, and engaging instruction*. San Francisco, CA: Pfeiffer.
Merrill, M. D. (2017a). A 50+ year search for effective, efficient and engaging instruction. Acquired Wisdom Series (S. Tobis, J. D. Fletcher, & D. Beliner, Eds.). *Educationa Review, 24*. Retrieved from https://doi.org/10.14507/er.v24.2220.
Merrill, M. D. (2017b). A 50+ year search for effective, efficient and engaging instruction. In S. Tobias, J. D. Fletcher, & D. C. Berliner (Eds.), *Educational review: Acquired wisdom: A publication series to preserve and transmit the knowledge and skills of distinguished educational researchers* (Vol. 24, pp. 1–31) Retrieved from edrev.asu.edu.
Merrill, M. D. (2020). A syllabus review check-list to promote problem-centered instruction. *TechTrends, 64*, 105–123.
Merrill, M. D. (2020). First Principles of Instruction: Revised Edition. Association for Educational Communications and Technology.
Merrill, M. D. (2020) First Principles of Instruction, Revised Edition. Association for Educational Communications and Technology
Merrill, M. D., & Boutwell, R. C. (1973). Instructional development: Methodology and research. In F. N. Kerlinger (Ed.), *Review of research in education* (Vol. 1, pp. 95–131). Itasca, IL: F. E. Peacock Publishers.
Merrill, M. D., & Gilbert, C. G. (2008). Effective peer interaction in a pforlbm-centered instructional strategy. *Distance Education, 29*(2), 199–207.
Merrill, M. D., Schneider, E. W., & Fletcher, K. A. (1980). *TICCIT*. Englewood Cliffs, NJ: Educational Technology Publications.

Reigeluth, C. M. (1999). *Instructional design theories and models: A new paradigm of instructional theory* (Vol. II). Mahwah, NJ: Lawrence Erlbaum Associates, Publichers.

Rosenberg-Kima, R. (2012). *Effects of task-centered vs. topic-centered instructional strateghy approaches on problem-solving – Learning to program flash*. Tallahassee, FL: Florida State University. Retrieved from mdavidmerrill.com/.

Rumain, B. & Geliebter, A. (2020) A process-oriented guided-inquiry learning-based curriculum for the experimental psychology laboratory. Psychology Learning & Teaching. online publication ttps://doi.org/10.1177/1475725720905973.

Savery, J. R. (2006). Overview of problem-based learning: Definitions and distinctions. *Interdisciplinary Journal of Problem-Based Learning, 1*, 9–20.

Stark, E. K. R. (2018). Learning scientific explanations by means of worked examples -- promoting psychology students' explanation competence. Psychology Learning & Teaching, 17(2) pp 144-165.

Tanner, R. S. (2015). *Application of first principles of insruction: A correlational study of design expertise and implied course quality.* Capella University. Ann Arbor Michigan: ProQuest LLC.

Tawfik, A. A. , & Kolodner, J. L. (2016). Systematizing Scaffolding for Problem-Based Learning: A View from Case-Based Reasoning. Interdisciplinary Journal of Problem-Based Learning, 10(1). Available at: https://doi.org/10.7771/1541-5015.1608

Thompson Inc. (2002). *Thompson job impact study: The next generation of learning*. Napperville, IL: NETG.

Problem-Based Learning and Case-Based Learning

50

Joerg Zumbach and Claudia Prescher

Contents

Abstract

Problem-based learning (PBL) is a learner-centered small-group learning approach that supports active learning. This chapter provides core definitions of PBL and other forms of case-based learning. To be precise, several aspects of

J. Zumbach (✉)
Department of Educational Research, University of Salzburg, Salzburg, Austria
e-mail: joerg.zumbach@plus.ac.at

C. Prescher
Technische Universität Dresden, Dresden, Germany
e-mail: claudia.prescher@tu-dresden.de

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designing PBL are described, such as problem design, process structure, small-group learning, tutoring, and others. Research and evaluation of PBL compared to traditional approaches are summarized mostly based on meta-analyses.

Keywords

Problem-based learning; Case-based learning; Tutoring; Small-group learning; Active learning

Introduction

Learning with cases and problem-based learning have a long tradition in teaching psychology, especially concerning clinical and abnormal psychology, but also educational psychology. Case-based learning refers to using cases in teaching and learning. It integrates several instructional approaches such as problem-based learning (PBL) or the case method.

Learning with cases is a stimulating approach that fosters active learning, applied problem-solving, and knowledge transfer. Problem-based learning as a kind of case-based teaching and learning originated in North-American medical schools (Servant & Schmidt, 2016; Wood, 2003). It is a curricular and an instructional format. The introduction of PBL was based on considerations of how to change instructor-led higher education into student-centered higher education. The major rationale for these considerations was based upon observations that instructor-led higher education does not enable active learning and, thus, does not contribute to students' abilities and competences in areas of problem-solving or transfer. Consequently, the Canadian McMaster University decided to change their medical education program by moving away from the lecture-based teaching approach toward PBL (Hillen, Scherpbier, & Wijnen, 2010). At first, approaches of introducing PBL were mostly limited to medical education programs in northern America. In the course of time, it has spread worldwide as an instructional and a curricular approach throughout different disciplines and programs (Koh, 2016).

The basic idea of PBL as an instructional approach is to have small tutor-guided groups solve a problem. This guided process can be described as follows (see also Dolmans & Schmidt, 2010): Students in a small group receive a description of a problem or are presented with a case that they have to solve. First, the group starts analyzing the case/problem including aspects or subproblems that are involved; they are supported by a tutor (Moust, 2010). Then, students contribute to these aspects with their prior knowledge and formulate hypotheses about the problem and possible solutions. Next, these hypotheses and ideas are structured, and students identify open issues they need to work on in order to solve the problem. This process ends with formulating learning objectives. After this small-group session, students work self-directed in order to accomplish these learning objectives by using secondary sources such as literature (e.g., textbooks, Internet resources, etc.), accompanying courses and lectures, and contact with experts. At the beginning of the next tutor-guided

small-group meeting, students present their newly acquired knowledge and discuss these contributions in order to solve the case or problem. Finally, the whole process starts all over again by discussing the next problem (Hung & Amida, 2020).

PBL serves as an instructional, small-group learning approach that can be used as a single episode within a larger course or curriculum. However, PBL can also be used on a more general level, such as encompassing a whole curriculum (e.g., Verheggen & Snellen-Balendong, 2010). In this case, desired competences and learning objectives from courses are covered by a sequence of problems allowing students to accomplish these objectives by solving the problems they are presented with. This requires some basic decisions that are crucial to implementing PBL on this level (for an overview see van Berkel, Scherpbier, Hillen, & van der Vleuten, 2010):

- Carefully designing ill-structured problems that contribute to accomplishing the learning objectives. This requires that objectives are merged in a problem or case description.
- Developing a staff or tutor handbook providing background knowledge about the problems, their nature, and underlying learning objectives. This should help tutors to ensure that the core phenomena of problems are correctly addressed.
- Providing required resources for small-group learning by training tutors to guide students rather than to teach them and providing adequate numbers of classrooms.
- Developing class schedules that differ from traditional schedules: As different courses are merged together and self-directed small-group learning is essential, the most important elements of the class schedule are small-group meetings. As these group sessions end up in self-generated learning objectives, enough time for self-directed learning is necessary between these sessions. Accompanying courses (e.g., introductory lectures and courses, skills labs, etc.) have to be arranged around the small-group meeting hours.
- Providing students with resources for self-regulated learning, such as having access to (online) libraries, experts, etc. and eventually trainings in how to apply effective self-directed learning and corresponding cognitive and meta-cognitive learning strategies.
- Adapting assessment strategies and approaches, following the principles of constructive alignment. Therefore, a close coordination of learning objectives, learning activities, and assessment is essential.

However, there are also other types of instructional case-based approaches. They differ in the degree to which they are teacher-led or student-centered. Figure 1 depicts the continuum between teacher-centered and student-centered case-based learning approaches.

Following Barrows (1986), one of these forms is known as lecture-based cases, where students do not actively work on cases or problems. Instead, examples or applications of the instructional material are shown. However, case-based lectures place cases or problems at the beginning of lectures or units within lectures, thereby forming the basis for the respective lecture. During the lecture, theoretical and

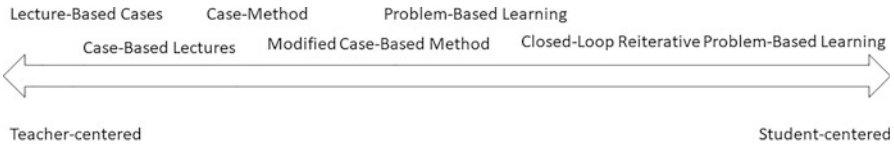

Fig. 1 Teacher-centered and student-centered case-based learning approaches

practical background that helps solve the problem is provided by the instructor. Usually, the lecturer provides the solution to the problem at the end of the lesson. Consequently, student participation increases when using the case method (also known as the Harvard method; see also Henry & Foss, 2015), because students have to prepare for lectures in advance using recommended literature. During the lectures, teachers present cases/problems and actively involve students in solving these cases/problems via direct requests. This approach is similar to flipped classroom approaches. That is, students have to prepare lessons at home using instructor-provided material (e.g., instructional video clips or reading tasks; e.g., Abeysekera & Dawson, 2015). Then, exercises and application of content are done face to face in class. Hence, the modified case method is an approach where multiple case/problem solutions are presented and discussed. However, problem-based learning is more student-centered and two different approaches can be distinguished. On the one hand, basic problem-based learning refers to single or small-group learning where the case/problem initiates the problem-solving process without necessarily discussing the case/problem again after an individual learning phase. On the other hand, this chapter refers to closed-loop reiterative PBL where the full cycle, as described above, is applied. This also involves tutor-guided small-group problem-solving and small-group problem-solving discussions after individual learning phases.

We have to note here that all these approaches are prototypic descriptions of or recommendations on how to design instruction. There are also other instructional approaches that are similar and can be combined with the methods mentioned above, including service learning (that could be also conducted as a PBL format), challenge-based learning, learning by design, and others.

Purposes and Rationale

Problem-based learning has originally been introduced in order to promote active learning and transfer of learning (see also ▶ Chap. 49, "First Principles of Instruction Revisited," by Merrill, this volume). Some of the design elements making PBL such as active learning approach (e.g., Silverthorn, 2020) are (1) active and applied problem-solving, (2) small-group learning, and (3) instructional guidance.

First, PBL means active problem-solving including knowledge acquisition in applied and meaningful contexts. This means that knowledge acquisition is necessary in order to explain cases or solve problems. Thus, PBL provides situated

learning environments that are more likely to promote transfer than learning environments that do not promote active learning.

Second, if conducted properly PBL fosters cognitive, motivational, and affective processes during learning (Gillies, 2007). Concerning these aspects, small groups are stable across time, because small-group composition usually does not change during a term. Within the group, cognitive benefits derive from different aspects (e.g., Mende, Proske, & Narciss, 2021) including learning from other learners who provide information and/or explain things, providing one's own perspectives, activating pre-knowledge, and elaborating on one's own knowledge. These processes of explanation and elaboration are also beneficial from a metacognitive perspective, because reflection on one's knowledge also helps detect need for further elaboration or knowledge acquisition strategies. In addition, communication and argumentation skills are fostered here. From a socio-emotional perspective, stable groups also provide member support and group well-being; hence, they establish a positive-affective learning environment that is also determined by positive interdependency. Finally, the gap between education and professional life is becoming smaller: whereas in professional contexts, working in teams is the standard practice, in educational programs learners are usually working alone. Therefore, PBL also prepares students for careers after educational programs by training and practicing teamwork.

Third, if necessary, instructional guidance is provided by tutors supervising the PBL process. Kirschner, Sweller, and Clark (2006) argue that PBL as self-directed learning environment is not effective due to its explorative character that is not compatible with human cognitive structures. On the other hand, Hmelo-Silver, Duncan, and Chinn (2007) claim that PBL is compatible with humans' cognitive architecture due to its implicit and explicit levels of guidance. In closed-loop reiterative PBL approaches, the process of collaborative problem-solving is highly structured and divides the process up into several stages. In addition, tutors make sure that core learning objectives specified in the curriculum or the syllabus will be identified and accomplished.

From a cognitive perspective, learning with cases and/or problem-solving contributes to learners' development from novices to experts. A basic paradigm that helps explain this transition is the case-based reasoning (CBR) paradigm (Kolodner, 1993, 1997). Concerning expertise research, findings reveal that experts (i.e., people that are regarded as "experts" within their field and have practiced in their area of expertise for about 10 years or more) show different strategies and characteristics than naive or novice persons (Hambrick, 2019). Following CBR, experts possess a huge amount of knowledge within their area of expertise. This knowledge is domain-related, well organized, and characterized by huge mental libraries. During problem-solving, experts retrieve problem-relevant information from these libraries and develop and apply plans in order to solve the problem. New knowledge that is relevant here is indexed and integrated in mental libraries. These indexes also store information about the problem's/case's target and context. When faced with a similar problem, the solution-related case can be found and activated via these cues. Hence, experts are excellent problem-solvers within their domain, enabling them to focus on

important aspects of a problem, to use their working memory more efficiently (by means of chunking, based on their prior knowledge), and to activate problem-solving strategies they already have from prior problem-solving (when compared to novices). In sum, PBL supports this process of acquiring case-related knowledge, thereby supporting novice learners on their way to become experts (ten Cate & Durning, 2018).

Design Issues and Approaches

Case-based learning in psychology classrooms can be fostered in different ways. For instance, closed-loop reiterative PBL can be implemented as a form of case-based instruction. However, there are several aspects related to the design of problems and cases, as well as to structuring, and tutoring PBL processes that need to be considered.

Problems and Cases in PBL

First, the design of the problem itself is an important factor. Here, the term "problem" is used in a broader sense, because the trigger for problem-solving might not necessarily be perceived as a genuine "problem" by learners. For instance, if a case from clinical or abnormal psychology is presented, students might not really experience the case as a problem but rather as a description (which it actually is). Consequently, the problem as such arises during small-group discourses. Regardless of whether a problem is immediately recognized or not, it forms the core of PBL consequently triggering all subsequent processes of group discussion, work, and self-regulated learning. According to Schmid and Moust (2010), there are four categories of knowledge resulting in four kinds of problem categories:

- Explanatory knowledge (theories) that corresponds with explanation problems
- Descriptive knowledge (facts) and fact-finding problems
- Procedural knowledge (knowledge of how to do things) and strategy problems
- Subjective knowledge (personal convictions or attitudes of the learner that are covered by moral dilemma resolution problems)

Schmidt and Bouhuijs (1980) provide another typology of problems. They distinguish types of action necessary to solve a problem. Thus, they suggest (patient) problems, strategy tasks, action tasks, discussion tasks, and study tasks. According to Schmid and Moust, a problem task requires an explanation that explores and describes the phenomena represented by the problem. A strategy task is defined as an explanation type of assignment, i.e., students are supposed to find explanations for the phenomena described in the story. Learners are expected to take a certain perspective following a "what if" task (e.g., "What would you do if you were in the position of, e.g., the physician, the lawyer, the engineer?"; Schmid & Moust,

2010, p. 4). In contrast, an action task requires an active approach or an activity that involves the students. Discussion tasks focus on students' subjective opinions and the exchange of (different) opinions. Last, study tasks require individual study with textbooks or other resources (Schmidt & Bouhuijs, 1980).

Schmid and Moust (2010) also suggest central design issues for problems, leading to the following core design aspects in Table 1.

Table 1 shows that there are two kinds of aspects: formal and instructional aspects. Formal aspects make it easier for students to get an overview of the problem; however, instructional aspects focus on how to work with the problem. This includes cognitive (e.g., activation of prior knowledge) as well as motivational and scaffolding approaches (e.g., limitation of learning objectives and/or domain).

Problems are "fuzzy" representations of learning objectives and competences students are supposed to accomplish and acquire via successful problem-solving (e.g., Sockalingam, Rotgans, & Schmidt, 2011). Here, the term "fuzzy" means that they do not directly reflect the core objectives but aim at them leaving room for students' self-generated learning goals. Thus, it is crucial that problems are carefully designed in order to match course objectives or curricula so that learners can identify core objectives and work toward reaching them (Hung, 2016; Mpofu, Das, Murdoch, & Lanphear, 1997). This process needs to be supported by tutors, if students are missing core learning objectives.

The presentation format of problems can vary broadly. It ranges from so-called "standardized patients" (i.e., real people introduced or trained to behave following a pre-given script), video cases, text-based cases or problems, simulations, and others (e.g., Yoon et al., 2016).

Structure of the PBL Process

Closed-loop reiterative PBL is an instructional approach where learners are supported by flexible adaptation of guidance (Schmidt, Loyens, Van Gog, & Paas, 2007). This guidance is warranted by several design issues like the design of problems and cases (see above), by tutors, by other (traditional) courses

Table 1 Design aspects of problems

Formal aspects	A clear title of the problem A clear body text of the problem A clear body of providing the instructions and tasks A clear indication of how to provide the outcome(s) of the problem-solving process
Instructional aspects	A clear instruction about what to do with the problem Activation of and connection to students' pre-knowledge Activation of curiosity and motivation Limitation to a small number of learning issues/objectives that are clearly communicated to students Limitation to certain learning domains that are not too complex in order to understand/learn them within a given time

accompanying PBL courses, and by structures guiding the PBL process. There are several approaches to structure small-group meetings during small-group learning. One of the most prominent was provided by Schmidt (1983), known as the seven-step method (see also Camp, van het Kaar, van der Molen, & Schmidt, 2014; Van Til & van der Heijden, 2009; there are also other approaches like the five-step approach; e.g., Shyu, 2001). These seven steps are as follows:

Step 1: Clarifying concepts: Facilitating understanding of the problem/case (e.g., if terms are unfamiliar or the text is unclear)
Step 2: Defining the problem: Identifying the main theme; analyzing the problem and recognizing the most important (sub)problems, topics, or phenomena in order to support formulation of subsequent hypotheses
Step 3: Analyzing the problem/brainstorming: Collecting ideas; providing individual answers or explanations and hypotheses to the topics identified and arguments for these answers; activating pre-knowledge; stimulating associative thinking
Step 4: Problem analysis/systematic classification: Discussing thoughts and contributions from the first stages, prioritizing topics and explanations, and agreeing upon the most important hypotheses and preliminary answers/solutions to the problem; organizing and structuring explanations, answers, and ideas, summarizing them under superordinate categories, adding or deleting ideas
Step 5: Formulating learning objectives: Defining the most important open issues and formulating learning objectives; reflecting on the problem and the progress in solving it
Step 6: Individual and self-directed learning: Selecting information resources based on the learning objectives formulated in Step 5; planning the procedure and providing a report
Step 7: Discussing solutions: Providing their insights, correcting each other (if necessary), explaining their thoughts; collaboratively finding problem solutions/explanations; documenting this process and reflecting on it; starting a new cycle with a new problem

This process can be (re)iterative via presenting a sequence of several problems that are based on the prior ones during a course or a curriculum. In addition, these steps are a rough guide, offering possibilities for modified implementation.

Tutoring PBL

The PBL process is a structured process for collaborative problem-solving, as described above. In order to maintain the structure of the process and to guide students through it, groups are usually supported by tutors; hence, tutors are facilitators. That is, tutors do not teach; instead, they scaffold and guide students throughout the problem-solving process. Consequently, tutors need a complex set of competences in order to support students in reaching multiple goals at more or less the same time. Though there is a debate on whether tutors should be knowledgeable

in the domain(s) of the course or the curriculum (e.g., Zumbach & Spraul, 2007), moderation skills are out of question. Barrows explains (1988, p. 44): "There is no question that the ideal situation is for the tutor to be an expert both as tutor and in the discipline being studied by the students . . . if this is not possible, the next best tutor is the teacher who is good at being a tutor, as described here, though not an expert in the discipline being studied." The combination of both competence in guiding and moderating learner expertise and competence or expert knowledge in the field that is studied seems to be promising. Barrows (1988) also suggests that if it is necessary to choose between a moderator and an expert (without moderation skills), moderation skills should be preferred over content expertise. The worst combination is a tutor "who is an expert in the area of study, but a weak tutor" (p. 44). Further research shows that a combination of domain expertise and tutoring skills is beneficial for student learning and group cooperation (Groves, Régo, & O'Rourke, 2005; Zumbach & Spraul, 2007).

McCaughan (2013) defines a set of skills and activities that a tutor has to accomplish during tutoring, including supporting learners throughout all stages of the learning process. This is done via activities such as scaffolding, pushing students to deeper levels of understanding, not interfering in learners' statements (even if they might not be entirely correct), not acting as an expert or information source, encouraging and stimulating discussions, being responsible for learning with students, encouraging students' progress, supporting metacognitive actions and strategies, supporting reflection, providing feedback, etc. Tutors also ensure that students continue working on the problems' central phenomena or learning objectives. Especially tutors without domain knowledge need support in this field. Therefore, handbooks serve to support these tutors as well as expert tutors. They address the most important issues concerning the respective problem or case.

Another core function of tutors is grading. Besides other approaches of educational measurement, like testing and applied problem-solving, in many PBL programs, tutors also evaluate small-group members. These evaluations are part of leaners' grades (Dodds, Orsmond, & Elliott, 2001; Sa, Ezenwaka, Singh, Vuma, & Majumder, 2019).

Small-Group and Self-Directed Learning

Problem-based learning is a steady change between collaborative small-group learning and self-directed individual learning. Though there is no consensus on how small or large a small group should be, the group sizes should allow each member of the group to participate and to contribute to the group's progress. There are many advantages and disadvantages to small-group learning. On the one hand, successful group learning leads to positive interdependency of group members (Johnson & Johnson, 2004; Teng & Luo, 2015). On the other hand, social loafing, ganging-up, and other well-known negative types of behavior hinder effective group work (see Johnson & Johnson, 2004 for an overview). Dolmans and Schmidt (2006) summarize different positive aspects of small-group learning during PBL, thereby

differentiating cognitive and affective effects. Cognitive effects include activation of prior knowledge, information recall, collaborative knowledge building, causal reasoning or theory building, and conceptual change initiated by cognitive conflict leading to collaborative learning construction. In contrast, positive influence of group discussions on students' interest in the subject matter is an affective effect. Nevertheless, authors also describe negative effects like superficial group discussions caused by lack of motivation. In this case, effective tutoring, providing positive interdependency (e.g., by means of grading – see below – but also by providing appropriate problems/tasks), and a positive affective tone in small-group discussions can contribute to reducing social loafing and enhancing group productivity (Teng & Luo, 2015).

Scheduling PBL and Other Organizational Issues

When leaving "traditional" formats and medium-size or large classes and switching to PBL, there are not only obstacles from an instructional point of view but also on the organizational level. First, small groups need more space than large groups such as closed rooms or spaces where groups can work without being interrupted. Thus, the infrastructure regarding meeting rooms must be appropriate. Second, small groups need more tutors than one large group with one lecturer. Hence, when introducing PBL, more tutors are needed. Besides faculty-led tutorial groups, there is also research and practice in using students as tutors in groups. Most of these students are from higher classes that are financially rewarded or academically credited for their work. A study by Kassab, Abu-Hijleh, Al-Shboul, and Hamdy (2005) compared student-led versus faculty-led tutorial groups. The study revealed comparable academic outcomes of student- and faculty-tutored groups. Student tutors were rated higher in providing feedback and in understanding students' difficulties in tutorials. Additionally, atmosphere, decision-making processes, and support for the group leader were rated higher in these groups. Johansen, Martenson, and Bircher (1992) report that student teachers act more like colleagues than like superiors. Also, more advanced student tutors are better at enhancing group productivity than less experienced student tutors. Concerning faculty members, student teachers need training for their role as group facilitators (Johansen et al., 1992; Kassab et al., 2005).

Problem- and case-based learning can be integrated into higher education in different ways (see above), including "single-shot" episodes within classes (e.g., PBL as one instructional approach among others in the same class), PBL throughout a whole class/course, or as a curriculum approach. PBL as a curriculum approach includes disintegrating borders between domains and classes in favor of cross-disciplinary PBL. This can be realized via accompanying classes, labs, and other course formats. Hence, moving away from "traditional" class scheduling is necessary. Wong (2003) describes the difference between lecture-based learning and problem-based learning in teaching law as follows: among others, the number of lecture hours was reduced from 28 to 4 h per semester in one field. The University of

York (n.d.) describes their weekly schedule, starting on Thursday with two problems in two tutorial groups, the third problem starting on Friday. Over the weekend and on Monday, there is time for self-directed study. On Tuesday, there is a recap session. Wednesday is again dedicated to self-directed study. On Thursday, there is the last round of tutorial groups with final discussions. Afterward, new problems are introduced and the cycle starts all over again. This example shows how different the schedule of PBL curricula is compared to traditional lecture-based curricula.

Grading in PBL

Grading is a crucial function in education throughout different stages and forms of formalized education (for an overview see Kubiszyn & Borich, 2007). With regard to PBL as a different instructional format compared to "traditional" classes and curricula, grading and assessment needs to be carefully designed. Here, "constructive alignment" supports planning adequate forms of educational assessment (Biggs, 1996; Deibl, Zumbach, Geiger, & Neuner, 2018). Constructive alignment refers to three basic dimensions in teaching and learning and their interrelationships: learning objectives, instructional approaches, and grading. Aligning these three constructs means that the learning content and its underlying objectives need to be reflected in the didactical/instructional method used and in the way assessment of leaners' performance is designed. That is, these three dimensions of teaching and learning have to match. Having students solve problems from week to week and finally using a multiple-choice exam in order to generate their grades is pointless. Instead, alternative forms of educational assessment need to be applied and combined (Nendaz & Tekian, 1999). For instance, continuous assessment of students during tutorial groups, applied problem-solving exams, and appropriate standardized exams that include measurement of understanding, problem-solving, and transfer are alternative types of assessment that can be used in PBL. Gijbels, Dochy, Van den Bossche, and Segers (2005; see also Nendaz & Tekian, 2009) list a set of assessment methods that are used in different PBL programs: modified essay questions, progress tests, free recall, standardized patient simulations, essay questions, short-answer questions, multiple-choice questions, oral examinations, rating of performance-based testing, and case-based examinations. Modified essay questions refer to standardized questions about problems that are sequentially ordered. That is, after answering a question, students receive new information; then, the next question is asked; and so forth. In progress tests, a large set of standardized questions are developed, addressing course or curriculum objectives. Students can access these questions at several stages of their progress in order to get feedback or to assess their current knowledge on the respective topic. Concerning students' retrieval strategies and knowledge structures, free recall is a possible assessment strategy. Standardized patient simulations serve to assess students' knowledge and clinical skills. Usually, these are judged on the basis of essay, open questions, multiple-choice questions, oral exams, performance ratings, and/or case-based examinations. Case-based examinations are conducted by presenting cases/problems to students and assessment of

their declarative as well as procedural knowledge (also by possible combinations of open questions, essays, oral exams, multiple-choice questions, and others; Gijbels et al., 2005).

As these examples reveal, there is a broad range of possibilities, alternatives, and combinations of educational assessment and grading. Nevertheless, despite the lack of general practical recommendations on assessment in PBL settings (Nendaz & Tekian, 1999), from an instructional design perspective, many possibilities open a broad range of methods that support constructive alignment.

Evaluation/Research Issues and Approaches in PBL and Their Results

Since the introduction of PBL in the 1960s, a huge body of research on this instructional format has evolved. Especially in medical education, many studies have analyzed the difference between "traditional" curricula and PBL programs on student outcomes. Thus, also some meta-analyses (and also a meta-meta-analysis) were published over the years. Almost all these meta-analyses compare effects of PBL with traditional teaching (e.g., lecture-based learning). Within these meta-analyses, four central research areas can be identified:

1. Comparison of efficiency and effectiveness between PBL and traditional learning (teacher-centered, lecture-based) for different disciplines:
   - Mathematics, science, technology, geography, physics, chemistry, English, and life sciences for school level (Batdı, 2014a, b)
   - Medicine (incl. dental medicine and pharmacy) and health sciences in higher education (Colliver, 2000; Galvao, Silva, Neiva, Ribeiro, & Pereira, 2014; Gao et al., 2016; Huang, Zheng, Li, Li, & Yu, 2013; Sayyah, Shirbandi, Saki-Malehi, & Rahim, 2017; Zhang et al., 2018)
   - Medicine and related disciplines in higher education (Dochy, Segers, van den Bossche, & Gijbels, 2003)
2. Moderators that have effects on learning outcomes within PBL like disciplines, PBL methods, types of problems (Dochy et al., 2003; Walker & Leary, 2009)
3. Comparison between different settings of PBL (e.g., digital case scenarios vs. paper case scenarios; Gavgani, Hazrati, & Ghojazadeh, 2015)
4. A meta-review (Strobel & van Barneveld, 2009) addressing basic concepts of learning and their measurement in meta-analyses regarding learning outcomes in PBL

Comparison of Efficiency and Effectiveness Between PBL and Traditional Curricula

Most meta-analyses in this field are located within higher education addressing medical education. Only the meta-analyses provided by Batdı (2014a, b) address

secondary education. Almost all of the reported meta-analyses refer to indicators for performance, such as academic achievement scores (Batdı, 2014a), theoretical and practical knowledge/skills (Huang et al., 2013; Colliver (2000); Dochy et al., 2003; Zhang et al., 2018, Gao et al., 2016), and students grades or examination outcomes (Galvao et al., 2014; Sayyah et al., 2017). Batdı (2014b) reports additional outcomes, like students' attitudes toward PBL. The meta-analyses by Batdı (2014a), Huang et al. (2013), Galvao et al. (2014), Sayyah et al. (2017), Gao et al. (2016), and Zhang et al. (2018) show positive effects of PBL on achievement. Colliver (2000) reports only small effects and only for theoretical knowledge. Dochy et al. (2003) find positive effects on skill acquisition, but slightly negative effects on acquisition of declarative knowledge. Moderate (Batdı, 2014b) or no effects (Galvao et al., 2014) are reported for self-report data (attitudes and subjective evaluation). Despite the fact that single studies as well as the meta-analysis by Dochy et al. (2003) reveal partly negative or no effects of PBL on performance, other meta-analyses show an overall positive effect of PBL compared to traditional curricula (e.g., Galvao et al., 2014; Sayyah et al., 2017).

Moderators in PBL Evaluation

Two of these meta-analyses tried to identify moderators of effect of PBL. Dochy et al. (2003) as well as Walker and Leary (2009) included studies predominantly in the medical field but also from teacher education, social sciences, allied health, business, engineering, and science. Dochy et al. (2003) examined – among other variables – expertise of students, retention period, and type of assessment in PBL. Students' expertise in the sense of prior knowledge seems to have a limited impact on learning outcomes. Moreover, significant benefits of PBL were only found in the second year of PBL programs. In all other years, from first to fifth, no differences or worse academic performances were identified. Regarding measurement of success, academic performance of PBL compared to traditional programs was worse when assessed immediately after the courses. However, these differences are counterbalanced after a longer period of time concerning declarative knowledge. Further examination of procedural knowledge shows significantly better learning outcomes in PBL programs assessed right after courses and in delayed testing.

Walker and Leary's (2009) meta-analysis included 82 single studies (concentrating on medical education) focusing on moderator analyses in PBL, different problem types, and kinds of assessment. In medical education effect sizes were comparably low ($d = 0.085$). Stronger effects were found in teacher education, social sciences, healthcare, and business studies. Studies in science and engineering revealed small effect sizes or no significant effects. Inconsistencies were found concerning academic performance of PBL programs compared to traditional programs. These inconsistencies regard declarative knowledge and procedural knowledge (principles and application (d from 0.2 to 0.33). Analysis also shows that mainly diagnostic types of problems were used, especially in medical fields. Other types of problems were rarely used, such as design problems, dilemmas, or troubleshooting problems.

Design problems had the strongest effects on learning outcomes, whereas other problem types had small effects, e.g., troubleshooting, diagnosis problems, and dilemmas. Descriptive analysis revealed that closed-loop PBL leads to better academic performance than other PBL methods; however, there are only a limited number of studies mentioning the PBL method used in their examinations.

Comparison Between Different Settings of PBL

A meta-analysis by Gavgani et al. (2015) compares effects of different PBL settings. They included five studies from the field of medical education comparing paper-based case scenarios with digitally provided scenarios and their impact on clinical reasoning and satisfaction. No differences were found between paper-based cases and digitally provided scenarios on clinical reasoning, but they discovered that satisfaction of students in digital-based learning environments is higher.

Meta-review on PBL

In their synthesis of meta-analyses on the effects of PBL, Strobel and van Barneveld (2009) examined effects on different levels of educational assessment. They included eight meta-analyses and reviews that were qualitatively analyzed. Strobel and van Barneveld (2009) discovered that the temporal perspective is essential: while traditional teaching approaches focus on immediate effects, PBL focuses on the acquisition of competences from a sustainable perspective. They concluded that PBL supports long-term retention in terms of skill development and satisfaction of students and teachers, whereas traditional approaches contribute to better test performance immediately after courses. Thus, PBL is significantly more effective than traditional instruction in training competent and skilled practitioners and promoting long-term retention of knowledge and skills.

Current Trends

How will PBL change in the future? Two areas of development regarding PBL are further development of the PBL approach itself and classification and embedding of PBL within larger learning environments.

Trends Within the PBL Approach In the original PBL approach, each small learning group is supposed to have a tutor. To make PBL attractive for larger learning groups, the concept of floating tutors has emerged (i.e., one tutor tutoring more than one group at the same time; Salari, Roozbehi, Zarafi, & Tarmazi, 2018). Another trend is to use digital learning environments (cf. Gavgani et al., 2015). This refers to distributed PBL using computer-mediated communication such as videoconferencing and other digital learning scenarios (e.g., simulations). For instance, presenting

cases as interactive learning material forms a well-established digital learning environment, especially in the field of medical education. Also, in psychology education cases can be presented using (interactive) video material or simulations.

Trends Regarding the Framing and Contextualization of PBL As described above, problem-based learning can be used and designed as learning environment in different ways. There are two major approaches that can be distinguished:

1. PBL as a didactic method that is (partly) used in teaching
2. PBL as a curricular approach

Nevertheless, PBL can also be varied by combining it with other curricular approaches and teaching methods on a group level as well as an individual level (e.g., service learning, project-based learning, challenge-based learning, and others). What these approaches have in common is that PBL requires and stimulates active learning. For example, PBL can be used to stimulate learning processes (e.g., in the sense of challenge-based learning). Embedding learning objectives in applied and relevant contexts leads to sustainable learning processes (and, following Carl E. Wiemann – Nobel Laureate in Physics in 2001 – learning is not a passive process; learning must be active).

Challenges, Lessons Learned, and Implications for Learning and Teaching Psychology

In conclusion, PBL is an active learning approach that overcomes known problems from traditional teaching (such as inert knowledge) that stimulates active and self-regulated learning. All of these are important prerequisites for the development of professional competence. Therefore, we tested and piloted PBL scenarios in each of our teaching areas (psychology courses for students of psychology and for students in the teacher training program, respectively; e.g., Zumbach, 2003; Hemker, Prescher, & Narciss, 2017). Our experiences show that:

- PBL works well in both analog and digital spaces, as long as adequate support and feedback is provided. This includes support for knowledge communication.
- If people with little prior knowledge take PBL courses, tutors should have expertise in the domain along with moderating skills. If the learners already have a certain amount of prior knowledge, tutors only need to have skills in facilitating small-group learning and in supporting problem-solving.
- Students who have no prior PBL experience should be introduced to the PBL method.
- PBL seminars in the teacher training program for psychology were highly welcomed by students. The exposure to realistic practical problems from the school context was experienced positively. However, one of the challenges of using PBL in teacher education is heterogeneous target groups (e.g., elementary schools, high schools, grammar schools, and vocational schools, each specializing in different school subjects). For these heterogeneous groups of students,

differentiation, e.g., via individualized supporting information and feedback, is absolutely needed.

Our experiences are consistent with the findings of the meta-analyses mentioned above, and they provide encouragement for the use of PBL in psychology education for all audiences.

Teaching, Learning, and Assessment Resources Associated with PBL

- The interdisciplinary journal of PBL: This journal publishes articles dealing with the study, analysis, or application of PBL. The journal is published twice a year. It is available online for free: https://docs.lib.purdue.edu/ijpbl/
- Challenge-based learning: Provides a framework to work on real-world problems collaboratively and to develop solutions together. The focus is on acquiring and linking knowledge: www.challengebasedlearning.org
- van Berkel, H., Scherpbier, A., Hillen, H., & van der Vleuten, C. (Eds.) (2010). *Lessons from Problem-based Learnin*g. Oxford: Oxford University Press. Open Access: https://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780199583447.001.0001/acprof-9780199583447
- Victorian Curriculum and Assessment Authority (Australia): This side provides suggestions for teaching psychology, e.g., using PBL: https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/Psychology/advice-for-teachers/Pages/Index.aspx
- Yale University: At Yale University's website, PBL is described, and links are provided to examples of problems and cases for various fields: https://poorvucenter.yale.edu/strategic-resources-digital-publications/strategies-teaching/case-based-learning

Cross-References

► First Principles of Instruction Revisited
► Service Learning
► Small Group Learning

References

Abeysekera, L., & Dawson, P. (2015). Motivation and cognitive load in the flipped classroom: Definition, rationale and a call for research. *Higher Education Research & Development, 34*(1), 1–14. https://doi.org/10.1080/07294360.2014.934336

Barrows, H. S. (1986). A taxonomy of problem-based learning methods. *Medical Education, 20*, 481–486.

Barrows, H. S. (1988). *The tutorial process*. Southern Illinois University School of Medicine.

Batdı, V. (2014a). A meta-analysis study comparing problem based learning with traditional instruction. *Elektronik Sosyal Bilimler Dergisi, 13*(51), 346–364. https://doi.org/10.17755/esosder.12812

Batdı, V. (2014b). The effects of a problem based learning approach on students' attitude levels: A meta-analysis. *Educational Research and Reviews, 9*(9), 272–276. https://doi.org/10.5897/ERR2014.1771

Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education, 32*, 347–364.

Camp, G., van het Kaar, A., van der Molen, H., & Schmidt, H. (2014). *PBL: Step by step*. Department of Educational Development and Research, Maastricht University.

Colliver, J. A. (2000). Effectiveness of problem-based learning curricula: Research and theory. *Academic Medicine, 75*(3), 259–266.

Deibl, I., Zumbach, J., Geiger, V., & Neuner, C. (2018). Constructive alignment in the field of educational psychology: Development and application of a questionnaire for assessing constructive alignment. *Psychology Learning and Teaching, 17*(3), 293–307. https://doi.org/10.1177/1475725718791050

Dochy, F., Segers, M., Van den Bossche, P., & Gijbels, D. (2003). Effects of problem-based learning: A meta-analysis. *Learning and Instruction, 13*, 533–568.

Dodds, A. E., Orsmond, R. H., & Elliott, S. L. (2001). Assessment in problem-based learning: The role of the tutor. *Annals of the Academy of Medicine Singapore, 30*, 66–70.

Dolmans, D. H. J. M., & Schmidt, H. G. (2006). What do we know about cognitive and motivational effects of small group tutorials in problem-based learning? *Advances in health sciences education, 11*(4), 321–336.

Dolmans, D. H. J. M., & Schmidt, H. G. (2010). The problem-based learning process. In H. van Berkel, A. Scherpbier, H. Hillen & C. van der Vleuten (Eds.), *Lessons from problem-based Learning*. : Oxford University Press. Retrieved 9 Dec. 2020, from https://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780199583447.001.0001/acprof-9780199583447-chapter-003.

Galvao, T. F., Silva, M. T., Neiva, C. S., Ribeiro, L. M., & Pereira, M. G. (2014). Problem-based learning in pharmaceutical education: A systematic review and meta-analysis. *The scientific World Journal*. https://doi.org/10.1155/2014/578382

Gao, X., Luo, S., Mu, D., Xiong, Y., Guanjian, L., & Wan, C. (2016). Effects of problem-based learning in paediatric education in China: A meta-analysis. *Journal of Evidence Based Medicine, 9*(3), 136–143. https://doi.org/10.1111/jebm.12190

Gavgani, V. Z., Hazrati, H., & Ghojazadeh, M. (2015). The efficacy of digital case scenario versus paper case scenario on clinical reasoning in problem based learning: A systematic review and meta-analysis. *Research and Development in Medical Education, 4*(1), 17–22. https://doi.org/10.15171/rdme.2015.003

Gijbels, D., Dochy, F., Van den Bossche, P., & Segers, M. (2005). Effects of problem-based learning: A meta-analysis from the angle of assessment. *Review of educational research, 75*(1), 27–61.

Gillies, R. M. (2007). *Cooperative learning: Integrating theory and practice*. Sage.

Groves, M., Régo, P., & O'Rourke, P. (2005). Tutoring in problem-based learning medical curricula: The influence of tutor background and style on effectiveness. *BMC Medical Education, 5*(1), 1–7.

Hambrick, D. Z. (2019). Expertise. In R. Sternberg & J. Funke (Eds.), *The psychology of human thought: An introduction* (pp. 235–254). Heidelberg University Press.

Hemker, L., Prescher, C., & Narciss, S. (2017). Design and evaluation of a problem-based learning environment for teacher training. *Interdisciplinary Journal of Problem-Based Learning, 11*(2), 10. https://docs.lib.purdue.edu/ijpbl/vol11/iss2/10/

Henry, C., & Foss, L. (2015). Case sensitive? A review of the literature on the use of case method in entrepreneurship research. *International Journal of Entrepreneurial Behaviour & Research, 21*(3), 389–409.

Hillen, H., Scherpbier, A., & Wijnen, W. (2010). *History of problem-based learning in medical education.* Retrieved 9 Dec. 2020, from https://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780199583447.001.0001/acprof-9780199583447-chapter-002.

Hmelo-Silver, C. E., Duncan, R. G., & Chinn, C. A. (2007). Scaffolding and achievement in problem-based and inquiry learning: A response to Kirschner, Sweller, and Clark. *Educational Psychologist, 42*(2), 99–107.

Huang, B., Zheng, L., Li, C., Li, L., & Yu, H. (2013). Effectiveness of problem-based learning in Chinese Dental Education: A meta-analysis. *Journal of Dental Education, 77*(3), 377–383. https://doi.org/10.1002/j.0022-0337.2013.77.3.tb05482.x

Hung, W. (2016). All PBL starts here: The problem. *Interdisciplinary Journal of Problem-Based Learning, 10*(2). https://doi.org/10.7771/1541-5015.1604

Hung, W., & Amida, A. (2020). Problem-based learning in college science. In J. Mintzes & E. Walter (Eds.), *Active learning in college science* (pp. 325–340). Springer.

Johansen, M. L., Martenson, D. F., & Bircher, J. (1992). Students as tutors in problem-based learning: Does it. *Medical Education, 26*, 163–165.

Johnson, D. W., & Johnson, R. T. (2004). Cooperation and the use of technology. In D. H. Jonassen (Ed.), *Handbook of research on educational communications and technology* (pp. 785–812). Lawrence Erlbaum Associates.

Kassab, S., Abu-Hijleh, M. F., Al-Shboul, Q., & Hamdy, H. (2005). Student-led tutorials in problem-based learning: Educational outcomes and students' perceptions. *Medical Teacher, 27*(6), 521–526.

Kirschner, P. A., Sweller, J., & Clark, R. E. (2006). Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist, 41*, 75–86.

Koh, G. C. (2016). Revisiting the 'Essentials of problem-based learning'. *Medical Education, 50*(6), 596–599.

Kolodner, J. L. (1993). *Case-based reasoning*. Morgan Kaufman.

Kolodner, J. L. (1997). Educational implications of analogy. *American Psychologist, 52*(1), 57–66.

Kubiszyn, T., & Borich, G. (2007). *Educational testing and measurement* (8th ed.). Wiley.

McCaughan, K. (2013). Barrows' integration of cognitive and clinical psychology in PBL tutor guidelines. *Interdisciplinary Journal of Problem-Based Learning, 7*(1). https://doi.org/10.7771/1541-5015.1318

Mende, S., Proske, A., & Narciss, S. (2021). Individual preparation for collaborative learning: Systematic review and synthesis. *Educational Psychologist, 56(1)*, 29–53. https://doi.org/10.1080/00461520.2020.1828086

Moust, J. (2010). The role of the tutor. In H. van Berkel, A. Scherpbier, H. Hillen & C. van der Vleuten (Eds.), *Lessons from problem-based learning*. : Oxford University Press. Retrieved 9 Dec. 2020, from https://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780199583447.001.0001/acprof-9780199583447-chapter-006

Mpofu, D. J. S., Das, M., Murdoch, J. C., & Lanphear, J. H. (1997). Effectiveness of problems used in problem-based learning. *Medical education, 31*(5), 330–334.

Nendaz, M. R., & Tekian, A. (1999). Assessment in problem-based learning medical schools: A literature review. *Teaching and learning in medicine, 11*(4), 232–243.

Sa, B., Ezenwaka, C., Singh, K., Vuma, S., & Majumder, A. (2019). Tutor assessment of PBL process: Does tutor variability affect objectivity and reliability? *BMC Medical Education, 19*(1), 76.

Salari, M., Roozbehi, A., Zarafi, A., & Tarmazi, A. R. (2018). Pure PBL, Hybrid PBL and Lecturing: Which one is more effective in developing cognitive skills of undergraduate students in pediatric nursing course? *BMC Medical Education, 18*(195). https://doi.org/10.1186/s12909-018-1305-0

Sayyah, M., Shirbandi, K., Saki-Malehi, A., & Rahim, F. (2017). Use of a problem-based learning teaching model for undergraduate medical and nursing education: A systematic review and meta-analysis. *Advances in Medical Education and Practice*, 691–700. https://doi.org/10.2147/AMEP.S143694

Schmidt, H. G. (1983). Problem-based learning: Rationale and description. *Medical Education, 17*, 11–16.

Schmidt, H. G., & Bouhuijs, P. A. (1980). *Onderwijs in taakgerichte groepen*. Spectrum.
Schmidt, H. G., Loyens, S. M., Van Gog, T., & Paas, F. (2007). Problem-based learning is compatible with human cognitive architecture: Commentary on Kirschner, Sweller, and Clark. *Educational Psychologist, 42*(2), 91–97.
Schmidt, H., & Moust, J. (2010). Designing problems. In H. van Berkel, A. Scherpbier, H. Hillen & C. van der Vleuten (Eds.), *Lessons from problem-based learning*. : Oxford University Press. Retrieved 11 Jan. 2021, from https://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780199583447.001.0001/acprof-9780199583447-chapter-005
Servant, V., & Schmidt, H. G. (2016). Revisiting 'Foundations of problem-based learning: Some explanatory notes'. *Medical Education, 50*(7), 698–701.
Shyu, S. Y. (2001). How to turn the students into research masters by internet-online project learning and instructional innovation. *Taiwan Education, 607*, 25–34.
Silverthorn, D. U. (2020). When active learning fails. . . and what to do about it. In J. Mintzes & E. Walter (Eds.), *Active learning in college science* (pp. 985–1001). Springer.
Sockalingam, N., Rotgans, J., & Schmidt, H. G. (2011). Student and tutor perceptions on attributes of effective problems in problem-based learning. *Higher Education, 62*(1), 1–16.
Strobel, J., & van Barneveld, A. (2009). When is PBL more effective? A Meta-synthesis of Meta-analyses comparing PBL to conventional classrooms. *Interdisciplinary Journal of Problem-based Learning, 3*(1), 44–58. https://doi.org/10.7771/1541-5015.1676
ten Cate, O., & Durning, S. J. (2018). Understanding clinical reasoning from multiple perspectives: A conceptual and theoretical overview. In O. ten Cate, E. Custers, & S. Durning (Eds.), *Principles and practice of case-based clinical reasoning education. Innovation and change in professional education* (pp. 35–46). Springer.
Teng, C. C., & Luo, Y. P. (2015). Effects of perceived social loafing, social interdependence, and group affective tone on students' group learning performance. *The Asia-pacific education researcher, 24*(1), 259–269.
University of York (n.d.). York Law School. Guide to Problem-Based Learning. Retrieved 24 Feb. 2021 from https://www.york.ac.uk/media/law/documents/pbl_guide.pdf
van Berkel, H., Scherpbier, A., Hillen, H., & van der Vleuten, C. (Eds.). (2010). *Lessons from problem-based learning*. Oxford University Press.
Van Til, C., & van der Heijden, F. (2009). *PBL study skills. An overview*. Department of Educational Development and Research, Maastricht University.
Verheggen, M., & Snellen-Balendong, H. (2010). Designing a problem-based learning medical curriculum. In H. van Berkel, A. Scherpbier, H. Hillen & C. van der Vleuten (Eds.), *Lessons from problem-based learning*. : Oxford University Press. Retrieved 9 Dec. 2020, from https://oxford.universitypressscholarship.com/view/10.1093/acprof:oso/9780199583447.001.0001/acprof-9780199583447-chapter-004.
Walker, A., & Leary, H. (2009). A problem based learning meta analysis: Differences across problem types, implementation types, disciplines, and assessment levels. *Interdisciplinary Journal of Problem-Based Learning, 3*(1). https://doi.org/10.7771/1541-5015.1061
Wong, Y. J. (2003). Harnessing the potential of problem-based learning in legal education. *The Law Teacher, 37*(2), 157–173.
Wood, D. F. (2003). Problem based learning. *BMJ, 326*(7384), 328–330.
Yoon, B. Y., Choi, I., Choi, S., Kim, T.-H., Roh, H., Rhee, B. D., & Lee, J. T. (2016). Using standardized patients versus video cases for representing clinical problems in problem-based learning. *Korean Journal of Medical Education, 28*(2), 169–178.
Zhang, S., Xu, J., Wang, H., Zhang, D., Zhang, Q., & Zou, L. (2018). Effects of problem-based learning in Chinese radiology education: A systematic review and meta-analysis. *Medicine., 97*(9). https://doi.org/10.1097/MD.0000000000010069
Zumbach, J. (2003). *Problembasiertes Lernen*. Waxmann.
Zumbach, J., & Spraul, P. (2007). The role of expert and novice tutors in computer mediated and face-to-face problem-based learning. *Research and Practice in Technology Enhanced Learning, 2*(2), 161–187.

Inquiry-Based Learning in Psychology

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Marie Lippmann

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M. Lippmann (✉)
California State University, Chico, CA, USA
e-mail: mlippmann@csuchico.edu

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Abstract

Inquiry-based learning (IBL) is an educational approach in which learning is facilitated by engaging students in complex, authentic questions, or problems. In IBL, students typically apply methods and practices comparable to those of professional scientists. These methods and practices include the formulation of research questions and hypotheses and the testing of said hypotheses by means of observation or empirical tests and experimenting. This process guides learners toward discovering new causal relations. Learning in IBL is based on an active construction of knowledge, and the learner's own responsibility for discovering new information is emphasized. The role of the professor or teacher is usually that of a facilitator. The effectiveness and efficacy of IBL have been continuously challenged over the past decades. Critics have proposed that IBL does not provide sufficient structure to help learners understand and apply important concepts and procedures of science. This chapter comes to the conclusion that it is essential to employ some level of guidance within IBL settings to help learners accomplish subtasks and overarching goals, and to effectively learn from the IBL activities. For IBL in Higher Education, the conclusions of this chapter highlight the importance of departmental and institutional support for transiting from teacher-led, traditional instructional approaches to IBL, with a focus on fostering dialogue about IBL principles and IBL effectiveness.

Keywords

Inquiry-based learning (IBL) · IBL design · IBL in higher education · IBL in psychology education · IBL and technology · IBL tools

Introduction

Inquiry-based learning (IBL) is an educational approach in which learning is facilitated by engaging students in complex, authentic questions or problems (Lee, Greene, Odom, Schechter, & Slatta, 2004; Spronken-Smith, Walker, Batchelor, O'Steen, & Angelo, 2011). In IBL, students typically apply methods and practices comparable to those of professional scientists (Keselman, 2003; Pedaste et al., 2015). These methods and practices include the formulation of research questions and hypotheses and the testing of said hypotheses by means of observation or empirical testing and experimenting. This process guides learners toward discovering new causal relations (Pedaste et al., 2015; Pedaste, Mäeots, Leijen, & Sarapuu, 2012). Learning in IBL is based on an active construction of knowledge (Lee et al.,

2004; Spronken-Smith et al., 2011), and the learner's own responsibility for discovering new information is emphasized (de Jong & van Joolingen, 1998; Pedaste et al., 2015). The role of the professor or teacher is usually that of a facilitator (Lee et al., 2004; Spronken-Smith et al., 2011).

Professional and Scientific Issues and Objectives

As educator and researcher, Joerg Zumbach (2003) states, based on a proverb of unknown origin: "Tell me, and I will listen; show me, and I will understand; involve me, and I will learn." This notion has echoed through the field of instructional psychology for the last five decades, and psychologists and educational scientists agree that learner involvement is key to successful learning (Freeman et al., 2014; Lazonder & Harmsen, 2016). Consequently, there has been increasing interest in, and demand for, teaching approaches, which connect knowledge to its applications (Barron & Darling-Hammond, 2010). The primary goal is to equip learners with the skills required to master the demands of the rapidly changing work environments of the twenty-first century. Teachers, researchers, and policy-makers have thus been calling for learner-centered educational approaches, anchored in authentic application-based contexts (European Commission, 2007; National Research Council, 2000; NCREL, 2003; American Association for the Advancement of Science, 1993; Organization for Economic Co-Operation and Development, 2009; Barron & Darling-Hammond, 2010; Mullis, Martin, Ruddock, O'Sullivan, & Preuschoff, 2009; Levy & Murnane, 2004). Inquiry-based learning (IBL), as an educational approach, satisfies these interests and demands because it features authentic inquiry processes and focuses on building a scientifically literate community (Pedaste et al., 2015).

Historical Context

Inquiry-based learning (IBL) originated from the work of educational philosopher John Dewey (1859–1952), who played a key role in the educational reform in the first half of the twentieth century (Lazonder & Harmsen, 2016). Dewey proposed that instead of focusing on rote memorization of facts, education should equip learners with the skills to think and act scientifically (Lazonder & Harmsen, 2016; National Research Council, 2000). After the discovery learning movement in the 1960s and based on the notion that learning is best facilitated when a "whole heartedness of purpose was present" (Kilpatrick, 1918; Barron & Darling-Hammond, 2010), IBL was implemented on a large scale in educational practice (Lazonder & Harmsen, 2016).

Inquiry-based methods were originally adopted as an engaging way to learn science content (Bruner, 1961; Bruner, Goodnow, & Austin, 1956), but the focus gradually shifted toward an emphasis of cultivating science process skills (Kuhn, 2005; Klahr, 2000; Lazonder & Harmsen, 2016). Earlier and more recent reviews on IBL reflect those shifts in focus. Bittinger (1968) and Hermann (1969), for example,

found IBL to be more effective when compared with expository forms of instruction, particularly with regard to the transfer of the learned material to novel contexts and situations. Mere retention of learned facts was sometimes superior in expository methods (Lazonder & Harmsen, 2016). Bittinger (1968) found the transfer advantage of IBL in both laboratory and regular classroom settings, albeit effects were less pronounced in the classroom. Hermann (1969) first raised the issue of the role of guidance for successful IBL, a notion that has since received much attention in both research and practice (Hmelo-Silver, Duncan, & Chinn, 2007; Lazonder & Harmsen, 2016). More recent reviews focus more on the actions learners perform during an inquiry, thereby reflecting learner activities, and the quality of the products that the learners generate during that inquiry, thereby reflecting performance success (D'Angelo et al., 2014; Lazonder & Harmsen, 2016). It is important to note that there seems to be a lack of consensus on the kind of instructional strategies encompassed in the definition of IBL (Alfieri, Brooks, Aldrich, & Tenenbaum, 2011). Some researchers propose that IBL is an umbrella term for various educational strategies, including project-based learning, problem-based learning, and design-based learning (Barron & Darling-Hammond, 2010). From this perspective, the common denominator of these strategies is that they provide learners with opportunities to develop new knowledge and skills in the context of complex (mainly project-oriented) tasks, which require sustained engagement, research, collaboration, the activation of resources, and the development of an ambitions product (Barron & Darling-Hammond, 2010). The instructional incentive of said strategies is to facilitate learners' ability to analyze, think critically, solve complex problems, and communicate their insights effectively in the context of authentic and contextualized problems (Barron & Darling-Hammond, 2010).

Other researchers propose a more narrow definition of IBL, differentiating IBL from project-based, problem-based, and design-based Learning. Lazonder and Harmsen (2016), for example, define IBL as a method in which learners conduct experiments, observe phenomena, or collect data to infer the principles, which are underlying a particular topic or domain. In this conceptualization of IBL, learners' investigations are typically guided by one or more research questions (determined by the learners themselves or provided by the teacher), and the investigations are carried out in alignment with the scientific method and can be performed with tangible materials, existing databases, virtual labs, or computer simulations (Lazonder & Harmsen, 2016). To differentiate IBL from project-based, problem-based, and design-based learning, the latter, narrower definition of IBL will be used for the purposes of this chapter.

Purposes and Rationale

This chapter aims to provide insights from instructional psychology on the topic of IBL research and practice, to provide a basis for an application of IBL to psychology learning and teaching. IBL will be examined in terms of existing design issues and approaches,

research issues and approaches associated with the topic of IBL, and core findings and future trends. Conclusions are drawn with regard to challenges and lessons learned, and implications are discussed. Finally, teaching, learning, and assessment resources associated with IBL are provided. The overarching goal of this chapter is to guide readers through the history and development of IBL as a concept and a practice, and to provide frameworks for addressing current IBL topics, relative to considerations for future directions.

Design Issues and Approaches

Inquiry-based learning (IBL) aims to engage learners in a process of authentic scientific discovery (Pedaste et al., 2015). From an educational viewpoint, this complex scientific process is comprised of smaller units, which are logically connected and draw the learners' attention to important aspects of their scientific inquiry (Pedaste et al., 2015). These individual interconnected units are defined as inquiry phases, and their connections form inquiry cycles (Pedaste et al., 2015).

Phases of Inquiry-Based Learning: The Inquiry Cycle

Research in learning and teaching has proposed a number of inquiry phases and cycles (Pedaste et al., 2015). Table 1 presents examples of inquiry phases, as suggested by researchers over the past nine decades.

An apparent distinction between the examples pertains to whether an inquiry cycle starts with an inductive empirical or data-informed approach (e.g., Bybee et al., 2006) or a deductive theory-guided approach (e.g., White & Frederiksen, 1998, as cited in Pedaste et al., 2015). In some cases, inductive and deductive approaches are combined

Table 1 Examples of inquiry phases

Year	Authors	Inquiry phases
1933	Dewey, J.	Defining a problem; formulating a hypothesis; conducting tests
1969	De Groot, A.	Observation; induction; deduction; testing; evaluation
1988	Klahr, D. and Dunbar, K.	Search hypothesis: generate and induce frames; test hypothesis: formulate experiment, make prediction, run experiment
1992	de Jong, T. and Njoo, M.	Analysis; hypothesis generation; testing; evaluation
1998	White, B.Y. and Frederiksen, J.R.	Question; predict; experiment; model; apply
2002	Justice, C., et al.	Knowledge building; formulating research question; formulating hypotheses, resource allocation; information assessment; synthesis; communication; evaluation; self-reflection
2006	Bybee, R. et al.	Engagement; exploration; explanation; elaboration; evaluation

within an inquiry cycle (e.g., Klahr & Dunbar, 1988). Klahr and Dunbar (1988) even propose that the scientific reasoning process is generally comprised of a dual search in two spaces, hypothesis space (deductive) and experiment space (inductive).

The way inquiry cycles are set up typically implies an ordered sequence of phases (Pedaste et al., 2015). In spite of this sequencing of phases, IBL should not be considered a uniform, linear, prescribed process, because the way the phases connect to one another is context-dependent (Pedaste et al., 2015). In the inquiry cycle introduced by Justice et al. (2002), for example, one single inquiry phase (self-reflection) is connected directly to all other phases because self-reflection is presumed to be equally important in each phase. In addition, the arrangement of phases within an inquiry cycle may vary, depending on the nature of the phases (Pedaste et al., 2015). As de Jong and Njoo (1992) outline, some phases can be considered transformative (i.e., when an inquiry process directly generates or changes information) or regulative (i.e., when an inquiry process manages the learning process).

A Synthesis of Existing Inquiry Phases and Cycles

In a recent systematic literature review, which took into account 32 articles published in academic journals in the time from 1972 until 2012, Pedaste et al. (2015) set out to answer the questions:

(1) Which inquiry phases are necessary for IBL?
(2) How should these phases be arranged within an inquiry cycle?

In a first step, the authors assessed the variety of inquiry phases, which resulted in a list of 109 terms for inquiry phases (Pedaste et al., 2015). Because these 109 terms overlapped to a considerable extent, the authors then grouped the terms according to similar criteria by comparing definitions and eliminating redundancies, thereby reducing the initial list of 109 terms to 34 terms (Pedaste et al., 2015). The remaining 34 terms were sequenced and reorganized into 11 distinct inquiry phases, which were then merged into 5 general inquiry phases and a set of sub-phases (Pedaste et al., 2015). The resulting phases are illustrated in Fig. 1.

Pedaste et al. (2015) define the *orientation* phase as the process of instantiating curiosity for a topic and posing a learning challenge with a problem statement. The *conceptualization* phase is defined as the process of generating theory-informed research questions and/or hypotheses, with the sub-phases of *questioning* (i.e., the process of deriving research questions relative to the stated problem) and *hypotheses generation* (i.e., the process of deriving hypotheses relative to the stated problem; Pedaste et al., 2015). The authors operationalize the *investigation* phase as the process of planning and implementing the data collection and analyzing the data (Pedaste et al., 2015). The investigation phase is comprised of the sub-phases of *exploration* (i.e., the process of systematic data collection based on the research questions), *experimentation* (i.e., the process of

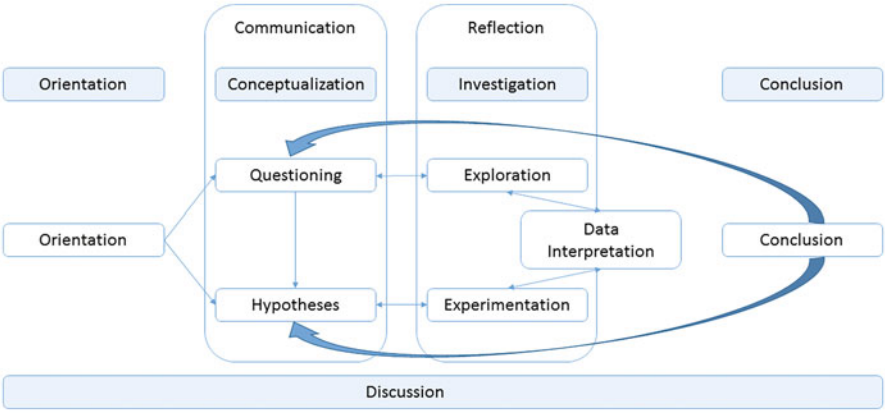

Fig. 1 Inquiry phases and cycle, framework adapted from Pedaste et al. (2015)

planning and implementing an experiment with the goal of testing hypotheses), and *data interpretation* (i.e., the process of deriving new insights from the data collection; Pedaste et al., 2015). The conclusion phase pertains to the process of arriving at conclusions based on the data, relative to hypotheses and research questions (Pedaste et al., 2015). Finally, the *discussion* phase is defined as the process of communicating these data-informed conclusions to others and/or regulating the inquiry process by means of reflection. The sub-phases of the discussion phase are comprised of *communication* (i.e., the process of presenting outcomes of an inquiry phase or the entire inquiry cycle to others, with the aim of gathering feedback) and *reflection* (i.e., the process of evaluating and describing specific inquiry phases or the entire inquiry cycle; Pedaste et al., 2015). Overall, this inquiry cycle is similar to others, but is different in that it is based on terms which have been derived as core terms from previous works (e.g., Bell, Urhahne, Schanze, & Ploetzner, 2010; Bruce & Casey, 2012; Corlu & Corlu, 2012; Kuhn & Dean, 2008; Steinke & Fitch, 2011; Wecker, Kohnle, & Fischer, 2007). Pedaste et al. (2015) further elaborate their inquiry cycle by instantiating it as an inquiry-based learning framework, which proposes that learning within the inquiry cycle occurs along three possible pathways (Table 2).

In conclusion, this inquiry-based learning framework introduced by Pedaste et al. (2015) presents a contemporary, synthesized view on IBL. It is based on a systematic literature review of existing IBL inquiry phases and cycles and can be utilized to facilitate an effective and efficient IBL process (Pedaste et al., 2015). The proposed framework takes into account the strengths of the reviewed IBL approaches while minimizing the influence of rare variations of inquiry cycles (Pedaste et al., 2015). With the help of this framework, educators are able to structure and organize complex IBL processes, with the added benefit of being able to implement this framework across a variety of educational contexts, including virtual and real-world learning environments (Pedaste et al., 2015).

Table 2 Pathways in the inquiry cycle, as suggested by Pedaste et al. (2015)

	Pathway	Special characteristics
	A discussion phase can overlap with – and influence – any of the phases described below at any given time within the inquiry cycle	
(a)	Orientation – questioning – exploration – questioning – exploration – data interpretation	The loop between questioning and exploration can be repeated more than once. Alternatively, it is possible to move directly from the initial exploration to data interpretation. Communication and reflection can occur additionally in each phase
(b)	Orientation – hypotheses – experimentation – data interpretation – hypotheses – experimentation – data interpretation – conclusion	The loop between hypotheses, experimentation, and data interpretation can be repeated more than once. Alternatively, it is possible to move directly from the initial data interpretation to conclusion. Communication and reflection can occur additionally in each phase
(c)	Orientation – questioning – hypotheses – experimentation – data interpretation – hypotheses – experimentation – data interpretation – conclusion	The loop between hypotheses, experimentation, and data interpretation can be repeated more than once. Alternatively, it is possible to move directly from the initial data interpretation to conclusion. A revision of the questioning phase might be necessary, but it is more likely that hypotheses are revised. Communication and reflection can occur additionally in each phase

Evaluation/Research Issues and Approaches Associated with the Topic

The effectiveness and efficacy of IBL have been continuously challenged over the past decades (Furtak, Seidel, Iverson, & Briggs, 2012; Kirschner, Sweller, & Clark, 2006; Mayer, 2004). Critics have proposed that IBL does not provide sufficient structure to help learners understand and apply important concepts and procedures of science (e.g., Kirschner et al., 2006; Mayer, 2004). The critics of IBL typically advocate for expository, direct forms of instruction, in which teachers present knowledge in the form of carefully designed lectures and verification-oriented laboratory exercises (Kirschner et al., 2006). The rationale for the critics' recommendations is based on their understanding of IBL as an educational strategy in which teachers are taking a hands-off approach to the learning process of their students, while said students are engaging in almost entirely self-directed of dubious value (Kirschner et al., 2006). In their argumentation, they often categorize IBL along with other educational approaches, such as problem-based learning and discovery learning, under umbrella terms such as "minimally guided instruction,"

describing settings in which leaners discover and explore scientific phenomena without instructor guidance (Kirschner et al., 2006). However, not all researchers agree with this "hands-off" definition of IBL, but argue that IBL must be differentiated from unguided discovery learning because IBL approaches are typically thoroughly scaffolded (Hmelo-Silver, Duncan, & Chinn, 2007). Advocates of IBL agree with opponents of minimally guided instruction approaches in that there is relatively little evidence suggesting that minimally guided instruction approaches foster learning to a considerable degree (Hmelo-Silver et al., 2007). However, the advocates of IBL do not agree that IBL does in fact classify as a minimally guided instruction approach (Hmelo-Silver et al., 2007) because IBL approaches provide scaffolding by means of instructor guidance. In IBL, learners construct knowledge and acquire domain-specific reasoning skills and practices by collaboration and engagement in investigations (Hmelo-Silver et al., 2007). Those investigations typically revolve around authentic scientific questions, and emphasis is placed on active engagement in the learning process and collaborative learning in the sense that students develop evidence-based explanations and communicate their insights (Hmelo-Silver et al., 2007). However, the instructor plays a key role in facilitating that learning process and often provides important content knowledge whenever it is required (Hmelo-Silver et al., 2007). This content knowledge may even be provided by the instructor strategically via direct instruction (Krajcik, Czerniak, & Berger, 1999; Schmidt, 1983; Schwartz & Bransford, 1998), but it is provided on a just-in-time basis and only when it becomes necessary in order for the students to be able to proceed (Edelson, 2001; Hmelo-Silver et al., 2007).

While the debate between advocates of IBL and direct forms of instruction continues, researchers have turned to investigate the effectiveness of IBL with regard to the specific conditions that affect learning processes and outcomes (Furtak et al., 2012). Such studies often follow an experimental or quasi-experimental design in which a control group receives instruction via lecture and an experimental group engages in IBL, with varying levels of guidance and scaffolding (Furtak et al., 2012). The learning outcomes between control and experimental group are typically compared with regard to conceptual understanding, and a number of meta-analyses of reforms in science education found IBL to be relatively more effective than lecture-based direct instruction (Bredderman, 1983; Schroeder, Scott, Tolson, Huang, & Lee, 2007; Shymansky, Hedges, & Woodworth, 1990; Weinstein, Boulanger, & Walberg, 1982). However, even in those meta-analyses, IBL was not defined in a consistent manner and varied greatly in the amount and types of support provided by the instructors (NRC, 1996; 2001). The variability in the way IBL has been operationalized is detrimental to the construct validity of IBL in meta-analyses. That is the case because the generalizability of the inferences that can be made after combining effect sizes is sensitive to (a) the selected sample, (b) the operationalization of the outcome measures, and (c) the way that IBL was defined (Furtak et al., 2012; Shadish, Cook, & Campbell, 2002). Coding IBL as either present or absent does not take into account the range of activities and cognitive processes learners engage in and ignores the different levels of scaffolding and guidance provided by instructors (Hmelo-Silver et al., 2007).

Core Findings and Future Trends

To determine whether the cognitive demands placed upon learners within IBL settings, and the level of guidance provided by instructors, affect learning processes and learning outcomes, Furtak et al. (2012) introduce a framework that takes into account the cognitive features of IBL activities and the degree of guidance provided to the students who engage in the IBL activities. Both aspects, the cognitive dimension of inquiry and the guidance dimension of inquiry, are introduced and discussed in the following, based upon the framework proposed by Furtak et al. (2012).

The Cognitive Dimension of Inquiry

Based on Duschl's (2003, 2008) operationalization of IBL, Furtak et al. (2012) propose the following cognitive dimensions of inquiry: (a) conceptual structures/cognitive processes learners employ during scientific reasoning, (b) epistemic frameworks which are utilized whenever scientific knowledge is constructed and evaluated, and (c) social interactions which affect how knowledge is represented, shared, and discussed. Furtak et al. (2012) then add a fourth category, which the authors view as a subdivision of Duschl's (2003, 2008) epistemic domain and which they refer to as the procedural domain. The four domains that comprise the cognitive dimensions of inquiry are further explained in Table 3.

Table 3 Domains within the cognitive dimension of inquiry according to Furtak et al. (2012)

	Domain	Definition	Cognitive IBL features within domain
1	Conceptual domain	Scientific theories, facts, principles, i.e., the body of knowledge regarding science	Relate to prior knowledge, tap into students' mental models, provide conceptual informative tutorial feedback
2	Epistemic domain	Knowledge on how to generate scientific theories, facts, and principles by means of collecting evidence	Refer to the nature of science, draw evidence-based conclusions, generate and adapt theories
3	Social domain	Communicative and collaborative processes by which knowledge on scientific theories, facts, and principles is constructed	Take part in class discussions, debate scientific ideas, present knowledge, work collaboratively
4	Procedural domain	Methods of discovering scientific theories, facts, and principles, i.e., asking questions, designing experiments, collecting and interpreting data	Generate scientific questions, design experiments, apply scientific procedures, record data, represent data, take a hands-on approach

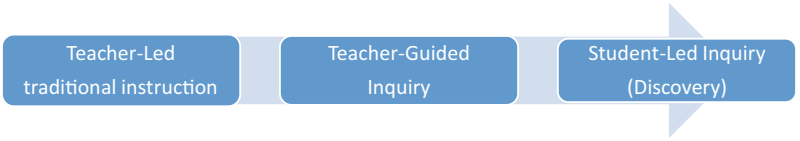

Fig. 2 The guidance dimension of inquiry, relative to student involvement in the guidance process. (Adapted from Furtak et al., 2012)

The Guidance Dimension of Inquiry

In addition to the cognitive dimension of inquiry, Furtak et al. (2012) propose that IBL settings vary depending on the level of guidance that is provided to the student. They conceptualize the guidance dimension as a continuum, varying from teacher-led traditional instruction, via teacher-guided inquiry, to student-led inquiry/discovery (Fig. 2).

Based on this continuum, Furtak et al. (2012) identified three distinct types of guidance contrasts to make this continuum available for comparisons:

(a) Teacher-led traditional instruction versus student-led inquiry
(b) Teacher-led traditional instruction versus teacher-guided inquiry
(c) Teacher-guided inquiry versus student-led inquiry

Effects of Cognitive Demands and Guidance Within IBL

Grounded in this framework distinguishing between cognitive and guidance dimensions of inquiry, Furtak et al. (2012) conducted a meta-analysis in which they coded 37 experimental and quasi-experimental studies published in the period of 1996–2006. A main goal of their meta-analysis was to determine which cognitive and guidance dimensions were compared and contrasted in the studies, in order to arrive at more nuanced interpretations of results, and to derive implications for teaching practice and future research. For each of the 37 studies, the authors assessed which cognitive feature(s), and which guidance features, were present in experimental and control groups. They found that the 37 studies included in their review had an average effect size of .50 (SD = 0.56). With regard to the cognitive dimensions, the authors found that 10 out of the 37 studies employed all 4 of the cognitive domains in their experimental IBL groups. In other words, the participants in the experimental groups in those ten studies were required to generate knowledge on scientific theories, facts, and principles; they needed to develop an understanding of how those theories, facts, and principles are generated and communicated, and they were required to apply scientific methods in a hands-on approach. Seven out of the 37 studies required students to generate knowledge and communicate it. Six studies only required students to generate knowledge. Five studies required students to generate scientific knowledge, come to an understanding how to generate it, and

apply scientific methods. Ten different combinations of cognitive domains were found in the experimental groups in total. For the control groups, the researchers found that 21 studies included conceptual scientific knowledge and 8 different combinations of cognitive features (Furtak et al., 2012).

In many studies, the cognitive domains were intertwined within the IBL procedure and applied to varying degrees to both experimental and control groups. For example, in a study conducted by Chang and Mao (1999), students in the experimental group collaborated in teams to collect data (procedural domain), discussed and presented that data (social domain), and generated explanations based on the data (epistemic domain), in the context of the topic of the sun-moon-earth system (conceptual domain). Students in the control group, in contrast, experienced a combination of lectures and demonstrations on the same topic (conceptual domain). As demonstrated in this example, the control groups often employed at least one of the cognitive features that were also present in the experimental groups. Furtak et al. (2012) therefore refrained from interpreting the effect sizes of those studies solely based on the cognitive inquiry domains present in the experimental groups, but instead determined the difference between the cognitive domains in experimental and control groups via contrasts, relative to each other. In the example from the study of Chang and Mao (1999), the conditions contrasted in were coded as conceptual, epistemic, social, and procedural (experimental group) versus conceptual (control group). The researchers found that the three studies that explicitly contrasted the cognitive epistemic domain of inquiry produced the largest mean effect on student learning (.75). The second largest effect size (.72) was found for studies contrasting a combination of epistemic, social, and procedural domains. The most commonly contrasted domain was the social domain, which produced the lowest effect size (.11), as compared to the other contrasts (Furtak et al., 2012).

For the guidance dimension of inquiry, the researchers found that the ten studies explicitly contrasting teacher-led traditional instruction with teacher-guided inquiry produced a higher mean effect size (.65) than the five studies contrasting teacher-led traditional instruction with student-led inquiry/discovery (.25). The six studies contrasting teacher-guided inquiry with student-led inquiry/discovery produced the smallest mean effect size (.01). When combining the cognitive and guidance dimensions in one analysis, the researchers found the largest effect sizes (.80) for studies contrasting teacher-led traditional instruction versus teacher-guided inquiry when those studies varied a combination of epistemic domain, social domain, and procedural domain (Furtak et al., 2012).

Implications for Learning and Teaching

The results of this meta-analysis (Furtak et al., 2012) demonstrate an overall positive effect of IBL on student learning. By taking into account the cognitive demands of different IBL approaches, as well as varying levels of instructor support, the researchers were able to show that it is important to specify features of IBL settings,

rather than attempting to market IBL as a "one size fits all" type of paradigm. This notion is supported by the considerable variability in effect sizes that different combinations of cognitive demands and instructor support produced.

With regard to the cognitive dimension of IBL, it was found that studies contrasting the epistemic domain and studies contrasting a combination of epistemic, social, and procedural domains produced the largest effect sizes. This means that it is particularly important to involve learners in constructing, developing, and explaining scientific rationales and procedures, to help learners understand, and engage in, science (Furtak et al., 2012).

With regard to the guidance dimension of IBL, the researchers found that the subset of ten studies contrasting teacher-guided inquiry with teacher-led traditional instruction produced effect sizes that were twice as large as the five studies that contrasted student-led inquiry (discovery) with teacher-led traditional instruction (Furtak et al., 2012). This evidence suggests that teacher-guided inquiry IBL settings have a more positive effect on student learning than student-led IBL settings that are more discovery oriented. With regard to the ongoing debate about the general effectiveness of IBL (Kirschner et al., 2006; Mayer, 2004; Klahr & Nigam, 2004; Hmelo-Silver et al., 2007), this finding highlights an important aspect.

It is inappropriate to group teacher-guided IBL settings with unguided student-led discovery approaches, because teacher-guided IBL approaches are twice as effective as student-led discovery approaches (Furtak et al., 2012). It is noteworthy, however, that this meta-analysis still revealed that even if teacher-guided and student-led IBL approaches are grouped together, these approaches still benefit student learning more than teacher-led traditional instruction (Furtak et al., 2012), thus highlighting the importance of furthering IBL settings as a viable means of constructing knowledge inside and outside the classroom.

Two Questions Remain: What Type of Guidance Is Adequate, and for Whom?

Having established the cognitive demands and some general notions on guidance within IBL approaches, a glaring question remains: What type of guidance is adequate, and for whom? As Lazonder and Harmsen (2016) point out in their recent meta-analysis, this question can only be answered when taking into account developmental differences in scientific reasoning, as well as a more nuanced typology of guidance. Scientific reasoning is a core cognitive demand in IBL settings and encompasses the four cognitive dimensions of inquiry comprised of the conceptual domain, the epistemic domain, the social domain, and the procedural domain (Furtak et al., 2012). Overall, scientific reasoning can be summarized as the application of scientific methods of inquiry to reasoning situations (Kuhn, & Franklin, 2006). Scientific reasoning is not a skill which we are born with, but rather a skill set which develops over time. Table 4 is adapted from the meta-analyses by Lazonder and Harmsen (2016) and provides an overview of a number of skills involved in scientific reasoning, relative to their development from childhood into adulthood.

Table 4 Scientific reasoning skills and developmental milestones according to Lazonder and Harmsen (2016)

Reasoning skill	Developmental milestones
Formulating hypotheses	Skill to develop hypothesis develops during elementary school age (Piekny & Maehler, 2013)
	Children prior to adolescence often formulate only one plausible hypothesis based on their prior beliefs (Klahr, Fay, & Dunbar, 1993)
	Adolescents are more likely to consider multiple hypotheses and are able to generate implausible hypotheses along with plausible ones (Klahr et al., 1993)
	The ability to formulate hypotheses matures around the age of 12, but inducing alternative or novel hypotheses from data remains a challenge across age groups (Klahr et al., 1993)
Design experiments	Five years are not yet capable of distinguishing between probing a hypothesis and generating an effect, but this skill increases around the age of 6 (Piekny, Gruber, & Maehler, 2014; Sodian, Zaitchik, & Carey, 1991)
	With support, 6- to 7-year-olds are able to test relationships between variables (Chen & Klahr, 1999; Varma, 2014)
	Most learners only acquire this skill around the age of 10 (Kanari & Millar, 2004; Schauble, Glaser, Duschl, Schulze, & John, 1995)
	Through middle childhood and adolescence, children continuously improve their ability to develop experimental comparisons and become increasingly able to transfer this skill to a variety of domains (Chen & Klahr, 1999; Koerber, Sodian, Kropf, Mayer, & Schwippert, 2011; Veenman, Wilhelm, & Beishuizen, 2004)
Evidence evaluation	The ability to differentiate between perfect covariation and non-covariation evidence emerges during preschool and early elementary school years (Koerber et al., 2011; Piekny & Maehler, 2013)
	Preschool children of 4 to 5 years of age are already capable of understanding perfect covariation as causation (Koerber, Sodian, Thoermer, & Nett, 2005; Piekny et al., 2014)
	The more demanding ability to interpret imperfect covariation starts developing in early childhood, develops slowly, and is hardly ever fully understood by individuals, even in adulthood (Kuhn, Amsel, & O' Loughlin, 1988)

In summary, Lazonder and Harmsen (2016) suggest that children around the age of 5 start being able to generate hypotheses, conduct simple experiments, and evaluate evidence. These skills constitute some basic cognitive requirements for engaging in IBL processes, thereby rendering children around the age of 5 ready to participate in simplified IBL settings. Young learners who operate at very basic cognitive levels of inquiry are likely to need different levels of guidance than older learners in order to be successful, which highlights the importance of further specifying and elaborating on the guidance dimension of inquiry (Lazonder & Harmsen, 2016).

Lazonder and Harmsen (2016) define guidance as any type of assistance offered before or during IBL activities, aiming to simplify, support, or elicit certain scientific reasoning skills. Because younger (or generally less experienced) learners typically require more explicit guidance than older (or more experienced) learners, it is important to provide a framework which classifies guidance features based on their explicitness or extensiveness, rather than focusing solely on the cognitive skills or demands that are necessary to succeed within a particular IBL environment (Lazonder & Harmsen, 2016). With this notion in mind, Lazonder and Harmsen (2016) propose the following typology of guidance within IBL settings, which they adapted from previous works of De Jong and Lazonder (2014):

- *Process constraints* are restrictions to the comprehensiveness of a learning task and are directed at learners who are capable of performing and regulating basic IBL processes but who lack the experience to perform under more demanding circumstances.
- *Status overviews* highlight task progress and are directed at learners who are able to engage in basic IBL processes, but lack the ability to plan, and are unable to monitor their learning progress, relative to their learning goals.
- *Prompts* are reminders to perform a certain action and are aimed at learners who are capable of performing that action but unable to do so at their own initiative.
- *Heuristics* are reminders to perform an action and provide information on how to perform that action and are directed at learners who are unsure about how and when a certain action should be performed.
- *Scaffolds* are explanations or directions on how to tackle particularly demanding parts of an action and are directed at learners who do not yet have the ability to perform the entire action on their own or who do not remember how to perform that action.
- *Explanations* specify how to perform an action and are directed at learners who do not yet know just how to perform that action.

Based on this framework, Lazonder and Harmsen (2016) determined 72 studies to include in their meta-analysis, which aimed at determining the effectiveness of the different types of guidance on learning activities, performance success, and learning outcomes, relative to learners' ages.

They identified 72 studies to be included in their analyses. Measures of learning activities (i.e., the utilization of inquiry skills within the IBL process) were reported in 20 out of the 72 studies. The overall effect size of guidance on learning activities ranged between 0.44 and 0.88, thus indicating a medium to large effect. The overall effect of guidance on learning activities did not depend on the specificity or type of guidance, but the results revealed an interaction between type of guidance and learner age. Process constraints, which are the least directive type of guidance, were more beneficial for adolescents ($d = 0.94$) than for children ($d = 0.78$). Scaffolds, which provide more specific guidance, were more effective for teenagers ($d = 3.62$) than for adolescents ($d = 0.70$). However, none of these descriptive differences reached statistical significance.

Performance success was operationalized via the products, which learners generated during their IBL process, and was reported in 17 out of the 72 studies (Lazonder & Harmsen, 2016). The results again revealed an overall positive effect of guidance ($d = 0.71$). Learners who received guidance outperformed unguided learners by more than half a standard deviation, which produced a significant difference between those two groups ($p < .001$). Larger effect sizes were associated with more specific guidance ($p = .030$), and explanations were more effective than all the other less specific types of guidance combined ($p = .033$). No effect was found for scaffolds, but heuristics were more effective than their less specific alternatives ($p = .043$). Prompts were as effective as status overviews and process constraints combined ($p = .401$), and status overviews were less effective than process constraints ($p = .023$). However, the results also revealed that no type of guidance was particularly effective relative to the age of learners, thereby indicating that the different types of guidance have similar positive effects on performance success in children, teenagers, and adolescents (Lazonder & Harmsen, 2016).

Learning outcomes were reported in 60 out of the 72 studies included in the meta-analysis (Lazonder & Harmsen, 2016). The overall effect size of guidance on learning outcomes ($d = 0.50$) indicated a moderate effect. The type of guidance had no significant effect. That is, all six types of guidance were equally effective in facilitating learning outcomes. The effectiveness of the different types of guidance was unrelated to age groups, indicating that children, teenagers, and adolescents benefited from the different types of guidance to comparable extents (Lazonder & Harmsen, 2016).

In summary, the meta-analysis by Lazonder and Harmsen (2016) emphasized the overall effectiveness of guidance in IBL settings, thereby supporting the previous findings of Furtak et al. (2012). However, their analyses did not result in a clear conclusion as to whether specific types of guidance yield more promising effects for some learners over others. In spite of a moderating effect in performance success, different types of guidance did not lead to differences in learning activities and learning outcomes. Both, learning activities and learning outcomes, were enhanced by each type of guidance to similar extents. For all practical purposes, this means that less specific types of guidance, such as process constraints or status overviews, are already helpful to young learners with low inquiry skills. Reversely, older, more experienced learners are able to benefit from specific types of guidance, such as scaffolds and explanations (Lazonder & Harmsen, 2016).

Further Implications for Learning and Teaching

Critics of IBL have argued that guidance that is more specific will result in higher learning outcomes and have thus argued for high levels of instructional guidance in general (Kirschner et al., 2006). Typical examples for high levels of instructional guidance, which have been successfully incorporated into IBL settings and which have been advocated for by IBL critics (Kirschner et al., 2006), include worked examples and process worksheets (De Vries, Van der Meij, & Lazonder, 2008; Mulder, Lazonder, & De Jong, 2014). Using the framework introduced by Lazonder

and Harmsen (2016), worked examples would classify as explanations, and process worksheets would classify as heuristics and would thus categorize as different types of guidance. However, based on their meta-analysis, Lazonder and Harmsen (2016) argue that both types of guidance, in spite of differing in terms of specificity, would yield comparable positive effects on IBL processes and learning outcomes.

In essence, this finding means that "strong guidance" does not equal "specific" guidance. Other aspects, such as duration and frequency of guidance, might be more important to optimize the IBL process and related learning outcomes.

Based on the meta-analyses by Furtak et al. (2012) and Lazonder and Harmsen (2016), it is recommended to employ some level of guidance within IBL settings to help learners accomplish subtasks and overarching goals and to effectively learn from the IBL activities. This means that whenever learners engage in scientific inquiry processes, instructors should take care to provide the learners with adequate guidance. However, it is important to note that adequate guidance does not equal highly specific guidance, as often suggested by IBL critics. In addition, instructors are not required to select a particular type of guidance based on assumptions related to the age of their students or the student's prior expertise within IBL settings (Lazonder & Harmsen, 2016). Instead, instructors are able to base their guidance choices on factors such as the learners' prior topic knowledge, familiarity with certain inquiry skills, or the student-instructor ratio (Lazonder & Harmsen, 2016).

IBL in Higher Education: Facilitating Factors and Constraints

IBL has been increasingly applied to university settings, with the goal to move toward more student-centered learning (Biggs, 1999; Ramsden, 2003) and to bridge the gap between teaching and research (Boyer Commission, 1999; Brew, 2006; Healey & Jenkins, 2009). In 2011, a meta-analysis examined ten studies, which had been conducted within a multi-institutional research project examining IBL settings within undergraduate university education in New Zealand (Spronken-Smith et al., 2011). The specific aim was to determine facilitating factors and constraints of IBL within undergraduate education and to draw conclusions that would be helpful to educators across the world. The ten studies included in the meta-analysis followed a mixed-methods approach. The studies included case study data, instructor and student interviews, classroom observations, focus groups, in-class feedback sessions, and quantitative survey data (Spronken-Smith et al., 2011).

Based on a triangulation of evidence across data sources, Spronken-Smith et al. (2011) identified three factors, which facilitated the effectiveness of IBL in undergraduate education, pertaining to instructor attributes, course design attributes, and institutional/departmental attributes. The authors further identified five barriers constraining the effectiveness of IBL in undergraduate education, pertaining to institutional buy-in, support in the transition toward IBL, coping with different assessment products, challenges in self-reflection skills, and institutional/departmental barriers. Table 5 provides an overview of those facilitating factors and constraints and their components.

Table 5 Facilitating factors and constraints for IBL in undergraduate education, adapted from Spronken-Smith et al. (2011)

Facilitating factors for IBL in undergraduate education	
Factor	Specific aspects
Instructors	Instructor supports student-centered teaching philosophy
	Instructor skilled in self-reflection
	Instructor has personal interest in the scientific method
	Instructor is ready to challenge departmental norms
	Instructor is trained in IBL or seeks support from experienced faculty
Course design	Courses allow for open-ended questions
	Courses focus on collaborative learning
	Courses focus on active student engagement
	Courses focus on student-centered learning, with instructor guidance
	Courses provide scaffolds for inquiry skills
Institutional/departmental facilitating factors	IBL course implementation is easier if the whole program is student-centered
	Support of IBL by administration
	Sufficient resources (faculty, staff, and learning spaces)
	Development opportunities for faculty and staff
Constraints for IBL in undergraduate education	
Departmental and institutional buy-in	Lack of access and funds for faculty/staff development programs
	Lack of mentoring opportunities provided by IBL experienced faculty
	Lack of peer mentoring approaches
Transition support	Lack of appropriate induction for faculty, staff, and students
	Lack of departmental/institutional consensus on how to transition from teacher-led, traditional instructional approaches toward IBL
Coping with different assessment products	Lack of flexibility in how to assess learning progress and learning outcomes
	Lack of clear assessment criteria
Self-reflection challenges	Lack of reflection exercises built into course structures
	Lack of examples for effective self-reflection to model appropriate strategies
Institutional/departmental constraints and barriers	Lack of showcasing good practice examples
	Lack of emphasis on positive IBL outcomes
	Lack of dialogue about IBL and its underlying principles
	Lack of instructor education on the potential and working mechanisms of successful IBL in undergraduate education

In summary, this meta-analysis highlights the importance of departmental and institutional support for transiting from teacher-led, traditional instructional approaches to IBL (Spronken-Smith et al., 2011), with a focus on fostering dialogue

about IBL principles and IBL effectiveness. Associated with this institutional and departmental support are resources necessary for facilitating the successful implementation of IBL, such as access to faculty and staff development programs, and appropriate learning spaces, to establish what could be paraphrased as an IBL corporate culture with universities. On the course level, it is important that collaborative learning and inquiry with instructor guidance are structurally possible and supported by the individual instructors by focusing on student-centered learning and showing authentic and genuine understanding of, and enthusiasm for, scientific inquiry processes (Spronken-Smith et al., 2011).

IBL and Computers: Tools for Successful Inquiry and Learner Collaboration

Computer tools can support learners in successfully completing inquiry cycles (Bell et al., 2010). One reason is that computers assist in the performance of routine processes, such as calculating, sorting, and visualizing data, thereby freeing cognitive resources for higher-order thinking processes necessary for successful IBL (Bell et al., 2010; Lehtinen, 2003; van Joolingen, de Jong, Lazonder, Savelsbergh, & Manlove, 2005). A second reason is that computers can be controlled by learners and utilized to research and access information independently and without relying on the instructor (Bell et al., 2010; Lehtinen, 2003; van Joolingen et al., 2005). Different computer tools are optimized to support different phases within inquiry cycles. The following section introduces and discusses exemplar computer tools, relative to the phase of the inquiry cycle they support. Fig. 3 provides an overview of those tools, relative to the inquiry phase they support.

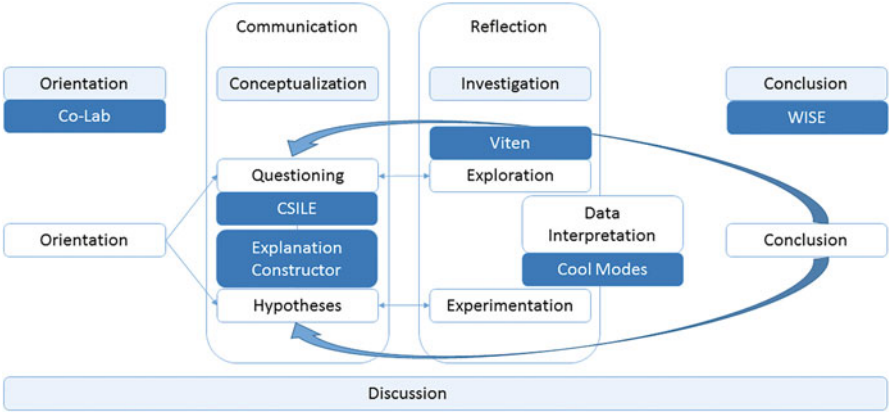

Fig. 3 Examples of computer tools supporting different inquiry phases

Tools Supporting the Orientation Phase

Computer tools are able to aid cognitive processes in the orientation phase by eliciting learner interest, stimulating interest, and focusing attention on relevant information (Bell et al., 2010; Hmelo & Day, 1999). An example is the Co-Lab project (van Joolingen et al., 2005; www.co-lab.nl), which assists learners in developing a first impression of what an inquiry-based investigation could look like. In the Co-Lab project "Greenhouse effect," learners first encounter an assignment, which encourages them to explore their environment, experiment with a simple simulation of sun-earth configurations, and build a basic model of greenhouse processes (Bell et al., 2010; van Joolingen et al., 2005). This helps learners to orient within this topic domain but leaves plenty of freedom to explore and develop their own research questions (Bell et al., 2010).

Tools Supporting Questioning in the Conceptualization Phase

Because complex scientific topics can typically not be investigated in just one attempt, computer tools can be helpful in prompting continued questioning (Bell et al., 2010). An example for such a tool is the Computer-Supported Intentional Learning Environment (CSILE, Scardamelia & Bereiter, 1994). This learning environment offers a knowledge-building tool, which allows learners to add notes to a community database. The learning environment prompts learners to label their notes, based on the "thinking type" the notes relate to, which can be "question," "my theory," or "plan." The learning environment provides definitions of each thinking type and supports learners in collaborative learning efforts and facilitates continuous, iterative questioning throughout the inquiry process (Scardamelia, Scardamalia, 2002).

Tools Supporting Hypotheses Building in the Conceptualization Phase

An example for a computer tool, which supports the formation and generation of hypotheses, is the ExplanationConstructor (Sandoval, 2003; Sandoval & Reiser, 2004). This tool offers multiple features. One feature is "The Organizer," which learners can use to develop questions and link their questions to potential explanations. Using another feature, learners can then elaborate on their questions and explanations by linking the explanations to evidence, such as data diagrams. Another feature, the "Explanation Guide," explicitly highlights the most important components of a scientific explanation (Sandoval & Reiser, 2004).

Tools Supporting Exploration in the Investigation Phase

Learners often have difficulties conducting investigations because they do not know which variables to attend to and how to conduct efficient and conclusive experiments

and seek out to confirm their original hypotheses, rather than testing it (Bell et al., 2010; de Jong & van Joolingen, 1998). Computer tools can aid the investigation process by reducing the complexity of scientific phenomena and drawing attention to the relevant variables (Bell et al., 2010; van Joolingen et al., 2005). In the Viten project (www.viten.no), for example, different representations of information can be accessed. The project "On Thin Ice" incudes an animation demonstrating the fundamental structure of the earth's radiation balance and how this radiation balance is impacted by fossil fuel combustion, deforestation, volcanic eruptions, and traffic (Bell et al., 2010). Learners are also able to access time series data from expert projections and links to web resources with further information. The Viten project thus encourages learners to explore various types of information by employing rich multimedia functionality (Bell et al., 2010).

Tools Supporting Data Interpretation

Data analyses and interpretation are important to test one's hypotheses against gathered information and evidence (Bell et al., 2010). To accomplish that, data needs to be represented in an appropriate format suitable to the planned analysis. Cool Mode (Pinkwart, 2003; 2005) is a computer tool, which allows for dynamic representations of data and supports data interpretation with diagrams and tables. Learners have the additional option to add notes to data windows (Lingnau et al., 2003). By utilizing multiple layers and windows flexibly, Cool Mode is able to display different features simultaneously, such as graph windows and note windows, thereby facilitating data interpretation (Bell et al., 2010; Manlove, Lazonder, & de Jong, 2007).

Tools Supporting the Conclusion Phase

Computer support in the conclusion phase takes place on different levels. On a basic level, features like electronic notebooks, as provided by the WISE (Web-based Inquiry Science Environment, Slotta, 2004), are equipped with prompts challenging learners to reflect on their conclusions more deeply, to view their findings from different perspectives, or to apply their results to a transfer problem. For a more in-depth reflection on their own conclusions, the WISE engages learners in complex, transfer-oriented modeling tasks (Bell et al., 2010). An example is derived from the "Too fast, too furious" module within WISE. First, learners simulate the motions of both driver and airbag in a crash scenario to learn about the risks of using airbags and the underlying physical principles. Learners are prompted to capture their learning in an electronic notebook and then asked to reflect on what they have learned. In a next step, learners are required to generate conclusions on the role of collision speed, driver's body height, and a car's crash zone. The next assignment is to write a report to the fictitious "Insurance Institute for Highway Safety" and to include recommendation for the design of cars and airbags (Bell et al., 2010). In a final step, learners are prompted to consider multiple simulations of car crashes, relative to comparable

physical models from other scientific domains, and to derive conclusions related to general issues of modeling (Bell et al., 2010; Slotta, 2004).

There are many more tools available for each of the inquiry phases. In summary, it is worthy to note that the main advantage of computerized IBL support is based on an optimization of IBL processes, perhaps comparable to that of instructor guidance. That is not to say that computer support is equivalent to instructor guidance. Rather, computer support and instructor guidance share a number of helpful features, such as focusing learners' attention on relevant information, scaffolding IBL processes, and encouraging continuous inquiry.

Challenges, Lessons Learned, and Implications

Psychologists and educational scientists agree that learner involvement is key to successful learning (Freeman et al., 2014; Lazonder & Harmsen, 2016). In the rapidly changing work environments of the twenty-first century, educational approaches must equip learners with skills necessary to engage in lifelong learning under ever-changing conditions. Teachers, researchers, and policy-makers have thus been advocating for learner-centered educational approaches, embedded in authentic application-based contexts (European Commission, 2007; NCREL, 2003; OECD, 2009; Barron & Darling-Hammond, 2010; Mullis et al., 2009). Inquiry-based learning (IBL), as an educational approach, satisfies these interests and demands because it features authentic inquiry processes and focuses on building a scientifically literate community (Pedaste et al., 2015), which makes IBL an ideal candidate for the teaching of psychology in the context of higher education.

The effectiveness and efficacy of IBL have been continuously challenged over the past decades (Kirschner et al., 2006; Mayer, 2004). Critics have proposed that IBL does not provide sufficient structure to help learners understand and apply important concepts and procedures of science (e.g., Kirschner et al., 2006; Mayer, 2004). The critics of IBL typically advocate for expository, direct forms of instruction, in which teachers present knowledge in the form of carefully designed lectures and verification-oriented laboratory exercises (Kirschner et al., 2006). Based on the meta-analyses by Furtak et al. (2012) and Lazonder and Harmsen (2016), this chapter comes to the conclusion that it is essential to employ some level of guidance within IBL settings to help learners accomplish subtasks and overarching goals and to effectively learn from the IBL activities. This means that whenever learners engage in scientific inquiry processes, instructors should take care to provide the learners with adequate guidance. However, it is important to note that adequate guidance does not equal highly specific guidance, as often suggested by IBL critics (Kirschner et al., 2006). In essence, the work of Lazonder and Harmsen (2016) showed that "strong guidance" does not equal "specific" guidance. Other aspects, such as duration and frequency of guidance, might be more important to optimize the IBL process and related learning outcomes.

For IBL in higher education, the conclusions of this chapter highlight the importance of departmental and institutional support for transiting from teacher-led,

traditional instructional approaches to IBL (Spronken-Smith et al., 2011), with a focus on fostering dialogue about IBL principles and IBL effectiveness. Associated with this institutional and departmental support are resources necessary for facilitating the successful implementation of IBL, such as access to faculty and staff development programs, and appropriate learning spaces, to establish what could be paraphrased as an IBL corporate culture with universities. On the course level, it is important that collaborative learning and inquiry with instructor guidance are structurally possible and supported by the individual instructors by focusing on student-centered learning and showing authentic and genuine understanding of, and enthusiasm for, scientific inquiry processes (Spronken-Smith et al., 2011).

There are many computer tools available to support learners throughout each of the inquiry phases (Bell et al., 2010). With regard to those tools, it is worthy to note that the main advantage of computerized IBL support is based on an optimization of IBL processes, perhaps comparable to that of instructor guidance. That is not to say that computer support is equivalent to instructor guidance. Rather, computer support and instructor guidance share a number of helpful features, such as focusing learners' attention on relevant information, scaffolding IBL processes, and encouraging continuous inquiry.

In conclusion, IBL is an effective approach to meet the demands of teaching in higher education in the twenty-first century and, thus, the teaching of psychology at universities. Learners benefit from guidance within the IBL process. It is up to instructors to determine the level of specificity and the type of guidance they choose to implement, relative to the learners' prior knowledge. Institutions and departments are powerful allies in the implementation of IBL at the course and university level and the facilitation of positive IBL outcomes.

Teaching, Learning, and Assessment Resources Associated with the Topic

Below you will find a list of ten recommended further reading references and URLs about relevant teaching, learning, and assessment resources that you may find inspiring for teaching and learning.

Reading Resources

Bell, T., Urhahne, D., Schanze, S., & Ploetzner, R. (2010). Collaborative inquire learning: models, tools, and challenges. *International Journal of Science Education, 32*(3), 349 – 377. https://doi.org/10.1080/09500690802582241.

In this article, the authors introduce a number of computer tools to assist learners in the successful completion of different phases within the inquiry process. A particular benefit of this work is that it highlights not the tool itself, but its functions, relative to the inquiry cycle.

Furtak, E.M., Seidel, T., Iverson, H., & Briggs, D. (2012). Experimental and quasi-experimental studies of inquiry-based science teaching: A meta-analysis. Review of Educational Research, 82(3), 300 – 329. https://doi.org/10.3102/0034654312457206.

In this meta-analysis, the authors introduce a framework for the evaluation of IBL settings, relative to their cognitive demands and their degree of guidance, thus contributing to more nuanced explanations relative to the ongoing debate on the overall effectiveness of IBL.

Lazonder, A.W. & Harmsen, R. (2016). Meta-analysis of inquiry-based learning: Effects of guidance. *Review of Educational Research, 86*(3), 681 – 718. https://doi.org/10.3102/0034654315627366.

In this meta-analysis, the authors revisit the historic debate about the importance of guidance within IBL settings, and elaborate on previous research by investigating effects of different types of guidance, relative to learner age and IBL experience.

Pedaste, M., Mäeots, M., Siiman, L.A., de Jong, T., van Riesen, S.A.N., Kamp, E.T., Manoli, C.C., Zacharia, Z.C., & Tsourlidaki, E. (2015). Phases of inquiry-based learning: Definitions and the inquiry cycle. *Educational Research Review, 14,* 47 – 61. https://doi.org/10.1016/j.edurev.2015.02.003.

In this overview article, the authors discuss different approaches to defining inquiry phases and inquiry cycles based on previous research and current directions.

Web Resources: Tools Supporting IBL Processes

www.viten.no

The Viten project offers web-based learning resources K 8–12. Various tools can be utilized to support specific phases within the IBL process.

www.co-lab.nl

Co-Lab offers a large platform for complex learning environments supporting IBL processes, targeting various phases of IBL cycles.

https://www.mindmeister.com/

MindMeister is a popular web tool learners can use to create mind maps and brainstorm complex topics. Mind maps can include a wide variety of multimedia including text, images, icons, links, and attachments. MindMeister also supports offline editing and syncing. Mind maps can be exported to Word, PowerPoint, and PDF and in the form of an image.

http://edu.glogster.com/?ref=com

Glogster is a web tool and mobile app allowing learners to create free interactive posters, or Glogs. A "Glog" (graphics blog) is an interactive multimedia image. Glogster provides educators and learners with the technology to create online multimedia posters – with text, graphics, photos, videos, sounds, drawings, and data attachments.

http://www.videonot.es/

VideoNotes is a free web tool that allows learners to take notes on a video they are watching. The notes are synchronized with the video that is being watched. VideoNotes is integrated into Google Drive, which means that students are able to save their notes directly to their Drive account and access, edit, and work on their notes anytime they want. All the notes are time-stamped.

http://edpuzzle.com/

Edpuzzle enables learners to utilize specific information from videos, insert audio notes, or record over a video with one's own voice. Learners can also add questions and notes to their multimedia collages.

Cross-References

- ▶ Basic Principles and Procedures for Effective Teaching in Psychology
- ▶ First Principles of Instruction Revisited
- ▶ Problem-Based Learning and Case-Based Learning
- ▶ Technology-Enhanced Psychology Learning and Teaching

References

Alfieri, L., Brooks, P. J., Aldrich, N. J., & Tenenbaum, H. R. (2011). Does discovery-based instruction enhance learning? *Journal of Educational Psychology, 103*(1), 1–18. https://psycnet.apa.org/doi/10.1037/a0021017.

American Association for the Advancement of Science. (AAAS). (1993). *Benchmarks for science literacy*. New York, NY: Oxford University Press.

Barron, B., & Darling-Hammond, L. (2010). Prospects and challenges for inquiry-based approaches to learning. In H. Dumont, D. Istance, & F. Benavides (Eds.), *The nature of learning: Using research to inspire practice* (pp. 199–225). Paris, France: Centre for Educational Research and Innovation (OECD).

Bell, T., Urhahne, D., Schanze, S., & Ploetzner, R. (2010). Collaborative inquiry learning: Models, tools, and challenges. *International Journal of Science Education, 32*(3), 349–377. https://doi.org/10.1080/09500690802582241.

Biggs, J. (1999). *Teaching for quality learning at university*. Maidenhead, UK: The Society for Research into Higher Education & Open University Press.

Bittinger, M. L. (1968). A review of discovery. *The Mathematics Teacher, 61*(2), 140–146. Reston, VA: National Council of Teachers of Mathematics.

Boyer Commission. (1999). *Reinventing undergraduate education: A blueprint for America's research universities*. Stony Brook, NY: Carnegie Foundation for the Advancement of Teaching.

Bredderman, T. (1983). Effects of activity-based elementary science on student outcomes: A quantitative synthesis. *Review of Educational Research, 53*(4), 499–518. https://doi.org/10.3102/00346543053004499.

Brew, A. (2006). *Research and teaching: Beyond the divide*. London, UK: Palgrave Macmillan.

Bruce, B. C., & Casey, L. (2012). The practice of inquiry: A pedagogical 'sweet spot' for digital literacy? *Computers in the Schools, 29*(1–2), 191–206. https://doi.org/10.1080/07380569.2012.657994.

Bruner, J. S. (1961). The act of discovery. *Harvard Educational Review, 31*(2), 21–32.

Bruner, J. S., Goodnow, J. J., & Austin, G. A. (1956). *A study of thinking*. New York, NY: Wiley.

Bybee, R. W., Taylor, J. A., Gardner, A., Van Scotter, P., Powell, J. C., Westbrook, A., & Landes, N. (2006). *The BSCS 5E instructional model: Origins and effectiveness* (pp. 88–89). Colorado Springs, CO: BSCS.

Chang, C.-Y., & Mao, S.-L. (1999). Comparison of Taiwan science students' outcomes with inquiry-group versus traditional instruction. *Journal of Educational Research, 92*(6), 340–346. https://doi.org/10.1080/00220679909597617.

Chen, Z., & Klahr, D. (1999). All other things being equal: Acquisition and transfer of the control of variables strategy. *Child Development, 70*(5), 1098–1120. https://doi.org/10.1111/1467-8624.00081.

Corlu, M. A., & Corlu, M. S. (2012). Scientific inquiry based professional development models in teacher education. *Educational Sciences: Theory and Practice, 12*(1), 514–521.

D'Angelo, C., Rutstein, D., Harris, C., Bernard, R., Borokhovski, E., & Haertel, G. (2014). *Simulations for STEM learning: Systematic review and meta-analysis*. Menlo Park: SRI International.

De Jong, T., & Lazonder, A. W. (2014). The guided discovery learning principle in multimedia learning. In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (2nd ed., pp. 371–390). New York, NY: Cambridge University Press.

de Jong, T., & Njoo, M. (1992). Learning and instruction with computer simulations: Learning processes involved. In E. De Corte, M. C. Linn, H. Mandl, & L. Verschaffel (Eds.), *Computer-based learning environments and problem solving* (pp. 411–427). Berlin/Heidelberg, Germany: Springer.

De Jong, T., & Van Joolingen, W. R. (1998). Scientific discovery learning with computer simulations of conceptual domains. *Review of Educational Research, 68*(2), 179–201. https://doi.org/10.3102/00346543068002179.

De Vries, B., Van der Meij, H., & Lazonder, A. W. (2008). Supporting reflective web searching in elementary schools. *Computers in Human Behavior, 24*(3), 649–665. https://doi.org/10.1016/j.chb.2007.01.021.

Duschl, R. A. (2003). Assessment of inquiry. In J. M. Atkin & J. Coffey (Eds.), *Everyday assessment in the science classroom* (pp. 41–59). Arlington, VA: NSTA Press.

Duschl, R. A. (2008). Science education in three-part harmony: Balancing conceptual, epistemic, and social learning goals. *Review of Research in Education, 32*(1), 268–291. https://doi.org/10.3102/0091732X07309371.

Edelson, D. C. (2001). Learning-for-use: A framework for the design of technology-supported inquiry activities. *Journal of Research in Science Teaching, 38*(3), 355–385. https://doi.org/10.1002/1098-2736(200103)38:3%3C355::AID-TEA1010%3E3.0.CO;2-M.

European Commission: Science, Economy, and Society. (2007). *Science education now: A renewed pedagogy for the future of Europe*. Office for Official Publications of the European Communities.

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences, 111*(23), 8410–8415. https://doi.org/10.1073/pnas.1319030111.

Furtak, E. M., Seidel, T., Iverson, H., & Briggs, D. C. (2012). Experimental and quasi-experimental studies of inquiry-based science teaching: A meta-analysis. *Review of Educational Research, 82*(3), 300–329. https://doi.org/10.3102/0034654312457206.

Healey, M., & Jenkins, A. (2009). Developing undergraduate research and inquiry. In *Research report to the higher education academy*. York, UK: Higher Education Academy.

Hermann, G. (1969). Learning by discovery: A critical review of studies. *Journal of Experimental Education, 38*(1), 58–72. https://doi.org/10.1080/00220973.1969.11011167.

Hmelo, C., & Day, R. (1999). Contextualized questioning to scaffold learning from simulations. *Computers & Education, 32*(2), 151–164.

Hmelo-Silver, C. E., Duncan, R. G., & Chinn, C. A. (2007). Scaffolding and achievement in problem-based and inquiry learning: A response to Kirschner, Sweller, and Clark (2006). *Educational Psychologist, 42*(2), 99–107. https://doi.org/10.1080/00461520701263368.

Justice, C., Warry, W., Cuneo, C., Inglis, S., Miller, S., Rice, J., & Sammon, S. (2002). *A grammar for* inquiry: Linking goals and methods in a collaboratively taught social sciences inquiry course. The Alan Blizzard Award Paper: The Award Winning Papers. Canada*:* MrGraw-Hill Ryerson.

Kanari, Z., & Millar, R. (2004). Reasoning from data: How students collect and interpret data in science investigations. *Journal of Research in Science Teaching, 41*(7), 748–769. https://doi.org/10.1002/tea.20020.

Keselman, A. (2003). Supporting inquiry learning by promoting normative understanding of multivariable causality. *Journal of Research in Science Teaching, 40*(9), 898–921. https://doi.org/10.1002/tea.10115.

Kilpatrick, W. H. (1918). The project method. *Teachers College Record, 19*(4), 319–335.

Kirschner, P. A., Sweller, J., & Clark, R. E. (2006). Why minimal guidance during instruction does not work: An analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist, 41*(2), 75–86. https://doi.org/10.1207/s15326985ep4102_1.

Klahr, D. (2000). *Exploring science: The cognition and development of discovery processes*. Cambridge, UK: The MIT Press.

Klahr, D., & Dunbar, K. (1988). Dual space search during scientific reasoning. *Cognitive Science, 12*(1), 1–48. https://doi.org/10.1207/s15516709cog1201_1.

Klahr, D., Fay, A. L., & Dunbar, K. (1993). Heuristics for scientific experimentation: A developmental study. *Cognitive Psychology, 25*(1), 111–146. https://doi.org/10.1006/cogp.1993.1003.

Klahr, D., & Nigam, M. (2004). The equivalence of learning paths in early science instruction: Effects of direct instruction and discovery learning. *Psychological Science, 15*(10), 661–667. https://doi.org/10.1111/j.0956-7976.2004.00737.x.

Koerber, S., Sodian, B., Kropf, N., Mayer, D., & Schwippert, K. (2011). The development of scientific reasoning in elementary school age: Understanding theories, designing experiments, interpreting data. *Zeitschrift für Entwicklungspsychologie und Pädagogische Psychologie, 43*, 16–21. https://doi.org/10.1026/0049-8637/A000027.

Koerber, S., Sodian, B., Thoermer, C., & Nett, U. (2005). Scientific reasoning in young children: Preschoolers' ability to evaluate covariation evidence. *Swiss Journal of Psychology, 64*(3), 141–152. https://doi.org/10.1024/1421-0185.64.3.141.

Krajcik, J. S., Czerniak, C., & Berger, C. (1999). *Teaching children science: A project-based approach*. Boston, MA: McGraw-Hill College.

Kuhn, D. (2005). *Education for thinking*. Cambridge, UK: Harvard University Press.

Kuhn, D., Amsel, E., & O'Loughlin, M. (1988). *The development of scientific thinking skills*. Orlando, FL: Academic Press.

Kuhn, D., & Franklin, S. (2006). The second decade: What develops (and how). In W. Damon, R. M. Lerner, D. Kuhn, & R. Siegler (Eds.), *Handbook of Child Psychology: Vol. 2. Cognition, Perception, and Language* (6th ed., pp. 953–994). Hoboken, NJ: Wiley.

Kuhn, D., & Dean, J. (2008). Scaffolded development of inquiry skills in academically disadvantaged middle-school students. *Journal of Psychology of Science and Technology, 1*(2), 36–50.

Lazonder, A. W., & Harmsen, R. (2016). Meta-analysis of inquiry-based learning: Effects of guidance. *Review of Educational Research, 86*(3), 681–718. https://doi.org/10.3102/0034654315627366.

Lee, V., Greene, D., Odom, J., Schechter, E., & Slatta, R. W. (2004). What is inquiry guided learning? In V. S. Lee (Ed.), *Teaching and learning through inquiry: A guidebook for institutions and instructors* (pp. 3–16). Sterling, VA: Stylus.

Lehtinen, E. (2003). Computer-supported collaborative learning: An approach to powerful learning environments. In E. De Corte, L. Verschaffel, N. Entwisthle, & J. Van Merrienboer (Eds.), *Powerful learning environments: Unravelling basic components and dimensions* (pp. 35–54). Oxford, UK: Elsevier.

Levy, F., & Murnane, R. J. (2004). Education and the changing job market. *Educational Leadership, 62*(2), 80–84.

Lingnau, A., Kuhn, M., Harrer, A., Hofmann, D., Fendrich, M., & Hoppe, H. U. (2003). Enriching traditional classroom scenarios by seamless integration of interactive media. In V. Devedzic, J. Spector, D. Sampson, & D. Kinshuk (Eds.), *Advanced learning technologies: Technology enhanced learning* (pp. 135–139). Los Alamitos, CA: IEEE Computer Society.

Manlove, S., Lazonder, A. W., & de Jong, T. (2007). Software scaffolds to promote regulation during scientific inquiry learning. *Metacognition and Learning, 2*(2–3), 141–155.

Mayer, R. E. (2004). Should there be a three-strikes rule against pure discovery learning? *American Psychologist, 59*(1), 14–19.

Mulder, Y. G., Lazonder, A. W., De Jong, T., Anjewierden, A., & Bollen, L. (2012). Validating and optimizing the effects of model progression in simulation-based inquiry learning. *Journal of Science Education and Technology, 21*, 722–729. https://doi.org/10.1016/j.learninstruc.2013.08.001.

Mulder, Y. G., Lazonder, A. W., & De Jong, T. (2014). Using heuristic worked examples to promote inquiry-based learning. *Learning and Instruction, 29*, 56–64. https://doi.org/10.1016/j.learninstruc.2013.08.001.

Mullis, I. V. S., Martin, M. O., Ruddock, G. J., O'Sullivan, C. Y., & Preuschoff, C. (2009). *TIMSS 2011 assessment frameworks*. Amsterdam, NL: International Association for the Evaluation of Educational Achievement.

National Research Council. (1996). *National science education standards*. Washington, DC: National Academies Press.

National Research Council. (2000). *Inquiry and the national science standards*. Washington, DC: National Academy Press.

National Research Council. (2001). *Inquiry and the national science education standards*. Washington, DC: National Academy Press.

NCREL. (2003). *21st century skills: Literacy in the digital age*. North Central Regional Educational Laboratory (NCREL). Retrieved December 19, 2019, from https://pict.sdsu.edu/engauge21st.pdf

Organization for Economic Co-Operation and Development (OECD). (2009). *Annual report.* Published under responsibility of the Secretary-General of the OECD. Retrieved December 19, 2019, from https://www.oecd.org/newsroom/43125523.pdf

Pedaste, M., Mäeots, M., Leijen, Ä., & Sarapuu, T. (2012). Improving students' inquiry skills through reflection and self-regulation scaffolds. *Technology, Instruction, Cognition and Learning, 9*(1–2), 81–95.

Pedaste, M., Mäeots, M., Siiman, L. A., De Jong, T., Van Riesen, S. A., Kamp, E. T., et al. (2015). Phases of inquiry-based learning: Definitions and the inquiry cycle. *Educational Research Review, 14*, 47–61. https://doi.org/10.1016/j.edurev.2015.02.003.

Piekny, J., Gruber, D., & Maehler, C. (2014). The development of experimentation and evidence evaluation skills at preschool age. *International Journal of Science Education, 36*(2), 334–354. https://doi.org/10.1080/09500693.2013.776192.

Piekny, J., & Maehler, C. (2013). Scientific reasoning in early and middle childhood: The development of domain-general evidence evaluation, experimentation, and hypothesis generation skills. *British Journal of Developmental Psychology, 31*(2), 153–179. https://doi.org/10.1111/j.2044-835X.2012.02082.x.

Pinkwart, N. (2003). A plug-in architecture for graph based collaborative modeling systems. In U. Hoppe, F. Verdejo, & J. Kay (Eds.), *Shaping the future of learning through intelligent technologies. Proceedings of the 11th conference on artificial intelligence in education* (pp. 535–536). Amsterdam, The Netherlands: IOS Press.

Pinkwart, N. (2005). *Collaborative modeling in graph based environments*. Berlin, Germany: dissertation.de.

Ramsden, P. (2003). *Learning to teach in higher education*. London, UK: Routledge/Falmer.

Sandoval, W. A. (2003). Conceptual and epistemic aspects of students' scientific explanations. *Journal of the Learning Sciences, 12*(1), 5–51. https://doi.org/10.1207/S15327809JLS1201_2.

Sandoval, W. A., & Reiser, B. J. (2004). Explanation-driven inquiry: Integrating conceptual and epistemic support for scientific inquiry. *Science Education, 88*(3), 345–372. https://doi.org/10.1002/sce.10130.

Scardamalia, M. (2002). Collective responsibility for the advancement of knowledge. In B. Smith (Ed.), *Liberal education in a knowledge society* (pp. 67–98). Chicago, IL: Open Court.

Scardamalia, M., & Bereiter, C. (1994). Computer support for knowledge-building communities. *The Journal of the Learning Sciences, 3*(3), 265–283. https://doi.org/10.1207/s15327809jls0303_3.

Schauble, L., Glaser, R., Duschl, R. A., Schulze, S., & John, J. (1995). Students' understanding of the objectives and procedures of experimentation in the science classroom. *Journal of the Learning Sciences, 4*(2), 131–166. https://doi.org/10.1207/s15327809jls0402_1.

Schmidt, H. G. (1983). Problem-based learning: Rationale and description. *Medical Education, 17*(1), 11–16. https://doi.org/10.1111/j.1365-2923.1983.tb01086.x.

Schroeder, C. M., Scott, T. P., Tolson, H., Huang, T. Y., & Lee, Y. H. (2007). A meta-analysis of national research: Effects of teaching strategies on student achievement in science in the United States. *Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching, 44*(10), 1436–1460. https://doi.org/10.1002/tea.20212.

Schwartz, D. L., & Bransford, J. D. (1998). A time for telling. *Cognition and Instruction, 16*(4), 475–522. https://doi.org/10.1207/s1532690xci1604_4.

Shadish, W., Cook, T., & Campbell, D. (2002). *Experimental and quasi-experimental designs for generalized causal inference*. Boston, MA: Houghton Mifflin.

Shymansky, J. A., Hedges, L. V., & Woodworth, G. (1990). A reassessment of the effects of inquiry-based science curricula of the 60's on student performance. *Journal of Research in Science Teaching, 27*(2), 127–144. https://doi.org/10.1002/tea.3660270205.

Slotta, J. D. (2004). The web-based inquiry science environment (WISE): Scaffolding knowledge integration in the science classroom. In M. C. Linn, E. A. Davis, & P. Bell (Eds.), *Internet environments for science education* (pp. 203–231). Mahwah, NJ: Lawrence Erlbaum.

Slotta, J. D., Jorde, D., & Holmes, J. (2007). *Learning from our peers in international exchanges: When is worth doing, and how can we help it succeed?* Unpublished Manuscript.

Sodian, B., Zaitchik, D., & Carey, S. (1991). Young children's differentiation of hypothetical beliefs from evidence. *Child Development, 62*(4), 753–766. https://doi.org/10.1111/j.1467-8624.1991.tb01567.x/.

Spronken-Smith, R., Walker, R., Batchelor, J., O'Steen, B., & Angelo, T. (2011). Enablers and constraints to the use of inquiry-based learning in undergraduate education. *Teaching in Higher Education, 16*(1), 15–28. https://doi.org/10.1080/13562517.2010.507300.

Steinke, P., & Fitch, P. (2011). Outcome assessment from the perspective of psychological science: The TAIM approach. *New Directions for Institutional Research, 2011*(149), 15–26. https://doi.org/10.1002/ir.377.

van Joolingen, W. R., de Jong, T., Lazonder, A. W., Savelsbergh, E. R., & Manlove, S. (2005). Co-Lab: Research and development of an online learning environment for collaborative scientific discovery learning. *Computers in Human Behavior, 21*(4), 671–688. https://doi.org/10.1016/j.chb.2004.10.039.

Varma, K. (2014). Supporting scientific experimentation and reasoning in young elementary school students. *Journal of Science Education and Technology, 23*(3), 381–397. https://doi.org/10.1007/s10956-013-9470-8.

Veenman, M. V. J., Wilhelm, P., & Beishuizen, J. J. (2004). The relation between intellectual and metacognitive skills from a developmental perspective. *Learning and Instruction, 14*(1), 89–109. https://doi.org/10.1016/j.learninstruc.2003.10.004.

Wecker, C., Kohnle, C., & Fischer, F. (2007). Computer literacy and inquiry learning: When geeks learn less. *Journal of Computer Assisted Learning, 23*(2), 133–144. https://doi.org/10.1111/j.1365-2729.2006.00218.x.

Weinstein, T., Boulanger, F. D., & Walberg, H. J. (1982). Science curriculum effects in high school: A quantitative synthesis. *Journal of Research in Science Teaching, 19*(6), 511–522. https://doi.org/10.1002/tea.3660190610.

White, B. Y., & Frederiksen, J. R. (1998). Inquiry, modeling, and metacognition: Making science accessible to all students. *Cognition and Instruction, 16*(1), 3–118. https://doi.org/10.1207/s1532690xci1601_2.

Zumbach, J. (2003). *Problembasiertes Lernen (problem-based learning)*. Münster, Germany: Waxmann Verlag.

Small Group Learning

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Contents

Abstract

Small group learning has been shown to be an effective study method across a variety of disciplines, including psychology. The goal of this chapter is to provide an overview over research on small group learning to explain its potential with respect to teaching and learning psychology. The chapter starts with a description of motivational, neo-Piagetian, neo-Vygotskian, and cognitive theoretical approaches that explain why small group learning can be an effective learning

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I. Kollar (✉) · M. Greisel
Lehrstuhl für Psychologie m.b.B.d. Pädagogischen Psychologie, University of Augsburg, Augsburg, Germany
e-mail: ingo.kollar@uni-a.de; martin.greisel@uni-a.de

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method. Based on evidence that indicates that learners do not always benefit from small group learning, the following section introduces four kinds of scaffolding approaches that have been shown to be powerful means of improving learning processes and outcomes of small group learning. These are (a) the jigsaw method, (b) the peer feedback approach, (c) collaboration scripts, and (d) group awareness tools. Next, the chapter gives an overview over important research issues and related approaches. After that, core findings and current trends in research on small group learning are reported. The chapter ends with a description of the consequences that can be drawn for the teaching and learning of psychology.

Keywords

Collaborative learning · Knowledge acquisition · Skill acquisition · Interactive activities · Jigsaw method · Peer feedback · Collaboration scripts · Group awareness tools

Introduction

As an instructional approach, small group learning has been around both in research and in practice for a very long time. In a way, already Socrates' dialogue method can be regarded as an instance of small group learning: By asking thought-provoking questions, one interaction partner stimulates the reasoning of the other partner, which hopefully leads to "insight" or, more profanely, to knowledge acquisition. More typical, though, are groups that are less hierarchical, so that the single group members engage in collaboration in a more equal way and at a more similar level. This becomes, for example, apparent in Dillenbourg's (1999) definition, according to which small group learning "is a situation in which two or more people learn or attempt to learn something together" (p. 1).

Even though sometimes under different labels (such as collaborative learning, cooperative learning, or team learning), the approach is widely used across different age groups from pre-school children (see Barclay & Breheny, 1994) to adults (de Hei, Tabacaru, Sjoer, Rippe, & Walenkamp, 2020); in different educational institutions such as primary schools (McNaughton, Crick, Joyce-Gibbons, Beauchamp, Young, & Tan, 2017) and universities (De Wever, van Keer, Schellens, & Valcke, 2011); in different learning settings including informal (Zheng, Zhang, & Gyasi, 2019), formal (e.g., Weinberger, Stegmann, & Fischer, 2010), and work-place settings (e.g., Selleck, Fifolt, Burkart, Frank, Curry, & Hites, 2017); and in both face-to-face (e.g., De Backer, Van Keer, & Valcke, 2020) and digital learning contexts (e.g., Yoon, Anderson, Park, Elinich, & Lin, 2018). Also, having students learn subject matter information in small groups is used across a wide range of disciplines, in the sciences (e.g., Sobocinski, Järvelä, Malmberg, Dindar, Isosalo, & Noponen, 2020), as well as in the humanities (e.g., Wang, Kollar, & Stegmann, 2017) and even in interdisciplinary teams (Rummel & Spada, 2005).

The goal of this chapter is to provide an overview over key theoretical assumptions, design issues, research issues, and empirical findings from instructional research on small group learning.

Purposes and Rationale

The key assumption of proponents of researchers in the field is that learning in small groups may support individual learners in the acquisition of (a) subject matter knowledge (i.e., the content information that is to be learned and discussed within the group) and of (b) socio-communicative skills (e.g., argumentation; see Andriessen, Baker, & Suthers, 2003), at least when certain conditions are met. This assumption has been advocated from a range of different theoretical perspectives. From a motivational perspective, small group learning can be effective with respect to individual knowledge and skill acquisition when it is clear that (a) the group can reach a desired external reward for which (b) the contributions of each single group member are relevant (e.g., when the reward is only given when all single group members have reached a certain individual learning gain from prior to after collaboration; see Slavin & Tanner, 1979). That way, an interdependence between group members is created that will make it likely that the single learners support each other in their learning processes, because attaining the reward is attractive to every single group member (see also Johnson & Johnson, 2018).

From a neo-Vygotskian perspective, small group learning has a strong potential to support individual knowledge and skill acquisition because it may trigger so-called socio-cognitive conflicts: The idea is that through learning with one or more peers, different viewpoints on a topic will become visible. In case that some learning partners hold different views, socio-cognitive conflicts emerge. In Piagetian terms, such socio-cognitive conflicts cause a disequilibrium in the peers' cognitive systems, and they will strive to get back to a status of equilibrium. If they do so through accommodation, resolving the socio-cognitive conflict leads to significant restructuring processes in the learners' cognitive systems (see de Lisi & Golbeck, 1999).

From a neo-Vygotskian perspective, peer learners may provide each other a so-called zone of proximal development (ZPD) during collaboration. This will happen when the learning partners assist each other in an engagement in learning activities that are just a little above their actual competence level, by externalizing (e.g., through dialogue) their thought processes. Through this externalization by one learner, their peers will internalize these new practices, which is in itself a learning process that would not happen if they would study in isolation (see Hogan & Tudge, 1999).

Over the past two decades, the rather coarse-grained assumptions derived from Piagetian and Vygotskian theory have been complemented by research that takes a closer look at the kinds of processes and activities learners engage in during collaboration and investigates what kinds of activities are in particular related to cognitive change. An exemplary theoretical framework that argues for a very high potential of collaborative learning for knowledge acquisition is the ICAP framework proposed by Chi and Wylie (2014). This framework differentiates four kinds of visible learning activities that individuals may engage in during learning. In a passive mode of engagement, learners only receive information. An example would be to listen to a lecture. In an active mode of engagement, learners are physically active. An example would be to take verbatim notes during a lecture. In

a constructive mode of engagement, students are also physically active, but create learning products that go beyond just a reproduction of the information they were presented. In the lecture context, this would, for example, be the case when a student creates a concept map of the main concepts that were presented in the lecture. Finally, in an interactive mode of engagement, students exchange viewpoints, questions, arguments, or comments and that way build on each other's reasoning. The basic assumption of the ICAP framework is that an engagement in these four different kinds of visible activities goes along with different levels of (invisible) cognitive processing. When students are passive, the most likely cognitive processes are processes of isolated storing of the perceived learning material. While being active, learners will typically engage in integrative processes by which new information is assimilated in existing schemata. When students are constructive, they typically engage in the creation of knowledge. And when they are interactive, they ideally jointly co-construct knowledge. That way, the cognitive processes that are typical for an engagement in each activity type become increasingly elaborated from passive to interactive.

Even though the ICAP model is not without criticism (see Renkl, 2011), there is empirical evidence that seems to support its assumptions. For example, Wekerle et al. (2022) asked $N = 381$ students who took part in a broad range of different university courses to indicate to what extent their teachers prompted an engagement in passive, active, constructive, and interactive learning activities. Also, they asked for students' subjective learning gains in each of their courses. Results showed that a higher engagement in interactive activities was more strongly related to learning outcomes than a higher engagement in the subordinate activities. In an experimental study that used objective knowledge tests, Menekse, Stump, Krause, and Chi (2013) found further support for the ICAP hypothesis. In this study, $N = 120$ engineering students received a text that explained a set of engineering concepts and included several graphs and figures to help student understand the content better. Participants were randomly distributed across four conditions: In the passive condition, students were instructed to read the text aloud. They were not allowed to highlight text content or to take notes. In the active condition, participants received highlighters and were instructed to highlight the most important text passages. In the constructive condition, students did not receive the complete text but instead only the graphs and figures and were instructed to produce written explanations of them. Finally, in the interactive condition, the same task as in the constructive condition was presented, but was to be solved by student dyads (instead of individuals as in the constructive condition). Before and after the respective tasks, students received a pre-test and a post-test they were asked to solve individually. Results were completely in line with the ICAP hypothesis: Students from the interactive condition reached the highest pre-post gains, followed by participants from the constructive condition, who were followed by students from the active condition. Participants from the passive conditions reached significantly lower scores than students from all other conditions.

One question that follows from research on the ICAP model is: Are all activities that learners engage in during small group learning per se "interactive" or is there a specific feature of interactive activities that sets them apart from passive, active, and

constructive activities? Regarding the first part of this question, the answer clearly is "no": Of course, when collaborating with others, learners will often also engage in activities other than interactive ones. For example, a common phenomenon is that learners split the task in parallel sub-tasks and distribute them equally within the group, resulting in each group member working on their own without much interaction.

With respect to the second part of the question above, the answer is "yes": There is one main feature of interactive activities that sets them apart from the other kinds of activities that are differentiated in the ICAP model. An activity is only then interactive, if the peer engaging in that activity builds on contributions from her learning partners (see also Teasley, 1995). Thus, during an argumentative dialogue between two learners, for example, developing a counterargument on a peer's previously uttered argument would be regarded as an interactive activity, while a completely new argument that is introduced to the discourse would "only" count as a constructive activity, because it does not build on a contribution of a learning partner. Empirical evidence showing that this differentiation really matters for learning comes from a study by Vogel, Kollar, Ufer, Reichersdorfer, Reiss, and Fischer (2016): In their study, $N = 101$ mathematics freshmen were asked to work in dyads on a set of mathematical proof problems. Their collaborative discourse was recorded and analyzed on the basis of the ICAP model, with a focus on an engagement in constructive and interactive activities. After collaboration, students individually took a post-test to measure their argumentation skills. Regression analyses showed that students' engagement in interactive activities predicted their post-test performance, whereas an engagement in constructive activities did not. Furthermore, the study showed that an engagement in interactive activities was only beneficial for the learning partner who actually produced such interactive activities. Being exposed to a learning partner who shows an interactive engagement without showing interactive activities oneself however did not seem to be significantly related to one's own learning.

Taking the definition of interactive activities into account according to which interactive activities are activities by which students build on the contributions of their learning partner(s), generating counterarguments however is only one example for an interactive activity. Other interactive activities that have been described as being conducive for learning are, for example, student-generated explanations (King, 2007) and cognitive modelling (Palincsar & Brown, 1984), especially when following respective questions or requests from the learning partner(s).

Taken together, there are good theoretical and empirical reasons to assume that small group learning has a high potential to foster student learning. While, from a neo-Piagetian perspective, the elicitation and solution of socio-cognitive conflicts (typically through discourse) is regarded as the main motor for learning, neo-Vygotskians regard the mutual provision of a zone of proximal development between the learners as the main driving force. The cognitive perspective further provides more specific assumptions concerning what learning activities go along with high-level cognitive processes that play a significant role for individual knowledge and skill acquisition.

Design Issues and Approaches

Despite the described theoretical and empirical reasons that make small group learning appear as an effective learning method, some studies also found negative effects of small group learning on knowledge acquisition, compared to individual learning. In a study by Weinberger et al. (2010), for example, triads vs. individual educational science students were asked to analyze three authentic educational problem cases by aid of a psychological theory within a computer-based learning environment. In the triadic condition, group members had the opportunity to view each other's case analyses and to provide each other with feedback. However, this interactive process was not further scaffolded. In the individual condition, students analyzed these cases individually, i.e., without receiving feedback or questions from peers. In a subsequent knowledge test that asked participants to analyze another case individually, students who had learned in groups received significantly lower scores than students who had solved the previous three cases individually.

These and other findings (e.g., Barron, 2003) indicate that small group learning is not an effective learning method per se. Instead, it appears that certain conditions must be met in order to make it successful. First, individual learning prerequisites and their combination within the group have an influence on the successfulness of small group learning. Second, groups need to engage in certain processes to reach high-level outcomes. And third, there are instructional conditions that may support groups to attain such outcomes. In the following, we elaborate on these conditions more deeply.

(The Combination of) Individual Learning Prerequisites for Successful Group Learning

First, there are person- and group-related preconditions for successful small group learning. For example, Jurkowski and Hänze (2012) showed that students with more developed social competences benefitted more from collaborative learning than students with less developed social competences. Also, students who were only mildly assertive performed better after collaboration than students low or high in assertiveness. In a more recent study, Kelsen and Liang (2019) found evidence for extraversion and partially also conscientiousness to be positive prerequisites for successful collaborative learning. In a study with psychology students, Cummings and Sheeran (2019) found that students low in neuroticism and with high prior academic achievement benefit the most from peer-assisted study sessions. In a study that investigated how to best combine students with different personality traits, Bellhäuser, Konert, Müller, and Röpke (2018) further found that groups that were heterogeneous with respect to both conscientiousness and extraversion rated their productivity higher and invested more time than groups that were homogeneous with respect to one or both of these personality traits. With respect to the successful completion of group assignments, it was best when groups were heterogeneous with respect to either conscientiousness or extraversion; groups that were heterogeneous

with respect to both, however, did not do better than groups who were only heterogeneous with respect to one of the two. Thus, several individual learner characteristics seem to have an influence on the successfulness of small group learning in terms of learning gains.

Group Processes for Successful Small Group Learning

At the group level, especially self-organized study groups have been argued to be more satisfied with their collaboration when they manage to (a) arrive at shared representations of what their actual regulation problems are, (b) select regulation strategies that have the potential to immediately (rather than indirectly) tackle these problems, and (c) apply regulation strategies with a high intensity (see Melzner, Greisel, Dresel, & Kollar, 2020). Whether such groups are also more successful with respect to knowledge acquisition, however, is still subject to further research.

In a comprehensive research program, the group around Järvelä further showed that successful groups are more effective than less successful groups in coordinating their regulation efforts across three different social levels: First, even though collaborating with others, each individual group member needs to regulate her own learning during collaboration. For example, when she notices a lack of understanding of an important concept on her side, she may decide to look this concept up by aid of an online search engine. According to Järvelä and Hadwin (2013), regulative processes such as this are located at the "self"-level. Second, within groups, a single group member may regulate another group member's learning process. For example, when one group member does not notice her own lack of understanding, another group member might do so and thus point her peer to this lack of understanding and explain the concept in question to her. In Järvelä and Hadwin's (2013) terms, this would be an instance of regulation at the "co"-level. Third, the whole group may attempt to jointly regulate its collective learning process. For example, at the beginning of their collaboration, the group members may negotiate how to approach the task and jointly develop a plan for their collaboration. According to Järvelä and Hadwin (2013), this would be an instance of regulation at the "shared" level.

As mentioned, there is ample research on how groups regulate their learning at the different social levels, with the strongest emphasis of research on the "shared" level. For example, using a qualitative case study approach, Malmberg, Järvelä, Järvenoja, and Panadero (2015) describe a group of four educational science students who are supposed to analyze a case that describes a student with motivational problems. One student begins by sharing her own experiences as a pupil which to her seem to be similar to the problems of the student in the case description. Her fellow students ridicule her, which creates a socio-emotional problem. The group then proceeds to solve this socio-emotional problem at the shared level through joint discussion, which finally happens. In another study, De Backer et al. (2020) further showed that not all types of regulation at the shared level are conducive for knowledge acquisition. Using latent class analyses on coded video data from 64 Educational Sciences students who worked in a peer tutoring learning scenario, they found that

socially shared regulation was especially effective when it followed an "interrogative" discourse type in which one student would elicit a thought-provoking trigger on which peers reacted with elaborative contributions. In contrast, engaging in an "interfering" type of socially shared regulation in which single students strongly and mostly negatively influence collaboration by interrupting the course of actions turned out to undermine post-test performance. Overall, thus, both individual- and group-level prerequisites and processes seem to have an influence on the successfulness of small group learning.

Instructional Conditions for Successful Small Group Learning

Unfortunately, by far not all learners have the described individual preconditions that are conducive for successful small group learning at their disposal (e.g., Bellhäuser et al., 2018). Likewise, it has been shown numerous times that groups' spontaneous (i.e., un-guided) way of collaborating very often is suboptimal (see Weinberger et al., 2010). It therefore is not surprising that one of the most well-researched topics on small group learning focuses on how to scaffold collaborative learning (see Kollar, Wecker, & Fischer, 2018). For the purpose of this chapter, four prominent approaches are described in more detail: (a) the jigsaw approach, (b) the peer feedback approach, (c) the collaboration script approach, and (d) the group awareness approach.

The Jigsaw Approach

The basic idea of the jigsaw approach as developed by Aronson, Blaney, Stephan, Sikes, and Snapp (1978) is to stimulate elaborated discussion within small groups by (a) creating knowledge differences between learners and (b) arranging and rearranging groups by composing them in ways that stimulate in-depth discussion within these groups almost naturally. For that sake, the whole group of learners (e.g., a psychology seminar) is first split up into groups of five to six students each. Then, every member of each group receives a segment of the material that is the topic of the lesson to study individually. That way, knowledge differences between single group members are created. Next, all students that read the same segment come together in so-called "expert" groups. In these groups, students discuss their segment with each other in-depth, in order to arrive at the deepest possible understanding. After that, the students return to their original groups, which now consist of experts regarding each and every segment. Now, the task is to mutually help each other to get a clear understanding of all the segments that the individual students have become experts on during the expert group stage. By re-arranging the groups like this, an engagement in interactive activities such as questioning, explaining, reacting to counterarguments, etc. becomes almost inevitable, which – as predicted in the ICAP model (Chi & Wylie, 2014) – is likely to result in a deep understanding of the topic.

Even though it was originally developed for high school classrooms, the jigsaw approach has also been used in university education. For example, Baken, Adams, and Rentz (2020) found the jigsaw approach to foster biology undergraduate

students' knowledge acquisition in comparison to an unstructured small group learning condition which were both implemented in a laboratory course. Similar results have been found for further higher education contexts and disciplines as well (e.g., Alrassi & Mortensen, 2020).

The Peer Feedback Approach

Receiving elaborated feedback on one's own performance is a very powerful way to promote learning (see Hattie, 2009). Research on peer feedback investigates to what extent such feedback can also be provided by peers (as compared to teachers) and how such peer feedback can be improved by adding further guidance during the process of peer feedback (e.g., Gielen, Tops, Dochy, Onghena, & Smeets, 2010).

Deiglmayr (2018) differentiates between three phases of the peer feedback process. First, students perform a task for which they are going to receive peer feedback. Already during this phase, peer feedback can have a positive effect: As research indicates, already the expectation that one's performance will be assessed by a peer afterward may lead to better task performance than when no such expectation exists (Topping, 1998). Second, one or several peers formulate feedback on their peer's task performance. Here, research has shown that learners may also benefit from providing (and not only from receiving) peer feedback, especially when they are supported on how to give high-quality feedback (e.g., by following certain feedback criteria; see Alqassab, Strijbos, & Ufer, 2018). And third, students receive peer feedback and (ideally) incorporate it in their revision of the task. Empirical studies showed that the reception of high-quality peer feedback alone is not sufficient for the receiver to benefit from it. Rather, learning effects are especially likely when the feedback receiver engages in deep processing of that feedback (Wichmann, Funk, & Rummel, 2018).

The Collaboration Script Approach

Collaboration scripts are scaffolds that provide learners in small groups with detailed instruction on the kinds and sequence of activities and roles they are supposed to engage in during small group learning (Fischer, Kollar, Stegmann, & Wecker, 2013). Optimally, the activities and roles that are distributed are complementary to each other, so that an engagement in truly interactive activities in the sense of the ICAP model is prompted. For example, when arguing about a scientific topic, a collaboration script may prompt one learner of a dyad to produce an argument, while the other learning partner is supposed to carefully listen to that argument and to critically evaluate its validity. Afterwards, that learner is prompted to provide a counterargument, which is now to be critically evaluated by the first speaker. At the end, the script may prompt both learners to find an argument that would combine their perspectives.

Collaboration scripts such as this have been studied extensively in the past, especially in research on computer-supported collaborative learning (e.g., Näykki, Isohätälä, Järvelä, Poysa-Tarhonen, & Häkkinen, 2017). A meta-analysis by Vogel et al. (2016) showed that when compared to unstructured collaboration, computer-supported collaboration scripts have positive effects both on learners' acquisition of domain-specific knowledge and even more on the acquisition of cross-domain skills.

The Group Awareness Approach

Just as collaboration scripts, also group awareness tools have extensively been studied in research on computer-supported collaborative learning (e.g., Janssen & Bodemer, 2013). The idea of this approach is to (a) measure certain individual learning prerequisites (e.g., prior knowledge) or group processes (e.g., the homo-/heterogeneity of the single group members' contributions) and to (b) mirror this information back to the group, hoping that the group resp. its members will adapt its/their learning to this information. In one study, Schnaubert and Bodemer (2019) created dyads of students who first individually read a text that was assigned to them (one for each student). Then, students individually answered a knowledge test that included binary true-false questions that referred to the two texts and were asked to indicate whether they were confident that their answer was correct (again using a binary true-false format). During their subsequent collaboration, the two learning partners worked on a multi-touch table on which the information about each other's knowledge ratings (cognitive group awareness tool) and confidence ratings (metacognitive group awareness tool) were displayed. Results showed that both kinds of information had a strong influence on collaboration processes. When students had disagreed on a knowledge test question, the presentation of this conflict via the cognitive group awareness tool led the group to more extensively discuss this item than when no such information was presented. When the metacognitive group awareness tool displayed the information that group members were unsure of their answers, this information led groups to discuss topics associated with these knowledge test items more intensively. Yet, none of the two group awareness tools had an effect on a subsequent knowledge post-test.

The main message from all this is that to be an effective method for knowledge and skill acquisition, small group learning needs to be appropriately scaffolded. The four approaches just described all have been shown to be powerful in this regard and should especially be applied when learners or groups do not exhibit learning prerequisites or processes that have been shown to be important for the successfulness of small group learning.

Research Issues and Related Approaches

It probably has become obvious from the previous section that one main issue in research on small group learning refers to how to scaffold collaborative learning in a way that students are supported with regard both to the quality of collaboration and to individual knowledge and skill acquisition. Thereby, especially computer-supported scaffolds and tools seem to be of interest these days (Chen, Wang, Kirschner, & Tsai, 2018; see following section).

Another important strand of research refers to the question what actually constitutes high-quality collaboration and how it relates to individual knowledge and skill acquisition as well as to different parameters of the quality of group products. It thus is not surprising that a lot of research on small group learning intensively looks at

collaboration processes that unfold within small groups, typically using established or newly developed coding schemes (e.g., Weinberger & Fischer, 2006) or applying inductive analytical techniques such as content analysis (Mayring, 2014).

The strong interest in analyzing collaborative learning processes has also inspired the development of new analytical techniques, especially ones that take the temporal nature of such data into account. For example, Epistemic Network Analysis (Shaffer, Collier, & Ruis, 2016) allows to analyze coded collaborative learning activities with different grain sizes that makes it possible to detect relations between different activities which may only be fruitful (or harmful) for learning when shown in timely relation to each other.

In general, thus, research on small group learning can be characterized as a very active, dynamic, and multi-faceted field that brings together researchers from different disciplines with different methodological backgrounds.

Core Findings and Current Trends

The dynamic and multidisciplinary nature of small group research makes it challenging to identify its core findings and current trends. When it comes to core findings, results from meta-analyses that synthesized the effects of collaborative vs. individual or whole-class learning seem to be of specific importance. For example, based on the results of 37 studies conducted in undergraduate STEM classes, Springer, Stanne, and Donovan (1999) found a mean effect size of $d = 0.51$ of small group learning on achievement and a mean effect size of $d = 0.55$ on attitudes (toward learning STEM material), when compared to non-collaborative forms of classroom instruction. In another meta-analysis, Kyndt et al. (2013) found similar results. Yet, they found larger effects of small group learning compared to regular classroom instruction in STEM classes compared to social sciences and language education. Also, they found larger effects for university students than for high school students.

A trend that has already started about 20 years ago but that still sparks a lot research interest refers to the question how digital technologies can be used to realize and scaffold small group learning. In fact, there is a whole research community with its own conference and its own journal that revolves around this question (see Cress, Rosé, Wise, & Oshima, 2021). In a meta-analysis that synthesized key findings from this research, Chen et al., (2018) found computer-supported collaborative learning to have a medium effect size of $d = 0.42$ on knowledge gain, of $d = 0.64$ on skill acquisition, and of $d = 0.38$ on student perceptions, when compared to computer-supported individual learning. Furthermore, when looking at the effects of computer use vs. no computer use in collaborative learning settings, they consistently reported positive effects of computer use on a broad range of dependent variables such as knowledge gain ($d = 0.45$), skill acquisition ($d = 0.53$), student perceptions ($d = 0.51$), group task performance ($d = 0.89$), and social interaction ($d = 0.57$). Finally, they found positive effects of extra technology-mediated learning environments or tools (such as computer-supported collaboration scripts or group awareness

tools) compared to CSCL without such tools for knowledge gain ($d = 0.55$). Thus, it appears that digital technologies bear quite some potential when it comes to foster learning among students (see also ▶ Chap. 56, "Technology-Enhanced Psychology Learning and Teaching").

One particular trend in this context lies in current attempts to make machine learning algorithms and text mining methods usable for the assessment and scaffolding of (computer-supported) small group learning (see Rosé & Ferschke, 2016). The basic idea of related efforts is to use human-coded discourse data to train computer algorithms in reliably coding further discourse material from collaborating groups and to feed this information back into the computer-supported learning environment in a way that the group receives adaptive collaboration support. First results in this direction seem to be promising (see, e.g., Daxenberger, Csanadi, Ghanem, Kollar, & Gurevych, 2018).

Challenges, Lessons Learned, and Implications for Learning and Teaching Psychology

This chapter has shown that small group learning has considerable potential as a method to be used in psychology learning and teaching. In fact, as current research indicates, small group learning seems to be an interesting method for the learning and teaching of psychological concepts and theories (e.g., Rumain & Geliebter, 2020; Yalch, Vitale, & Ford, 2019).

Even though it may be expected that many psychology students have rather positive learning prerequisites in terms of general cognitive ability, prior achievement, or personality traits such as conscientiousness, empirical research that has been conducted in this as well as in other academic fields at the undergraduate and graduate level demands psychology teachers not to be overly optimistic that small group learning will automatically go well in this population. In fact, also among university students (and even among those studying psychology), positive effects of scaffolding collaboration during small group learning have frequently been reported (e.g., Chen et al., 2018). Thus, psychology teachers should be well-prepared to employ appropriate scaffolding techniques when they intend to use small group learning in their classes, and these scaffolds should in particular be aimed at triggering student engagement in interactive activities (see Chi & Wylie, 2014).

A particular challenge in this respect though is how to assess what and how much scaffolding students need and – even more importantly – to provide adaptive support, that is, to fade support out and in as the group needs it. While Wang et al. (2017) have shown that groups of university students might actually be not too bad in deciding what kinds of support they need at what time and in adapting that support to their own needs, high expectations are placed in the possibilities of machine learning and text mining algorithms to provide automated and adaptive support. It will be interesting to see whether and when such developments become affordable and applicable in practice of teaching and learning.

Further, small group learning cannot only be realized within the limits of the classroom. Also, especially when it comes to preparing for exams, students often deliberately form study groups. For such groups to be successful, it seems to be important that the group has a high awareness and develops shared perceptions of different problems that may occur during collaboration and to apply regulation strategies that have the potential to immediately resolve these problems (see Melzner et al., 2020).

To sum up, if small group learning involves student engagement in interactive activities – be it externally scaffolded or spontaneously shown by the students – it is an effective method to be employed in psychology curricula to help students acquire key content from the discipline.

Teaching, Learning, and Assessment Resources Associated with Research on Small Group Learning

Chen, J., Wang, M., Kirschner, P. A., Tsai, C.-C. (2018). The role of collaboration, computer use, learning environments, and supporting strategies in CSCL: a meta-analysis. *Review of Educational Research, 88*(6), 799–843. ▶ https://doi.org/10.3102/0034654318791584

This article presents a meta-analysis on the basis of 425 empirical studies published between 2000 and 2016 in the field of CSCL. Results demonstrate that in computer-supported settings, collaborative learning has positive effects on various learning outcomes when compared to individual learning. Also, when collaborative learning is realized, higher effects are reached when students use computers during collaboration as compared to when they do not. And finally, the study provides evidence for the effectiveness of tools and scaffolds that are specifically designed to support collaboration.

Chi, M. T. H., & Wylie, R. (2014). The ICAP framework: Linking cognitive engagement to active learning outcomes. *Educational Psychologist, 49*(4), 219–243. ▶ https://doi.org/10.1080/00461520.2014.965823

This article introduces the ICAP framework, which offers a cognitive explanation for the high potential that small group learning has for knowledge acquisition. According to the ICAP hypothesis, the likelihood that learners will engage in high-level cognitive processes increases the more they engage in interactive activities such as reacting to counterarguments, answering questions, or giving peer feedback. An important implication is that student engagement in such activities should be prompted if groups do not show them spontaneously.

De Wever, B., van Keer, H., Schellens, T., & Valcke, M. (2011). Assessing collaboration in a wiki: The reliability of university students' peer assessment. *The Internet and Higher Education, 14*(4), 201–206. ▶ https://doi.org/10.1016/j.iheduc.2011.07.003

This article provides an excellent example on how to implement small group learning in large lectures. The authors split $N = 659$ first-year students into groups of about eight students each and had them create wikis on the learning content. Each

learner was then asked to assess the writing of their group mates. ICCs showed that these intra-group ratings showed a high consistency, indicating that peer assessment can reliably be used in wiki-based learning environments, even in large lectures.

Dillenbourg, P. (1999). What do you mean by collaborative learning? In P. Dillenbourg (Ed.), *Collaborative learning: Cognitive and computational approaches* (pp. 1–19). Amsterdam: Elsevier.

This book chapter provides an in-depth discussion of key concepts of research on small group learning. It also shows how diverse different implementations of small group learning can be. Further, the chapter provides an overview over different theoretical perspectives on collaborative learning, as well as on its effects on learning processes and outcomes. It is one of the most heavily cited contributions in research on collaborative learning.

Janssen, J., & Bodemer, D. (2013). Coordinated computer-supported collaborative learning: Awareness and awareness tools. *Educational Psychologist, 48*(1), 40–55. ▶ https://doi.org/10.1080/00461520.2012.749153

This article provides an overview over a specific kind of scaffold for small group learning, namely, group awareness tools. Group awareness tools mirror information on individual learning-relevant prerequisites or collaborative processes back to the group. As the article shows, even though effects on knowledge acquisition are rather rare, group awareness tools may have strong effects on how the group members act with each other. Therefore, group awareness tools can be considered as a rather implicit way of scaffolding small group learning.

Järvelä, S., & Hadwin, A. F. (2013). New frontiers: Regulating learning in CSCL. *Educational Psychologist, 48*(1), 25–39. ▶ https://doi.org/10.1080/00461520.2012.748006

This is a seminal article that provided a new theoretical perspective on the question how small groups regulate their learning. It differentiates three levels at which regulation processes may take place within groups: At the self-level, individual students regulate their own learning. At the co-level, single group members regulate other group members' learning. And at the shared-level, the group members jointly negotiate their learning process. This differentiation has been taken up by a large number of studies, which have shown that successful small groups are more effective in regulating their learning across these three levels.

Rummel, N. & Spada, H. (2005). Learning to collaborate: an instructional approach to promoting collaborative problem-solving in computer-mediated settings. *The Journal of the Learning Sciences, 14*(2), 201–241. ▶ https://doi.org/10.1207/s15327809jls1402_2

This article presents an empirical study that compares the effects of worked examples and of collaboration scripts to structure small group learning in dyadic interdisciplinary teams, each consisting of a medical student and a psychology student each. While the two scaffolds had differential effects on various process measures, both were comparable in their (positive) effects on knowledge acquisition. This study also provides an exemplary account for the richness of process data that can be used when studying small group learning.

Vogel, F., Wecker, C., Kollar, I., & Fischer, F. (2017). Socio-cognitive scaffolding with collaboration scripts: a meta-analysis. *Educational Psychology Review, 29*(3), 477–511. ▶ https://doi.org/10.1007/s10648-016-9361-7

This article presents a meta-analysis on the effects of computer-supported collaboration scripts (as compared to unstructured computer-supported collaboration) on the acquisition of domain-specific knowledge and cross-domain skills. Results show positive effect sizes for both outcome variables, but particularly larger effects on cross-domain skills. Further, the article reports findings that show that computer-supported collaboration scripts tend to be more effective the more they target student engagement in interactive activities and when they are combined with domain-specific support. Also, it provides preliminary evidence that shows that to be effective, computer-supported collaboration scripts need to be adjusted to learners' internal collaboration scripts.

Yalch, M. M., Vitale, E. M., & Ford, J. K. (2019). Benefits of peer review on students' writing. *Psychology Learning and Teaching, 18*(3), 317–325. ▶ https://doi.org/10.1177/1475725719835070

This study provides an excellent example on how small group learning may be implemented in psychology courses. $N = 59$ students had the task to write two scientific papers in the domain of child psychopathology. After attending a peer review workshop, each student was asked to provide feedback to two to three peers, using a scoring rubric that was provided by the course instructor. Results showed that the more critical students were of their peers' writing, the better their own grades were on their own writing.

Cross-References

▶ Basic Principles and Procedures for Effective Teaching in Psychology
▶ Formative Assessment and Feedback Strategies
▶ Learning and Instruction in Higher Education Classrooms
▶ Technology-Enhanced Psychology Learning and Teaching

References

Alqassab, M., Strijbos, J.-W., & Ufer, S. (2018). Training peer-feedback skills on geometric construction tasks: Role of domain knowledge and peer-feedback levels. *European Journal of Psychology of Education, 33*, 11–30. https://doi.org/10.1007/s10212-017-0342-0.

Alrassi, J., & Mortensen, M. (2020). Jigsaw group-based learning in difficult airway management: An alternative way to teach surgical didactics. *Journal of Surgical Education, 77*(4), 723–725. https://doi.org/10.1016/j.jsurg.2020.02.003.

Andriessen, J., Baker, M. J., & Suthers, D. D. (2003). Argumentation, computer support, and the educational context of confronting cognitions. In J. Andriessen, M. J. Baker, & D. Suthers (Eds.), *Arguing to learn: Confronting cognitions in computer-supported collaborative learning environments* (pp. 1–25). Dordrecht, Netherlands: Kluwer.

Aronson, E., Blaney, N., Stephan, C., Sikes, J., & Snapp, M. (1978). *The jigsaw classroom*. Beverly Hills, CA: Sage.

Baken, E. K., Adams, D. C., & Rentz, M. S. (2020). Jigsaw method improves learning and retention for observation-based undergraduate biology laboratory activities. *Journal of Biological Education*. https://doi.org/10.1080/00219266.2020.1796757.

Barclay, K. H., & Breheny, C. (1994). Letting the children take over more of their own learning: Collaborative research in the Kindergarten classroom. *Young Children, 49*(6), 33–39.

Barron, B. (2003). When smart groups fail. *Journal of the Learning Sciences, 12*(3), 307–359. https://doi.org/10.1207/S15327809JLS1203_1.

Bellhäuser, H., Konert, J., Müller, A., & Röpke, R. (2018). Who is the perfect match? Effects of algorithmic learning group formation using personality traits. *i-com, 17*(1), 65–77. https://doi.org/10.1515/icom-2018-0004.

Chen, J., Wang, M., Kirschner, P. A., & Tsai, C.-C. (2018). The role of collaboration, computer use, learning environments, and supporting strategies in CSCL: A meta-analysis. *Review of Educational Research, 88*(6), 799–843. https://doi.org/10.3102/0034654318791584.

Chi, M. T. H., & Wylie, R. (2014). The ICAP framework: Linking cognitive engagement to active learning outcomes. *Educational Psychologist, 49*(4), 219–243. https://doi.org/10.1080/00461520.2014.965823.

Cress, U., Rosé, C., Wise, A., & Oshima, J. (Eds.). (2021). *International handbook of computer-supported collaborative learning*. New York, NY: Springer.

Cummings, D. J., & Sheeran, N. (2019). Do academic motivation and personality influence which students benefit the most from peer-assisted study sessions? *Psychology Learning and Teaching, 18*(3), 244–258. https://doi.org/10.1177/1475725719840502.

Daxenberger, J., Csanadi, A., Ghanem, C., Kollar, I., & Gurevych, I. (2018). Domain-specific aspects of scientific reasoning and argumentation. In F. Fischer, C. Chinn, K. Engelmann, & J. Osborne (Eds.), *Scientific reasoning and argumentation: The roles of domain-specific and domain-general knowledge* (pp. 34–55). New York, NY: Routledge.

De Backer, L., Van Keer, H., & Valcke, M. (2020). Variations in socially shared metacognitive regulation and their relation with university students' performance. *Metacognition and Learning, 15*(2), 233–259. https://doi.org/10.1007/s11409-020-09229-5.

de Hei, M., Tabacaru, C., Sjoer, E., Rippe, R., & Walenkamp, J. (2020). Developing intercultural competence through collaborative learning in international higher education. *Journal of Studies in International Education, 24*(2), 190–211. https://doi.org/10.1177/1028315319826226.

De Lisi, R., & Golbeck, S. L. (1999). Implications of piagetian theory for peer learning. In A. M. O'Donnell & A. King (Eds.), *Cognitive perspectives on peer learning* (pp. 3–37). Mahwah, NJ: Erlbaum.

De Wever, B., van Keer, H., Schellens, T., & Valcke, M. (2011). Assessing collaboration in a wiki: The reliability of university students' peer assessment. *The Internet and Higher Education, 14*(4), 201–206. https://doi.org/10.1016/j.iheduc.2011.07.003.

Deiglmayr, A. (2018). Instructional scaffolds for learning from formative peer assessment: Effects of core task, peer feedback, and dialogue. *European Journal of Psychology of Education, 33*, 185–198. https://doi.org/10.1007/s10212-017-0355-8.

Dillenbourg, P. (1999). What do you mean by collaborative learning? In P. Dillenbourg (Ed.), *Collaborative learning: Cognitive and computational approaches* (pp. 1–19). Amsterdam, Netherlands: Elsevier.

Fischer, F., Kollar, I., Stegmann, K., & Wecker, C. (2013). Towards a script theory of guidance in computer-supported collaborative learning. *Educational Psychologist, 48*(1), 56–66. https://doi.org/10.1080/00461520.2012.748005.

Gielen, M., Tops, L., Dochy, F., Onghena, P., & Smeets, S. (2010). A comparative study of peer and teacher feedback and of various feedback forms in a secondary school writing curriculum. *British Educational Research Journal, 36*(1), 143–162.

Hattie, J. A. C. (2009). *Visible learning: A synthesis of over 800 meta-analyses related to achievement*. London: Routledge.

Hogan, D. M., & Tudge, J. R. H. (1999). Implications of Vygotsky's theory for peer learning. In A. M. O'Donnell & A. King (Eds.), *Cognitive perspectives on peer learning* (pp. 39–65). Mahwah, NJ: Erlbaum.

Janssen, J., & Bodemer, D. (2013). Coordinated computer-supported collaborative learning: Awareness and awareness tools. *Educational Psychologist, 48*(1), 40–55. https://doi.org/10.1080/00461520.2012.749153.

Järvelä, S., & Hadwin, A. F. (2013). New frontiers: Regulating learning in CSCL. *Educational Psychologist, 48*(1), 25–39. https://doi.org/10.1080/00461520.2012.748006.

Johnson, D. W., & Johnson, R. T. (2018). *Cooperative learning: The foundation for active learning.* Available on https://www.intechopen.com/books/active-learning-beyond-the-future/cooperative-learning-the-foundation-for-active-learning. Last accessed 02 Feb 2021.

Jurkowski, S., & Hänze, M. (2012). Kooperatives Lernen aus dem Blickwinkel sozialer Kompetenzen. Eine Untersuchung des Zusammenhangs sozialer Kompetenzen mit dem Lernerfolg, dem Unterrichtserleben und dem Gruppenarbeitsergebnis in verschiedenen kooperativen Lernumgebungen [Collaborative learning viewed from the perspective of social competences. An investigation of the relation of social competences with learning outcomes, perception of instruction, and products of collaborative learning in different learning environments]. *Unterrichtswissenschaft, 40*(3), 259–276.

Kelsen, B. A., & Liang, H.-Y. (2019). Role of the big 5 personality traits and motivation in predicting performance in collaborative presentations. *Psychological Reports, 122*(5), 1907–1924. https://doi.org/10.1177/0033294118795139.

King, A. (2007). Scripting collaborative learning processes: A cognitive perspective. In F. Fischer, I. Kollar, H. Mandl, & J. M. Haake (Eds.), *Scripting computer-supported collaborative learning: Cognitive, computational and educational perspectives* (pp. 14–37). New York, NY: Springer.

Kollar, I., Wecker, C., & Fischer, F. (2018). Scaffolding and scripting (computer-supported) collaborative learning. In F. Fischer, C. E. Hmelo-Silver, S. R. Goldman, & P. Reimann (Eds.), *International handbook of the learning sciences* (pp. 340–350). New York, NY: Routledge/Taylor & Francis.

Kyndt, E., Raes, E., Lismont, B., Timmers, F., Cascallar, E., & Dochy, F. (2013). A meta-analysis of the effects of face-to-face cooperative learning. Do recent studies falsify or verify earlier findings? *Educational Research Review, 10*, 133–149. https://doi.org/10.1016/j.edurev.2013.02.002.

Malmberg, J., Järvelä, S., Järvenoja, H., & Panadero, E. (2015). Promoting socially shared regulation of learning in CSCL: Progress of socially shared regulation among high- and low-performing groups. *Computers in Human Behavior, 52*, 562–572. https://doi.org/10.1016/j.chb.2015.03.082.

Mayring, P. (2014). *Qualitative content analysis: Theoretical foundation, basic procedures and software solution*. Klagenfurt, Austria: Beltz.

McNaughton, J., Crick, T., Joyce-Gibbons, A., Beauchamp, G., Young, N., & Tan, E. (2017). Facilitating collaborative learning between two primary schools using large multi-touch devices. *Journal of Computers in Education, 4*, 307–320. https://doi.org/10.1007/s40692-017-0081-x.

Melzner, N., Greisel, M., Dresel, M., & Kollar, I. (2020). Regulating self-organized collaborative learning: The importance of homogeneous problem perception, immediacy, and intensity of strategy use. *International Journal of Computer-Supported Collaborative Learning, 15*(2), 149–177. https://doi.org/10.1007/s11412-020-09323-5.

Menekse, M., Stump, G. S., Krause, S., & Chi, M. T. H. (2013). Differentiated overt learning activities for effective instruction in engineering classrooms. *Journal of Engineering Education, 102*(3), 346–274. https://doi.org/10.1002/jee.20021.

Näykki, P., Isohätälä, J., Järvelä, S., Poysa-Tarhonen, J., & Häkkinen, P. (2017). Facilitating socio-cognitive and socio-emotional monitoring in collaborative learning with a regulation macro script – An exploratory study. *International Journal of Computer-Supported Collaborative Learning, 12*(3), 251–279. https://doi.org/10.1007/s11412-017-9259-5.

Palincsar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction, 1*(2), 117–175. https://doi.org/10.1207/s1532690xci0102_1.

Renkl, A. (2011). Aktives Lernen: Von sinnvollen und weniger sinnvollen theoretischen Perspektiven zu einem schillernden Konstrukt [Active learning: About sensible and less sensible theoretical perspectives on a multifaceted construct]. *Unterrichtswissenschaft, 39*(3), 197–212.

Rosé, C., & Ferschke, O. (2016). Technology support for discussion based learning: From computer supported collaborative learning to the future or massive open online courses. *International Journal of Artificial Intelligence in Education, 26*, 660–678. https://doi.org/10.1007/s40593-016-0107-y.

Rumain, B., & Geliebter, A. (2020). A process-oriented guided-inquiry learning (POGIL)-based curriculum for the experimental psychology laboratory. *Psychology Learning and Teaching, 19*(2), 194–206. https://doi.org/10.1177/1475725720905973.

Rummel, N., & Spada, H. (2005). Learning to collaborate: An instructional approach to promoting collaborative problem-solving in computer-mediated settings. *The Journal of the Learning Sciences, 14*(2), 201–241. https://doi.org/10.1207/s15327809jls1402_2.

Schnaubert, L., & Bodemer, D. (2019). Providing different types of group awareness information to guide collaborative learning. *International Journal of Computer-Supported Collaborative Learning, 14*, 7–51. https://doi.org/10.1007/s11412-018-9293-y.

Selleck, C. S., Fifolt, M., Burkart, H., Frank, J. S., Curry, W. A., & Hites, L. S. (2017). Providing primary care using an interprofessional collaborative practice model: What clinicians have learned. *Journal of Professional Nursing, 33*(6), 410–416. https://doi.org/10.1016/j.profnurs.2016.11.004.

Shaffer, D. W., Collier, W., & Ruis, A. R. (2016). A tutorial on epistemic network analysis: Analyzing the structure of connections in cognitive, social, and interaction data. *Journal of Learning Analytics, 3*(3), 9–45. https://doi.org/10.18608/jla.2016.33.3.

Slavin, R. E., & Tanner, A. M. (1979). Effects of cooperative reward structures and individual accountability on productivity and learning. *The Journal of Educational Research, 72*(5), 294–298. https://doi.org/10.1080/00220671.1979.10885175.

Sobocinski, M., Järvelä, S., Malmberg, J., Dindar, M., Isosalo, A., & Noponen, K. (2020). How does monitoring set the stage for adaptive regulation or maladaptive behavior in collaborative learning? A multimodal analysis. *Metacognition and Learning, 15*(2), 99–127. https://doi.org/10.1007/s11409-020-09224-w.

Springer, L., Stanne, M. E., & Donovan, S. S. (1999). Effects of small group learning on undergraduates in science, mathematics, engineering, and technology: A meta-analysis. *Review of Educational Research, 69*(1), 21–51. https://doi.org/10.3102/00346543069001021.

Teasley, S. D. (1995). Talking about reasoning: How important is the peer in peer collaboration? In L. B. Resnick, R. Säljö, C. Pontecorvo, & B. Burge (Eds.), *Discourse, tools, and reasoning: Essays on situated cognition* (pp. 361–384). Berlin, Germany: Springer. https://doi.org/10.1007/978-3-662-03362-3_16.

Topping, K. (1998). Peer assessment between students in college and universities. *Review of Educational Research, 68*(3), 249–267. https://doi.org/10.3102/00346543068003249.

Vogel, F., Kollar, I., Ufer, S., Reichersdorfer, E., Reiss, K., & Fischer, F. (2016). Developing argumentation skills in mathematics through computer-supported collaborative learning: The role of transactivity. *Instructional Science, 44*(5), 477–500. https://doi.org/10.1007/s11251-016-9380-2.

Vogel, F., Wecker, C., Kollar, I., & Fischer, F. (2017). Socio-cognitive scaffolding with collaboration scripts: A meta-analysis. *Educational Psychology Review, 29*(3), 477–511. https://doi.org/10.1007/s10648-016-9361-7.

Wang, X., Kollar, I., & Stegmann, K. (2017). Adaptable scripting to foster regulation processes and skills in computer-supported collaborative learning. *International Journal for Computer-Supported Collaborative Learning, 12*(2), 153–172. https://doi.org/10.1007/s11412-017-9254-x.

Weinberger, A., & Fischer, F. (2006). A framework to analyze argumentative knowledge construction in computer-supported collaborative learning. *Computers & Education, 46*(1), 71–95. https://doi.org/10.1016/j.compedu.2005.04.003.

Weinberger, A., Stegmann, K., & Fischer, F. (2010). Learning to argue online: Scripted groups surpass individuals (unscripted groups do not). *Computers in Human Behavior, 26*(4), 506–515. https://doi.org/10.1016/j.chb.2009.08.007.

Wekerle, C., Daumiller, M., & Kollar, I. (2022). Using digital technology to promote higher education learning: The importance of different learning activities and their relations to learning outcomes. *Journal of Research on Technology in Education, 54*(1), 1–17. https://doi.org/10.1080/15391523.2020.1799455.

Wichmann, A., Funk, A., & Rummel, N. (2018). Leveraging the potential of peer feedback in an academic writing activity through sense-making support. *European Journal of Psychology of Education, 33*, 165–184. https://doi.org/10.1007/s10212-017-0348-7.

Yalch, M. M., Vitale, E. M., & Ford, J. K. (2019). Benefits of peer review on students' writing. *Psychology Learning and Teaching, 18*(3), 317–325. https://doi.org/10.1177/1475725719835070.

Yoon, S., Anderson, E., Park, M., Elinich, K., & Lin, J. (2018). How augmented reality, textual, and collaborative scaffolds work synergistically to improve learning in a science museum. *Research in Science and Technological Education, 36*(1), 1–21. https://doi.org/10.1080/02635143.2017.1386645.

Zheng, L., Zhang, X., & Gyasi, J. F. (2019). A literature review of features and trends of technology-supported collaborative learning in informal settings from 2007 to 2018. *Journal of Computers in Education, 6*, 529–561. https://doi.org/10.1007/s40692-019-00148-2.

Service Learning

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An Innovative Pedagogy for the Psychology Curriculum

Robert G. Bringle, Roger N. Reeb, Luzelle Naudé, Ana I. Ruiz, and Faith Ong

Contents

R. G. Bringle (✉)
Indiana University Purdue University Indianapolis, Indianapolis, IN, USA
e-mail: rbringle@iupui.edu

R. N. Reeb
University of Dayton, Dayton, OH, USA
e-mail: rreeb1@dayton.edu

L. Naudé
University of the Free State, Bloemfontein, South Africa
e-mail: naudel@ufs.ac.za

A. I. Ruiz
Alvernia University, Reading, PA, USA
e-mail: Ana.Ruiz@alvernia.edu

F. Ong
Ngee Ann Polytechnic, Singapore, Singapore
e-mail: Faith_ONG@np.edu.sg

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Abstract

Service learning (SL) is a high-impact pedagogy that integrates academic material, relevant community-based service activities, and critical reflection to achieve academic, social responsibility, and personal learning objectives in order to develop psychologically literate citizens. SL enhances knowledge and fosters social responsibility in students to democratically address challenges in diverse societies. SL rests on the sound pedagogical principles of active and experiential learning. This chapter focuses on the undergraduate psychology major; however, similar principles can be applied to other educational levels. Reaching educational goals is contingent on applying 11 essential elements to SL course design, implementation, and assessment, from establishing partnerships with the community to designing student reflection activities and celebrating their learning. This chapter highlights themes and issues in research, core findings, and trends, as well as challenges, lessons learned, and implications for learning, teaching, and community engagement. Finally, key resources are identified for SL.

Keywords

Civic learning · Socially responsive knowledge · Reflection · Community partnerships · Ethics · Participatory community action research

Introduction

Teaching psychology has a long history of learning by doing (e.g., laboratories, internships) but also an overreliance on lecturing as a dominant pedagogy. This pattern varies across levels of the curriculum (e.g., pre-college, undergraduate, graduate, continuing professional education), but the challenge remains for instructors to improve learning based on research. The best pedagogy will depend on the learning objectives and the context for learning. Altman (1996) proposed that the undergraduate psychology curriculum, which will be our primary focus, should

support three learning domains: foundational knowledge (i.e., the core content and methods of psychology), professional knowledge (i.e., knowledge of the practice of psychology), and socially responsive knowledge (i.e., knowledge about society's issues and skills to address the problems). The latter domain is aligned with commentary among psychologists for the importance of producing "psychologically literate citizens" (Cranney & Dunn, 2011) or "citizen psychologists" (American Psychological Association, APA, 2018) who can connect their psychology education to being engaged in social and community issues. However, Reich and Nelson (2010) concluded:

> the goal of civic engagement among psychology faculty was certainly not widespread. More recent curriculum guidelines for undergraduate majors in psychology (APA, 2007) still place most emphasis on what Altman described as foundational knowledge. (p. 138)

This chapter focuses on service learning (SL), an underrepresented pedagogy within the psychology curriculum that has been largely ignored in discussions of improving teaching psychology (Cranney & Dunn, 2011; Halpern, 2010; Rich et al., 2018). SL is well-suited for not only enhancing socially responsive knowledge, civic learning, and social responsibility of psychology students but also enriching and improving all of their learning across the entire psychology curriculum, including foundational and professional knowledge. We define SL as:

> course-based, credit-bearing educational experience in which students (a) participate in mutually identified and organized service activities that benefit the community, and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of personal values and civic responsibility. (Bringle & Clayton, 2012, p. 105; adapted from Bringle & Hatcher, 1996, p. 222)

This definition illustrates two key attributes of SL as a pedagogy: (a) being academic, it is distinct from volunteering and episodic co-curricular service; and (b) community partners collaborate with instructors to design, implement, and evaluate benefits. In our experience, "service learning" is inappropriately applied to some co-curricular programs, whereas we are limiting our focus to curricular integration of community-based activities into the psychology curriculum. This definition aligns well with definitions in other parts of the world, including Europe (e.g., Aramburuzabala, McIlrath, & Opazo, 2019; Europe Engage, n.d.), Asia (e.g., Xing & Ma, 2010), South America (e.g., CLAYSS, n.d.; Tapia, 2012), and Africa (e.g., Pacho, 2019). We understand that context matters and that educators around the world may use different frameworks and terminology (e.g., for "civic," "service," "service learning") (Aramburuzabala et al., 2019; Thomson, Smith-Tolken, Naidoo, & Bringle, 2011). Regardless of word choice, we agree with Furco and Norvell (2019), who reviewed various lists of essential elements of SL and stated "while there are fundamental definitions, elements, and principles of SL that apply no matter what the situation or context, the cultural fibre of the societies in which SL is practised will ultimately shape the overall character of the SL experience" (p. 32).

Purposes and Rationale

SL is a pedagogical tool to enhance knowledge and foster a sense of social responsibility and competence in students so that, as global citizens, they can address the challenges of diverse and continuously evolving societies. The importance of social responsibility in higher education is reiterated in the United Nations Special Rapporteur Singh (2016):

> The 1998 World Declaration on Higher Education for the Twenty-First Century: Vision and Action . . . called upon higher education institutions to give the opportunity to students to fully develop their own abilities with a sense of social responsibility, educating them to become full participants in democratic society and promoters of changes that will foster equity and justice. (para 109)

SL is rooted in American higher education's historical commitment to prepare local and national leaders (Harkavy & Hartley, 2010). With a growing emphasis on fostering what Altman (1996) called socially responsive knowledge in education, SL can empower universities to be a transformative force for cultural, economic, and social change across the globe (e.g., Cayuela, Alonso, Ballesteros, & Aramburuzabala, 2020). With SL's dual purpose of enhancing student development (learning, social responsibility, personal growth) and community benefits, it can (a) expand intellectual, social, and global horizons, (b) foster personal and professional growth, and (c) educate and prepare an informed and active socially responsible global citizenry.

Philosophical and Pedagogical Roots of Service Learning

SL rests on the sound pedagogical principles of active and experiential learning of which Dewey, Lewin, and Piaget stand as the foremost "intellectual ancestors" (Kolb, 2015, p. 15). Kolb (2015) integrated these intellectual roots into a conceptual model to serve as a foundation for diverse forms of experiential learning, including SL (Bringle, Reeb, Brown, & Ruiz, 2016). SL connects students to life in communities and connects scholarly learning with experiences through reflection and social action in authentic community settings. SL is grounded in Dewey's progressive approach to experiential education, the social-constructivist perspectives of Piaget and Vygotsky, and the participatory and democratic approach of Lewin (e.g., action research) (Kolb, 2015). Another notable contribution to SL pedagogy is feminist epistemologies that emphasize connected knowing (Belenky, Clinchy, Goldberger, & Tarule, 1997), i.e., learning is a social-cultural process based on an ethic of care. SL creates democratic communities, and tensions between the self and others are bridged. SL links education to democratic citizenship, social action, and active engagement aimed at the public good, as echoed in Freire's emphasis on the development of critical awareness (Freire, 1968). For instance, in critical SL (Mitchell, 2008) and transformative learning theory (Mezirow, 2009), students are challenged to consider

worldviews beyond their own, to reach a broadened sense of self with a deeper understanding of the notions of justice (as opposed to notions of charity), and to serve as social agents. SL is also regarded as a high-impact pedagogical practice (Kuh, 2008) that prioritizes student engagement in educationally purposeful activities, filled with rich academic challenges, supportive learning environments, and learning in diverse real-world settings (Bringle et al., 2016).

Notions of citizenship, democracy, and service are informed by political history, socioeconomic context, and power dynamics, implying variations in how SL is practiced. In the post-apartheid context of South Africa, for example, SL initiatives are situated in restorative practices, redress, and transformation (Thomson et al., 2011). In countries with colonial oppression and racialized histories, the term service might be associated with unequal, paternalistic, and charitable practices. More neutral terms (e.g., community interaction, community-based learning, and community engagement) are favored. In contrast to more individualistic philanthropic traditions, the Latin American context embeds SL in collaborative and collective action with the term "solidarity" (Regina & Ferrara, 2017). Also, the collectivist tradition and social ethic of *Ubuntu*, which is seen as an underlying principle in many African (Pacho, 2019) and South African (Bobo & Akhurst, 2019) SL initiatives, promotes society's common good in an interconnected manner.

Service Learning as Pedagogy in the Psychology Curriculum

Across the globe, there are various guidelines for the design and delivery of psychology programs (e.g., Australian Psychological Society, 2015; EuroPsy, 2014; International Association of Applied Psychology, 2016); however, we will refer to the *APA Guidelines for the Undergraduate Psychology Major (Guidelines 2.0)* (APA, 2013) because they are aligned with other sets of guidelines. It is instructive to consider APA Learning Goals within the context of the three domains of knowledge (foundational, professional, socially responsive) identified by Altman (1996). Foundational knowledge refers to "the content concepts, theories, history, and methodology of a discipline" as well as "liberal education or cross-disciplinary knowledge intended to broadly educate students" (p. 374). APA Learning Goals 1 (Knowledge Base in Psychology) and 2 (Scientific Inquiry and Critical Thinking) coincide with what Altman called foundational knowledge. Professional knowledge, which coincides with APA Learning Goals 4 (Communication) and 5 (Professional Development), involves "practitioner skills and content in a field" including "vocationally oriented information and techniques" (p. 374). Socially responsive knowledge, which corresponds with APA Learning Goal 3 (Ethical and Social Responsibility in a Diverse World), involves the following emphases: (a) "educate students in the problems of society," (b) provide students with opportunities to "experience and understand first-hand social issues in their community," and (c) foster in students the "skills to act on social problems" (pp. 374–375). As Altman (1996) emphasized, "socially responsive knowledge leans heavily on both

foundation knowledge and professional knowledge," with "the three types of knowledge intertwined and interdependent" (p. 375). Thus, educating psychologically literate citizens encompasses all three of Altman's knowledge domains.

SL is a powerful pedagogy for fostering psychologically literate citizens by pursuing all five of the APA Learning Goals and thereby also enhancing Altman's three knowledge domains (Bringle et al., 2016; Clayton, Bringle, & Hatcher, 2013a). Furthermore, relative to other pedagogical approaches, SL places a special emphasis on socially responsive knowledge, which can be enhanced in most psychology curricula. The United Nations (2020) propose 17 interconnected Sustainable Development Goals (SDGs) as "a call for action by all countries – poor, rich and middle-income – to promote prosperity while protecting the planet." The SDGs represent a "universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere." Based on available research, we contend that SL is the best pedagogical technique for educating psychology students to answer this call to action.

Design Issues and Approaches

SL is an effective pedagogy to develop psychologically literate citizens. Reaching educational goals is contingent upon designing, implementing, and assessing high-quality SL courses. Typically, an existing psychology course is modified by integrating community-based activities into it. Bringle et al. (2016) provided examples for SL in introductory psychology, abnormal psychology, health psychology, social/personality psychology, developmental psychology, cognitive psychology, community psychology, research methods, interdisciplinary, and study abroad courses. Other examples for integrating SL into existing psychology courses are in the literature. Sometimes, all students engage in the community-based activities because the activities are viewed as integral to the course's learning objectives. Alternatively, students may be given a choice between a SL option and an alternative assignment (e.g., a research paper focused on a community issue). In all cases, the community-based activities are not simply an added requirement, but they have an educational rationale that is supported by their intentional integration into and coordination with other aspects of the course.

There are four types of potential community activities in SL courses: (a) direct service, (b) indirect service, (c) research, and (d) advocacy (Bringle et al., 2016). Direct service engages students face-to-face with residents or clients of a community organization. Examples include teaching at-risk children positive behaviors, participating in programs at a center for elderly persons experiencing dementia, or assisting community members who are experiencing mental illness or homelessness.

Indirect service involves students working behind the scenes to increase, enhance, or direct resources to support an organization, neighborhood, or government office to address a community issue. Examples include fundraising and/or crowdfunding, developing resource materials (e.g., brochures, instructional aids, web pages, social

media platforms), or facilitating access to services (e.g., augmenting the collaboration between a homeless shelter and a health clinic).

In research, students use psychological methods (e.g., design, measurement, data analysis) in community-based research activities. Examples include collaborating with community partners to develop an assessment instrument and/or conduct a program evaluation. Alternatively, the research could be participatory community action research, wherein a team of individuals (faculty, students, and community partners) collaborate to conduct research that contributes to understanding social issues and social transformation.

Students doing advocacy apply psychological content to examine root causes of social issues and encourage transformative change in communities (e.g., increasing public awareness concerning an issue, changing policy, advocating for client rights, changing infrastructure to improve access to services). Activities could include conducting presentations in the community to increase awareness of a policy issue, obtaining support for a social change initiative, or assisting community members who are working for a cause (e.g., social media platforms, letters, e-mails, telephone calls, meetings with government officials or legislators).

Toole and Toole (1998) identified 11 essential elements for a SL course, and we will use them as a basis for discussing course design. High-quality SL courses that attend to each of these elements are an effective way of engaging both majors and nonmajors in their psychological courses and developing students' social awareness, knowledge, skills, and attitudes that are tied to the psychological curriculum.

Effective Service Learning Establishes Clear Educational Goals

Designing a SL psychology course starts with the learning objectives from three domains: academic learning, socially responsive knowledge, and personal growth (Stokamer & Clayton, 2017). Figure 1 illustrates how these three domains can be independent or related learning objectives (e.g., leadership could be an academic topic, an area for studying leadership in community NGOs, or an area for personal growth). Linking students' service activities to the course's learning outcomes is what differentiates SL from volunteering. SL fully integrates academic content, course activities, reflection, and assessment with the community activities. Bringle et al. (2016) illustrated how SL courses from the undergraduate curriculum can be developed to contribute to all of the educational objectives in the five broad learning domains of the *APA Guidelines 2.0* (APA, 2013) in ways that promote socially responsive knowledge and personal growth in addition to foundational, academic competencies.

Students Are Engaged In Tasks that Challenge Them

Not just any community-based activity is appropriate. Instructors and students must work with community partners to identify activities that are aligned with the course's

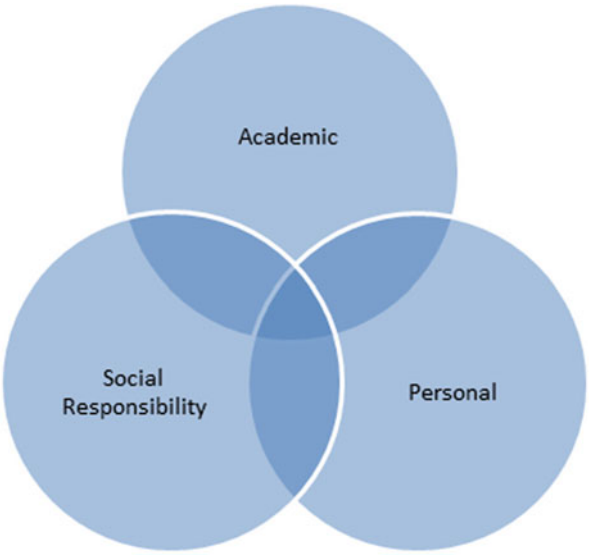

Fig. 1 Learning domains that community service can enhance. (Adapted from Bringle et al. (2016, p. 71))

learning objectives and that benefit the community. One of the educational advantages of SL activities is challenging students to consider additional perspectives on the course content (i.e., academic learning), their communities (i.e., socially responsive knowledge), and themselves (i.e., personal learning). This works best when activities fit the students' skills and interests as well as the community's priorities.

Service Tasks Have Clear and Significant Goals

Service activities should acknowledge an issue identified by the community, and the service objectives are then developed based on the context of the issue and the course's learning objectives. Furthermore, community-based activities should be designed and selected to be consistent with learning objectives. For example, as Boyle-Baise (2002) points out, "A charitable task probably will not generate insights for social change" (p. 33). Research finds that when service activities have clear goals, make significant contributions, and have an impact on oneself and others, students then gained greater social knowledge, civic dispositions, and skills (e.g., Billig, Root, & Jesse, 2005; Choo et al., 2019).

Students Are Well Prepared for Their Service Activities

Student preparation for community-based activities was positively related to academic engagement, appreciation of academic content, civic engagement, and stronger civic disposition (Billig et al., 2005; Choo et al., 2019). Students also learn, often

from a community representative, about where they will be serving – including strengths, assets, challenges, and social justice issues faced by community members.

The students' preparation consists of understanding the project and expectations and their roles and limitations (Chapdelaine, Ruiz, Warchal, & Wells, 2005). Some other substantial issues to consider may be transportation, safety, resources, and technology use (Jacoby, 2015). The practicalities of transportation and technology use and the dynamics of risk management and safety might vary vastly. For example, in countries with less economic, political, and social stability and more pronounced developmental challenges, the unequal distribution of wealth and resources (between students and community members but also within the student population) might pose challenges (Akhurst, 2017) that need to be addressed during the design of the SL course. More importantly, students need to be aware of the potential for personal changes that may result from the experiences. SL students should be supported as they reflect on their awareness of the world and the impact of the service on their understanding of themselves and others and as they navigate what may be uncomfortable personal and interpersonal experiences.

Student Reflection Before, During, and After Service

A well-designed SL course requires students to reflect on and evaluate different perspectives and circumstances, which enhances their ability to think critically about social issues (Ash & Clayton, 2009). Higher-quality SL occurred when reflections were structured and regular; when the content of the reflection activities was aligned with the identified academic, civic, and personal outcomes (Astin et al., 2006; Dahan, 2016; Hatcher, Bringle, & Muthiah, 2004; Moely & Ilustre, 2014); and when reflections take various forms (e.g., written journals, in-class discussion, projects) (Astin et al., 2006; Dahan, 2016).

The DEAL Model for Critical Reflection (Ash & Clayton, 2009) comprises the following steps: (a) **d**escribe the experiences in detail; (b) **e**xamine the experiences from personal, civic, and/or academic perspectives; and (c) **a**rticulate **l**earning that has resulted. In the examine stage of DEAL, the prompts (e.g., for written reflection, in-class discussion) can be specific learning objectives derived from the *APA Guidelines 2.0* and aligned with academic learning, socially responsive knowledge, and/or personal growth. This approach to reflection provides authentic evidence of learning outcomes, and their products can be evaluated using Bloom's (1956) taxonomy. Bringle et al. (2016) provided many examples of DEAL reflection assignments for connecting community-based activities to facilitate academic learning, socially responsive knowledge, and personal growth.

Maximize Student Voice in the Service Project

When students in a SL course are given more voice and ownership of the activities, they have improved self-concepts, are more politically engaged, and are more

tolerant and appreciative of diversity (Morgan & Streb, 2001). Student voice can manifest itself when students elect to do SL when it is an option in a course, when they choose from a short list of service activities or sites, or when they work with the community organization to tailor activities to their interests. Students may also choose among ways to reflect on their service activities and demonstrate their learning (e.g., reflection essay, digital story, artistic expression).

Valuing Diversity

SL engages students with individuals who are in some ways different from themselves. Bowman (2011) found in a meta-analysis that face-to-face diversity experiences (vs. didactic educational experiences) were related to enhanced civic attitudes. Pascarella et al.'s (2014) research found that exposure to diversity experiences fostered the development of cognitive growth and more complex modes of thought. Intentionally designed diversity experiences in SL courses, supported by appropriate reflection activities, provide powerful ways to enhance the education of students in ways that are not possible when learning is limited to books and the classroom.

Promote Collaboration with the Community

Good SL does not have students learning ***about*** the community, doing activities ***in*** the community, nor doing activities ***for*** the community. Good SL has students doing activities ***with*** community partners in ways that develop respect for what they can learn from their community partners. This represents a tension that is embedded in discussions about SL that contrast charity orientations to community service with activities that are focused on social change, advocacy, and social justice. Indeed, the word "service" runs the risk of implying "haves" giving to "have nots" that undermines the aspiration that students and community partners are collaborating around a common interest and purpose. This also reflects a pattern that SL in the Northern Hemisphere is too often focused on student outcomes and charity orientations to community-based activities whereas SL in the Southern Hemisphere emphasizes action toward systemic community change and awareness of issues associated with power, oppression, and privilege (Tapia, 2012). Hamner, Wilder, and Byrd (2007) found that collaboration with clients in health promotion resulted in students' greater understanding of the community and appreciation for diversity and that clients were empowered with improved health habits and greater medical knowledge.

Systematic Formative and Summative Evaluation

All good teaching has feedback systems designed to monitor how effectively the course has been implemented and to manage unexpected developments. These should solicit information from all relevant constituencies (e.g., students, community partners, residents/clients) to improve the course. Formative (i.e., questions asked in class and

reflection) and summative evaluation (i.e., grading) should be developed to provide a basis to determine if intended objectives were met (Bringle et al., 2016).

Assessment Enhances Student Learning

Assessment in SL should be purposeful and have clear standards. Walvoord and Anderson (1998) highlight four roles of assessment: evaluation, communication, motivation, and organization. In the context of SL, assessment serves these four roles: (a) evaluation provides information on student's learning and community activities; (b) communication conveys information to the students as well as instructors on the students' activities and learning and how they correspond to design; (c) motivation not only motivates the students but also shapes how they learn; and (d) organization denotes what is important and creates feedback opportunities during the learning experience. Most importantly, assessing learning establishes that the community-based activities are being engaged in for the sake of learning and acknowledges that the students can fulfill a role in their own learning.

Acknowledge and Celebrate Students' Service Work

Because the nature of SL is often challenging and involves in-depth collaborative work with different individuals, instructors should identify multiple ways to recognize and celebrate the activities and outcomes that result from the course. These might occur within the course, through campus centers for SL, at the campus level, and in the community with community partners.

Assessment and Research Issues

To maximize the likelihood that SL research will contribute to theory and practice, researchers must strive for the highest standards of evidence-based research on teaching and learning. To pursue the highest standards, chapters in Clayton et al. (2013a) and Clayton, Bringle, and Hatcher (2013b) discussed assessment methods and instruments for SL research, research approaches, and theory-based research for enhanced understanding of SL for students, faculty, institutions, communities, and partnerships. This section highlights major themes and issues in conducting research on SL. Most SL research has evaluated student outcomes. Nevertheless, research on community outcomes that provides guidance and recommendations for practice is important.

Assessment and Research on Student Outcomes of SL

Theory

Unfortunately, much of the research on SL has been atheoretical. Chapters in Clayton et al. (2013a, 2013b) consider the ways in which cognate theories can

inform and guide research on SL. Bringle (2003, 2017b) and Wilkenfeld, Lauckhardt, and Torney-Purta (2010) highlight examples of psychological theories that can inform SL research and practice (e.g., self-determination theory, intergroup contact theory, attribution theory, equity theory, social-cognitive theory, self-efficacy theory, and transtheoretical models of behavior change).

Assessment

In assessing SL courses, traditional methods (e.g., multiple-choice exams) can have significant utility, as exemplified in a study by Reeb, Sammon, and Isackson (1999), but they may not tap higher-order thinking nor do they measure socially responsive knowledge or personal growth. Bringle, Phillips, and Hudson (2004), Peterson and Seligman (2004), and Robinson, Shaver, and Wrightsman (1991) compiled psychometric instruments that can be used in research on student outcomes of SL, including moderator and mediating variables. However, there is overreliance on self-report measures, and more research with authentic assessment and independent evaluation of outcomes is needed. For example, the DEAL Model (Ash & Clayton, 2009), reviewed earlier, can allow independent assessment of reflection products for improvements in academic learning, socially responsive knowledge, or personal growth (Ash & Clayton, 2009).

Research Design

Experimental studies with random assignment that examine student outcomes in SL are rare, but some have been conducted (e.g., Brown, 2011a, b; Brown, Wymer, & Cooper, 2016). In experiments, strategies from psychotherapy outcome research (Kazdin, 1998) can identify active ingredients of SL courses. For example, in the package strategy, outcomes for students in a SL course with multiple components (e.g., different types of service, reflection, readings) are compared to outcomes of students in a section that lacks one component. Although pursuing experimental research will be an important contribution to research on SL, high-quality correlational research, quasi-experimental designs, and qualitative research will continue to contribute to understanding SL processes and outcomes. More attention also needs to be given to prospective longitudinal research designs that examine SL effects over time, larger sample sizes, and appropriate control or comparison groups.

Assessment and Research on Community Outcomes

Although definitions of SL emphasize "benefit the community" (Bringle et al., 2016, p. 8), "There is a significant lack of research exploring community outcomes of service-learning, representing a surprising void in the literature" (Reeb & Folger, 2013, p. 389). Due to the complexity of community issues, research is best guided by a systems (ecological) framework (e.g., Christens & Perkins, 2008; Reeb et al., 2017) that delineates multiple levels, coordinates transdisciplinary collaboration, and guides projects to meet criteria of psychopolitical validity.

Psychopolitical validity incorporates two criteria in evaluating community projects: (a) "that psychological and political power be incorporated into community interventions" and (b) "that interventions move beyond ameliorative efforts and towards structural change" (Prilleltensky, 2008, p. 116). Because an ecological approach (a) assures assessment at multiple levels, (b) identifies connections among levels, and (c) recognizes that positive changes in one level may be deleterious at another, it is "a necessary concomitant to psychopolitical validity" (Christens & Perkins, 2008, p. 215). Future SL research needs to differentiate (a) outputs (e.g., number of people served), (b) outcome variables (e.g., alleviative/ameliorative, empowerment, transformative), and (c) process variables (e.g., mediators, moderators) (Reeb et al., 2017).

Participatory Community Action Research as SL

Benefits of using participatory community action research (PCAR) in SL are noteworthy (Bringle et al., 2016; Reeb et al., 2017). PCAR is (Minkler & Wallerstein, 2003):

> A collaborative approach to research that equitably involves all partners in the research process and recognizes the unique strengths that each brings. . .[PCAR] begins with a research topic of importance to the community with the aim of combining knowledge and action for social change to improve community. (p. 6)

Strand, Cutforth, Stoecker, Marullo, and Donohue (2003) contend that "[PCAR], when used as a teaching strategy, is an exceptionally effective form of service learning . . . appropriate for a variety of . . . curricular levels" (p. 137). Principles for campus-community reciprocity, as detailed by Strand et al. (2003) and summarized by Bringle et al. (2016), are at the heart of PCAR:

(1) *Initiating partnerships*: (a) sharing an overall view, (b) developing mutual goals and strategies, and (c) increasing trust and respect
(2) *Guiding the development of partnerships*: (a) sharing power, (b) communicating clearly, (c) understanding and empathizing with one another, and (d) maintaining flexibility
(3) *Guiding outcomes of partnerships*: (a) addressing mutual needs and interests, (b) enhancing organizational capacity, and (c) developing long-term social change view and plans

Principles of reciprocity have pragmatic benefits (Reeb et al., 2017), such as tailoring a project to a particular community and incorporating multiple perspectives. PCAR SL promotes democratic participation, advocacy (referred to critical SL by Mitchell, 2008), and public policy. Minkler and Freudenberg (2010) reviewed (a) concepts and models for understanding policy making, (b) phases in utilizing PCAR in policy-making plans, (c) strategies and resources to strengthen policy initiatives, and (d) ways to identify allies and opponents in policy campaigns.

Core Findings and Current Trends

Most research on SL has focused on student outcomes, with less attention on community benefits, community-campus partnerships, changes in instructors, and changes in departments and institutions of higher education (e.g., advancement criteria, infrastructure support, assessing learning across courses). This section summarizes research on student outcomes and delineates trends in SL pedagogy. Chapters in Clayton et al. (2013a, b) reviewed past research on SL for faculty, institutions, community, and partnerships.

Core Findings

Meta-Analyses

Celio, Durlak, and Dymnicki (2011) conducted a meta-analysis of pre-collegiate and collegiate students and found improvements associated with SL for attitudes toward self, school and learning, civic engagement, social skills, and academic performance. Yorio and Ye (2012) found similar results for understanding of social issues, personal insight, and cognitive development. Conway, Amel, and Gerwien (2009) conducted a meta-analysis of pre-collegiate, collegiate, and adult students and found SL was associated with positive outcomes in academic, personal, social, and citizenship domains. Focusing on changes in attitudes toward persons with disabilities, Case, Schram, Jung, Leung, and Yun (2020) found in a meta-analysis that SL with an adapted physical activity had a positive effect on changing attitudes toward persons with disabilities. Novak, Markey, and Allen (2007) compared courses with and without a SL component that included a quantitative measure of cognitive learning. The effect size attributable to SL indicated a 53% improvement in learning. Warren (2012) found a similar effect size. A review by Holsapple (2012) found that SL promoted a variety of diversity outcomes.

Longitudinal Studies

Astin and Sax (1998), in a sample of 3,450 students attending 42 American institutions, found that SL had a strong impact on reported academic learning, life skill development, and civic responsibility upon graduation, after controlling for student characteristics. Ten years after entering the university, Astin et al. (2006) found SL was associated with students' post-graduation civic leadership, charitable giving, and political engagement. Kerrigan (2005) found that a senior-year SL course was associated with enhanced communication abilities, leadership skills, community involvement, understanding of diversity, and career development 3 years after graduation. Ruiz and Warchal (2013) found higher levels of community involvement after graduation for students who had engaged in SL and other service-oriented experiential activities during college.

Authentic Evidence

Most research on student outcomes has relied on self-report measures, with fewer studies employing authentic evidence of learning that is independently evaluated.

Markus, Howard, and King (1993) compared students in SL and non-SL sections of a large political science course and found that learning and course grades were higher for SL students. Reeb et al. (1999) found that SL and non-SL students in abnormal psychology had similar levels of academic performance early in the semester, but SL students showed increasingly superior performance subsequently. Eyler and Giles (1999) conducted interviews focused on analyzing social problems, with interview transcripts rated by blind reviewers. Relative to students in non-SL courses and poorly implemented SL courses, students in well-implemented SL courses exhibited improvements in causal complexity, solution complexity, knowledge application, and personal political strategy. These results were replicated by Guo, Yao, Wang, Yan, and Zong (2016) in a psychology of learning course. Ash, Clayton, and Atkinson (2005) had raters evaluate written products from a SL course and found improvements across the semester on higher-order reasoning abilities and critical thinking. In a child psychology course, Miller and Yen (2005) found higher project grades and final examination scores for SL (vs. non-SL). Fleck, Hussey, and Rutledge-Ellison (2017) found similar knowledge gains due to SL (vs. non-SL) in a developmental research methods course.

Course Characteristics

Reflection

Research demonstrates that reflection plays a key role in student outcomes (Astin et al., 2006). Hatcher et al. (2004) found that regular reflection, structured reflection, and reflection focused on personal values were independently related to the quality of SL courses. Conway et al. (2009) found in a meta-analysis that structured reflection (vs. unstructured reflection) yielded larger effects.

Types of Service

Brown et al. (2016) found in a social psychology course that direct service that facilitated autonomy-oriented helping (vs. indirect service and dependency-oriented helping) resulted in more positive views of social equality. Miller and Yen (2005) found higher final exam scores in a child psychology course for SL activities involving direct (vs. indirect) SL activities. Dahan (2016) found that reflection, direct service, and service duration (>30 hours of service) were related to positive change on civic attitudes.

Trends

Scaffolding Service Learning

Ti, Tang, and Bringle (2021) envisioned scaffolding SL courses across semesters so that subsequent courses can build upon earlier SL experiences. SL courses can also be scaffolded across disciplines (students from different disciplines collaborate on a community project), longitudinally over time (community projects are sustained by cohorts of students), across borders (complementary domestic SL and international

SL courses), and after graduation (SL is embedded in continuing education and for alumni).

Assessing the Quality and Attributes of SL Course

Past research has too often treated SL as a monolithic, uniform, and standardized pedagogy when implemented and studied. This is illustrated in research in which SL courses are compared to non-SL courses. This approach fails to consider the variability that may exist in the quality and nature of SL courses (e.g., types of service activities, nature of reflection, learning objectives, discipline). Bringle, Hatcher, and Hahn (2019) and Furco and Matthews (2018) have both developed criteria for evaluating the quality of a SL course. These can be used in research to better understand which course attributes contribute to various outcomes (e.g., student learning, partnerships, community outcomes). In addition, research is beginning to examine moderator variables (e.g., what experiences and attributes students bring to a SL course) and mediating variables (e.g., changes in intervening variables associated with change in outcomes) that can extend research findings and the understanding for why outcomes are attained and for whom (Steinberg, Bringle, & McGuire, 2013).

Internationalizing the Psychology Curriculum

A powerful hybrid pedagogy integrates study abroad with SL, which can enhance cross-cultural understanding, personal growth, and global civic learning (Bringle, Hatcher, & Jones, 2011). Through service activities that immerse students in a local culture, international SL emphasizes working with community partners to their benefit, learning about and from local cultures, regular and structured reflection, and consideration of power and privilege (Bringle et al., 2011). Niehaus and Crain (2013) documented superior outcomes for international SL relative to domestic SL.

Other Hybrid Pedagogies

International SL is a hybrid pedagogy that intentionally integrates SL with study abroad. Other hybrid pedagogies integrate SL with practica and internships to produce civic internships and integrate SL with research courses to produce PCAR courses (Bringle, 2017a). SL contributes socially responsive knowledge, regular and structured reflection, reciprocal partnerships, diversity, and democratic values to hybrid courses.

Enhancing Democratic Engagement in Service Learning

Inculcating democratic values into SL needs to have the following attributes: inclusive, participatory, collaborative with the participation of multiple constituencies, focus on public issues, contribute to progress on community issues, and embrace respect for different ways of knowing and different types of knowledge (Saltmarsh, Hartley, & Clayton, 2009). Democratic civic engagement, including SL, encompasses democratic processes and democratic purposes. The Council of Europe's (2016) *Competences for Democratic Culture* provided a conceptual model of civic competencies for learners if they are to participate effectively in a

culture of democracy and live in culturally diverse democratic societies. A second monograph on pedagogy identified SL as one of the pedagogies that can develop these competencies (Council of Europe, 2017).

eService Learning (eSL)

Waldner, McGorry, and Widener (2012) identified four approaches to technologically supported distance SL education (i.e., eSL), each with its unique combination of activities, products, partnerships, strengths, and limitations:

> Hybrid Type I (service fully on site with teaching fully online), Hybrid Type II (service fully online with teaching fully on site), Hybrid Type III (a blended format with instruction and service partially online and partially on site), and extreme e-service-learning (100% of the instruction and service online). (p. 133)

Implementing eSL presents interesting possibilities for greater participation in SL, reconceptualizing partnerships, redefining collaboration, and redesigning critical reflection (Bringle & Clayton, 2020).

Utility of SL in Preparing Students for the Existential Crisis of Climate Change

Intergovernmental Panel on Climate Change (2019) documents evidence of climate change as an existential crisis. Research suggests that SL has utility in preparing students for the call for action (Schneller, 2008, p. 294): "service learning courses can increase awareness of environmental issues and community awareness; locus of control; environmental consciousness; conservation knowledge, . . . personal environmental actions; and enjoyment of nature."

Challenges, Lessons Learned, and Implications for Learning and Teaching Psychology

There are several pathways that instructors follow and several factors that motivate them (political, moral, pedagogical, spiritual, and personal factors) to integrate SL into psychology courses (Bringle et al., 2016). The experiential, constructivist, and transformational approaches embedded in SL move learning outside of the classroom, decenter the teacher, and challenge the notion of absolute truths. These processes might be unfamiliar to some psychology instructors and may be regarded as counternormative (Clayton & Ash, 2004). Furthermore, working in partnership with community members and dealing with authentic real-world dilemmas that are often ill-structured and contradictory increases the quality of curricular design. It takes time and commitment to design a SL course and offer it. Instructors can benefit from assistance with course development from experienced SL instructors, particularly psychologists, and campus staff with SL expertise. Institutions may have manuals for instructors, and some organizations provide guidelines for good practice in SL (e.g., Europe Engage, Campus Compact, CLAYSS, The Forum on Education

Abroad, Council for the Advancement of Standards in Higher Education, National Youth Leadership Council).

Support for faculty development should start at the graduate level by preparing future instructors for work on civically engaged teaching, research, and professional service (Bringle et al., 2016). Furthermore, faculty development programs should focus on the characteristics of the instructors they support. For instance, although novice faculty may be more focused on the expectations of their departments, more advanced faculty may concentrate on scholarship or even mentoring. Some faculty members may also feel more comfortable and competent than others to design a SL course (e.g., adaptive leadership; building sustainable and mutually beneficial relationships) as well as communicating and negotiating power relationships and sharing decision-making (Preece, 2016). Faculty development programs may emphasize learning theories, funding, support to build communities of scholars, and preparation of promotion dossiers (Bringle et al., 2016). Support for faculty development is also available from regional associations listed in the GUNI book (see Resource section) as well as at conferences.

SL requires attention and responsibility to multiple constituencies, including students, instructors, administrators in the academic institution, and the community. The context (historical, political, economic, social, institutional, disciplinary) in which SL is practiced should be considered (Thomson et al., 2011). Sensitive race relations, differences in worldview, values, culture, and language should be respected. A guide, such as a code of ethics, provides a framework to determine the benefits to all the parties involved as well as potential risks. That is, to what extent will the SL activities benefit the community, the students, and other partners? Are there potential negative, unintended, and unexpected consequences of a well-intentioned service learning project? Chapdelaine et al. (2005) and Ruiz, Warchal, Chapdelaine, and Wells (2011) suggested that guiding principles should be based on codes of ethics that may be available from regional or national professional organizations. When a professional code of ethics is not available, the *Universal Declaration of Ethics Principles for Psychologists* (2008) may be consulted. This declaration includes four principles: (a) respect for the dignity of persons and peoples, (b) competent caring for the well-being of persons and peoples, (c) integrity, and (d) professional and scientific responsibilities to society. These principles align well with the feminist epistemology (Belenky et al., 1997) in which SL is embedded and the ethic of care promoted through SL.

These ethical principles are applicable to administrators, instructors, students, and community partners (Chapdelaine et al., 2005; Ruiz et al., 2011). Together the partners determine the roles and responsibilities of all parties involved; prepare a cost/benefit evaluation of the project; prepare students by clearly communicating learning outcomes, course requirements, and expectations; and model ethical behavior. Administrators focus on how SL aligns with the institutional mission and provide support for all involved. The instructors make sure that the community interests and course objectives are aligned, that there is a clear plan that is developed and shared with all parties, and that the students are prepared for the projects.

Partnerships with community organizations are essential to good SL course design. They need to be established prior to and during course design to ensure that the students' service activities are aligned not only with the course's learning objectives but also with community goals. The community partners, whether organizations or individuals, are influential in determining the nature of the community-based activities and the roles each partner plays. Particular attention needs to be focused on issues related to inclusive participation, diversity, and power imbalance. For example, promoting a social justice agenda in psychologists' training might have intricate implications in countries such as South Africa where inequality, social injustices, and structural constraints are severe and widespread. In these circumstances, power relations should be carefully managed, and care should be taken to not perpetuate inequity (Akhurst, 2017). Time and resources need to be allocated to negotiate partnerships in fluid circumstances and less-structured communities and for planning, preparation, and reflection before, during, and after the implementation of the SL course. After the scope and nature of the project are established by all the parties involved, each member takes on their roles and responsibilities. Then a plan is created with activities, goals, potential deadlines, and contingency plans, including how to provide formative and summative assessment. Although this may require a time commitment, dedication, and ethical inclination from faculty, it also challenges students to develop the ethical responsibility they need to function as psychologically literate and socially responsive global citizens (APA, 2013; Bringle et al., 2016).

Conclusion

SL is an empirically established high-impact pedagogy that enhances foundational, professional, and socially responsive knowledge in students so that, as psychologically literate citizens, they are prepared to be engaged in the world. As an underdeveloped pedagogy for teaching psychology at all levels, it has the potential to enrich the curriculum, broaden learning objectives, enhance student motivation, prepare students for social issues in a diverse society, and contribute to the United Nations SDGs. Psychologists are well-positioned to contribute to the literature on SL through theory-based research that utilizes rigorous research methodology and assessment, including longitudinal research and research on community outcomes guided by a systems (ecological) perspective.

Cross-References

- ▶ Assessment of Learning in Psychology
- ▶ Basic Principles and Procedures for Effective Teaching in Psychology
- ▶ First Principles of Instruction Revisited
- ▶ Formative Assessment and Feedback Strategies
- ▶ Inquiry-Based Learning in Psychology

Teaching, Learning, and Assessment Resources

Bringle, R. G., Reeb, R., Brown, M. A., & Ruiz, A. (2016). *Service learning in psychology: Enhancing undergraduate education for the public good*. American Psychological Association.

This book reviews the theory, research, and practice for SL, establishing it as an effective pedagogy that can help psychology departments meet the five key learning goals outlined in the *APA Guidelines 2.0*. Chapters provide specific implementation strategies in introductory, major, and capstone courses. They also examined faculty development, assessment, and scholarship and provide blueprints for department-wide civic engagement.

Bringle, R. G., Ruiz, A., Brown, M. A., & Reeb, R. (2016). Enhancing the psychology curriculum through service learning. *Psychology Learning and Teaching, 15*(3), 1–16.

This article proposes that SL is the most potent pedagogy for developing well-rounded, psychologically literate citizens capable of meeting the learning goals for the undergraduate psychology major. SL is defined, rationales for SL are delineated, research demonstrating its efficacy is summarized, and ways in which SL contributes to academic learning, civic learning, and personal growth are described.

Chapdelaine, A., Ruiz, A., Warchal, J., & Wells, C. (2005). *Service-Learning Code of Ethics.* Anker.

Envisioning an educational system that meets community concerns by cultivating in students a commitment to civic engagement, this book provides insights and tools for navigating the ethical dilemmas that arise during SL. Designed for administrators, instructors, and students, it contributes to meaningful reflection, class discussion, and values exploration by promoting SL as benefiting society and student development.

Cranney, J., & Dunn, D. (Eds) (2011). *The psychologically literate citizen: Foundations and global perspectives.* Oxford University Press.

This edited book provides international responses that link traditional approaches in psychology to psychological literacy and psychologically literate citizens and offers practical suggestions for everyday teaching practice.

Global University Network for Innovation. (2014). *Higher education in the world 5: Knowledge, engagement and higher education: Contributing to social change*. Palgrave MacMillan.

This volume contains an examination of community engagement in higher education, including SL, and regional developments from around the world.

Jacoby, B. (2015). *Service-learning essentials: Questions, answers, and lessons learned.* Jossey-Bass.

This volume provides advice on basic and advanced issues related to the design, implementation, and assessment of service learning in higher education.

References

Akhurst, J. (2017). Student experiences of community-based service learning during masters' level training, as related to critical community psychology practice. *Journal for New Generation Sciences, 15*, 1–20.

Altman, I. (1996). Higher education and psychology in the millennium. *American Psychologist, 51*, 371–378. https://doi.org/10.1037/0003-066X.51.4.371.

American Psychological Association. (2007). *APA Guidelines for the undergraduate psychology major*. Author.

American Psychological Association. (2013). *APA guidelines for the undergraduate psychology major: Version 2.0*. https://www.apa.org/ed/precollege/undergrad/index.aspx

American Psychological Association. (2018). *APA citizen psychologist.* https://www.apa.org/about/governance/citizen-psychologist

Aramburuzabala, P., McIlrath, L., & Opazo, H. (2019). *Embedding service learning in European higher education*. London, UK: Routledge.

Ash, S. L., & Clayton, P. H. (2009). Generating, deepening, and documenting learning: The power of critical reflection for applied learning. *Journal of Applied Learning in Higher Education, 1*, 25–48.

Ash, S. L., Clayton, P. H., & Atkinson, M. P. (2005). Integrating reflection and assessment to improve and capture student learning. *Michigan Journal of Community Service Learning, 11*(2), 49–60.

Astin, A. W., & Sax, L. J. (1998). How undergraduates are affected by service participation. *Journal of College Student Development, 39*, 251–263.

Astin, A. W., Vogelgesang, L. J., Misa, K., Anderson, J., Denson, N., Jayakumar, J., Saenz, V., & Yamamura, E. (2006). *Understanding the effects of service-learning: A study of students and faculty.* Report to the Atlantic Philanthropies.

Australian Psychological Society. (2015). *Australian curriculum: Psychological science*. https://www.psychology.org.au/Training-and-careers/psychological-science/

Belenky, M. F., Clinchy, B. M., Goldberger, N. R., & Tarule, J. M. (1997). *Women's ways of knowing: The development of self, voice, and mind*. New York, NY: Basic Books.

Billig, S., Root, S., & Jesse, D. (2005). *The impact of participation in service learning on high school students' civic engagement.* Center for Information & Research on Civic Learning and Engagement, Working Paper No. 33.

Bloom, B. S. (Ed.). (1956). *Taxonomy of educational objectives, handbook I: Cognitive domain*. New York, NY: David McCay.

Bobo, B., & Akhurst, J. (2019). 'Most importantly, it's like the partner takes more interest in us': Using Ubuntu as a fundamental ethic of community engagement partnerships at Rhodes University. *Alternation, 27*, 88–110. https://doi.org/10.29086/2519-5476/2019/sp27a4.

Bowman, N. A. (2011). Promoting participation in a diverse democracy: A meta-analysis of college diversity experiences and civic engagement. *Review of Educational Research, 81*(1), 29–68.

Boyle-Baise, M. (2002). *Multicultural service learning: Educating teachers in diverse communities*. New York, NY: Teachers College Press.

Bringle, R. G. (2003). Enhancing theory-based research on service-learning. In S. H. Billig & J. S. Eyler (Eds.), *Deconstructing service-learning: Research exploring context, participation, and impacts* (pp. 3–21). Greenwich, CT: Information Age Publishing.

Bringle, R. G. (2017a). Hybrid high-impact pedagogies: Integrating service-learning with three other high-impact pedagogies. *Michigan Journal of Community Service Learning, 24*(1), 49–63.

Bringle, R. G. (2017b). Social psychology and civic outcomes. In J. A. Hatcher, R. G. Bringle, & T. W. Hahn (Eds.), *Research on student civic outcomes in service learning: Conceptual frameworks and methods* (pp. 69–89). Sterling, VA: Stylus.

Bringle, R. G., & Clayton, P. H. (2012). Civic education through service-learning: What, how, and why? In L. McIlrath, A. Lyons, & R. Munck (Eds.), *Higher education and civic engagement: Comparative perspectives* (pp. 101–124). New York, NY: Palgrave.

Bringle, R. G., & Clayton, P. H. (2020). Integrating service learning and digital technologies: Examining the challenge and the promise. *Revista Iberoamerican de Education a Distancia, 23* (1), 43–65.

Bringle, R. G., & Hatcher, J. A. (1996). Implementing service learning in higher education. *Journal of Higher Education, 67*, 221–239.

Bringle, R. G., Hatcher, J. A., & Hahn, T. W. (2019). Practical wisdom for conducting research: An introduction. In J. A. Hatcher, R. G. Bringle, & T. W. Hahn (Eds.), *Practical wisdom for conducting research on service learning: Quality and purpose* (pp. 3–24). Sterling, VA: Stylus.

Bringle, R. G., Hatcher, J. A., & Jones, S. G. (Eds.). (2011). *International service learning: Conceptual frameworks and research*. Sterling, VA: Stylus.

Bringle, R. G., Phillips, M. A., & Hudson, M. (2004). *The measure of service learning: Research scales to assess student experiences*. Washington, DC: American Psychological Association.

Bringle, R. G., Reeb, R. N., Brown, M. A., & Ruiz, A. I. (2016). *Service learning and psychology: Enhancing undergraduate education for the public good*. Washington, DC: American Psychological Association.

Brown, M. A. (2011a). The power of generosity to change views on social power. *Journal of Experimental Social Psychology, 47*, 1285–1290.

Brown, M. A. (2011b). Learning from service: The effect of helping on helpers' social dominance orientation. *Journal of Applied Social Psychology, 41*, 850–871.

Brown, M. A., Wymer, J. D., & Cooper, C. S. (2016). The counter-normative effects of service-learning: Fostering attitudes toward social equality through contact and autonomy. *Michigan Journal of Community Service Learning, 23*(1), 37–44.

Case, L., Schram, B., Jung, J., Leung, W., & Yun, J. (2020). A meta-analysis of the effect of adapted physical activity service-learning programs on college student attitudes toward people with disabilities. *Disability and Rehabilitation*, 1–13.

Cayuela, A., Alonso, M., Ballesteros, C., & Aramburuzabala, P. (2020). *2019 Annual report of the European Observatory of Service-Learning in Higher Education*. https://www.eoslhe.eu/

Celio, C. I., Durlak, J., & Dymnicki, A. (2011). A meta-analysis of the impact of service-learning on students. *Journal of Experiential Education, 34*, 164–181.

Centro Latinoamericano de Aprendizaje y Servicio Solidario (CLAYSS). (n.d.). *What is "service learning"?* https://clayss.org/en/what-service-learning

Chapdelaine, A., Ruiz, A., Warchal, J., & Wells, C. (2005). *Service-learning code of ethics*. Bolton, MA: Anker.

Choo, J., Kong, T. Y., Ong, F., Shiuan, T. S., Nair, S., Ong, J., & Chan, A. (2019). What works in service-learning? Achieving civic outcomes, academic connection, career preparation, and personal growth in students at Ngee Ann Polytechnic. *Michigan Journal of Community Service Learning, 25*(2), 95–132.

Christens, B., & Perkins, D. D. (2008). Transdisciplinary, multilevel action research to enhance ecological and psychopolitical validity. *Journal of Community Psychology, 36*(*2*), 214–231.

Clayton, P. H., & Ash, S. L. (2004). Shifts in perspective: Capitalizing on the counter-normative nature of service-learning. *Michigan Journal of Community Service Learning, 11*, 59–70.

Clayton, P. H., Bringle, R. G., & Hatcher, J. A. (Eds.). (2013a). *Research on service learning: Conceptual frameworks and assessment* (Students and faculty) (Vol. 2A). Sterling, VA: Stylus.

Clayton, P. H., Bringle, R. G., & Hatcher, J. A. (Eds.). (2013b). *Research on service learning: Conceptual frameworks and assessment* (Communities, institutions, and partnerships) (Vol. 2B). Sterling, VA: Stylus.

Conway, J. M., Amel, E. L., & Gerwien, D. P. (2009). Teaching and learning in the social context: A meta-analysis of service learning's effects on academic, personal, social, and citizenship outcomes. *Teaching of Psychology, 36*, 233–245. https://doi.org/10.1080/00986280903172969.

Council of Europe. (2016). *Competences for democratic culture: Living together as equals in culturally diverse democratic societies*. Strasbourg, France: Council of Europe.
Council of Europe. (2017). *Council of Europe reference framework of competences for democratic culture (CDC)* (Guidance for implementation. 2. CDC and pedagogy) (Vol. *3*). Sttrasbourg, France: Council of Europe.
Cranney, J., & Dunn, D. (Eds.). (2011). *The psychologically literate citizen: Foundations and global perspectives*. New York, NY: Oxford University Press.
Dahan, T. A. (2016). Revisiting pedagogical variations in service-learning and student outcomes. *International Journal of Research on Service-Learning and Community Engagement, 4*(1).
Europe Engage. (n.d.). *Our definition of service-learning*. https://www.eoslhe.eu/europe-engage/
EuroPsy. (2014). *Tuning-EuroPsy: Reference points for the design and delivery of degree programmes in psychology.* https://www.efpa.eu/professional-development/tuning-europsy-_-tuning-educational-structures-in-europe
Eyler, J. S., & Giles, D. E., Jr. (1999). *Where's the learning in service-learning?* San Francisco, CA: Jossey-Bass.
Fleck, B., Hussey, H. D., & Rutledge-Ellison, L. (2017). Linking class and community: An investigation of service learning. *Teaching of Psychology, 44*, 232–239.
Freire, P. (1968). *Pedagogy of the oppressed*. New York, NY: The Seabury Press.
Furco, A., & Matthews, P. H. (2018, July). *Using a new, research-based tool to assess the quality of planning and implementation of service-learning courses.* Paper presented at the conference of the International Association for Research on Service Learning and Community Engagement, New Orleans, LA.
Furco, A., & Norvell, K. (2019). What is service learning? Making sense of the pedagogy and practice. In P. Aramburuzabala, L. McIlrath, & H. Opazo (Eds.), *Embedding service learning in European higher education: Developing a culture of civic engagement* (pp. 13–35). London, UK: Routledge.
Guo, F., Yao, M., Wang, C., Yan, W., & Zong, Z. (2016). The effects of service learning on student problem solving: The mediating role of classroom engagement. *Teaching of Psychology, 43*, 16–21.
Halpern, D. F. (Ed.). (2010). *Undergraduate education in psychology: A blueprint for the future of the discipline*. Washington, DC: American Psychological Association.
Hamner, J. B., Wilder, B., & Byrd, L. (2007). Lessons learned: Integrating a service learning community-based partnership into the curriculum. *Nursing Outlook, 55*(2), 106–110.
Harkavy, I., & Hartley, M. (2010). Pursuing Franklin's dream: Philosophical and historical roots of service-learning. *American Journal of Community Psychology, 46*, 418–427. https://doi.org/10.1007/s10464-010-9341-x.
Hatcher, J. A., Bringle, R. G., & Muthiah, R. (2004). Designing effective reflection: What matters to service learning? *Michigan Journal of Community Service Learning, 11*(1), 38–46.
Holsapple, M. A. (2012). Service-learning and student diversity outcomes: Existing evidence and directions for future research. *Michigan Journal of Community Service Learning, 18*(2), 5–18.
Intergovernmental Panel on Climate Change. (2019). *Summary for policy makers of IPCC Special Report on Global Warming.* https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/
International Association of Applied Psychology. (2016). *International declaration on core competences in professional psychology.* https://iaapsy.org/policies-initiatives/ipcp-documents/
Jacoby, B. (2015). *Service-learning essentials: Questions, answers, and lessons learned*. San Francisco, CA: Jossey-Bass.
Kazdin, A. E. (1998). *Research design in clinical psychology* (3rd ed.). Boston, MA: Allyn & Bacon.
Kerrigan, S. (2005). College graduates' perspectives on the effect of capstone service-learning courses. In M. Martinez, P. A. Pasque, & N. Bowman (Eds.), *Multidisciplinary perspectives on higher education for the public good* (pp. 49–65). National Forum on Higher Education for the Public Good. Ann Arbor, MI.

Kolb, D. A. (2015). *Experiential learning: Experience as the source of learning and development*. Upper Saddle River, NJ: Pearson.

Kuh, G. D. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. Washington, DC: Association of American Colleges and Universities.

Markus, G. B., Howard, J. P. F., & King, D. C. (1993). Integrating community service and classroom instruction enhances learning: Results from an experiment. *Educational Evaluation and Policy Analysis, 15*, 410–419.

Mezirow, J. (2009). Transformative learning theory. In J. Mezirow & E. W. Taylor (Eds.), *Transformative learning in practice: Insights from community* (pp. 18–31). Hoboken, NJ: Wiley.

Miller, K. K., & Yen, S. (2005). Group differences in academic achievement: Service learning in a child psychology course. *Psychology of Teaching, 32*, 56–58.

Minkler, M., & Wallerstein, N. (2003). *Community-based participatory research for health*. San Francisco, CA: Jossey-Bass.

Minkler, M., & Freudenberg, N. (2010). From community-based participatory research to policy changes. In H. Fitzgerald, K. Burack, & S. Seifer (Eds.), *Handbook of engaged scholarship: Contemporary landscapes, future directions: Volume 2: Community-campus partnerships* (pp. 275–294). Lansing MI: Michigan State University Press.

Mitchell, T. D. (2008). Traditional vs. critical service-learning: Engaging the literature to differentiate two models. *Michigan Journal of Community Service Learning, 14*(1), 50–65.

Moely, B. E., & Ilustre, V. (2014). The impact of service-learning course characteristics on university students' learning outcomes. *Michigan Journal of Community Service Learning, 21*(1), 5–16.

Morgan, W., & Streb, M. (2001). Building citizenship: How student voice in service-learning develops civic values. *Social Science Quarterly, 82*(1), 154–169.

Niehaus, E., & Crain, L. K. (2013). Act local or global?: Comparing student experiences in domestic and international service-learning programs. *Michigan Journal of Community Service Learning, 20*, 31–40.

Novak, J. M., Markey, V., & Allen, M. (2007). Evaluating cognitive outcomes of service learning in higher education: A meta-analysis. *Communication Research Reports, 24*(2), 149–157.

Pacho, T. (2019). Service-learning: An innovative approach to education in Africa. In J. K. Mugo, P. Namubiru-Ssentamu, & M. Njihia (Eds.), *The good education and Africa's future: Concepts, issues and options* (pp. 232–259). Nairobi, Kenya: Pauline's Publications Africa.

Pascarella, E. T., Martin, G. L., Hanson, J. M., Trolian, T. L., Gillig, B., & Blaich, C. (2014). Effects of diversity experiences on critical thinking skills over 4 years of college. *Journal of College Student Development, 95*(1), 86–92.

Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification*. Washington, DC: American Psychology Association.

Preece, J. (2016). Negotiating service learning through community engagement: Adaptive leadership, knowledge, dialogue and power. *Education as Change, 20*, 104–125. https://doi.org/10.17159/1947-9417/2016/562.

Prilleltensky, I. (2008). The role of power in wellness, oppression, and liberation: The promise of psychopolitical validity. *Journal of Community Psychology, 36*, 116–136.

Reeb, R. N., & Folger, S. F. (2013). Community outcomes in service learning: Research and practice from a systems perspective. In P. H. Clayton, R. G. Bringle, & J. A. Hatcher (Eds.), *Research on service-learning: Conceptual models and assessment* (Vol. 2B, pp. 389–418). Sterling, VA: Stylus.

Reeb, R. N., Sammon, J. A., & Isackson, N. L. (1999). Clinical application of the service-learning model in psychology: Evidence of educational and clinical benefits. *Prevention and Intervention in the Community, 18*, 65–82.

Reeb, R. N., Snow-Hill, N., Folger, S. F., Steel, A. L., Stayton, L., Hunt, C., O'Koon, B., & Glendening, Z. (2017). Psycho-ecological systems model: A systems approach to planning and gauging the community impact of engaged scholarship and service-learning. *Michigan Journal of Community Service Learning, 24*, 6–22.

Regina, C., & Ferrara, C. (2017). *Service-learning in Central and Eastern Europe: Handbook for engaged teachers and students.* CLAYSS. Centro Latinoamericano de Aprendizaje y Servicio Solidario.

Reich, J. N., & Nelson, P. D. (2010). Engaged scholarship: Perspectives from psychology. In H. E. Fitzgerald, C. Burack, & S. D. Seifer (Eds.), *Handbook of engaged scholarship: Contemporary landscapes, future directions. Volume 2: Community-campus partnerships* (pp. 131–147). East Lansing, MI: Michigan State University Press.

Rich, G., Padilla-López, A., Souza, L., Zinkiewicz, L., Taylor, J., & Jaafar, J. (2018). *Teaching psychology around the world* (Vol. 4). Newcastle upon Tyne, UK: Cambridge Scholars.

Robinson, J. P., Shaver, P. R., & Wrightsman, L. S. (Eds.). (1991). *Measures of personality and social psychological attitudes* (Vol. 1). London, UK: Academic.

Ruiz, A., & Warchal, J. (2013). Long-term impact of service-learning on alumni volunteer service activities. In P. Lin & M. Wiegand (Eds.), *Service-learning in higher education: Connecting the global to the local* (pp. 255–264). Indianapolis, IN: University of Indianapolis Press.

Ruiz, A., Warchal, J., Chapdelaine, A., & Wells, C. (2011). International service-learning: Who benefits? In P. Lin (Ed.), *Service-learning in higher education: National and international connections* (pp. 13–25). Indianapolis, IN: University of Indianapolis Press.

Saltmarsh, J., Hartley, M., & Clayton, P. H. (2009). *Democratic engagement white paper.* Boston, MA: New England Resource Center for Higher Education.

Schneller, A. J. (2008). Environmental service learning: Outcomes of innovative pedagogy in Baja California Sur, Mexico. *Environmental Education Research, 14*(3), 291–307. https://doi.org/10.1080/13504620802192418.

Singh, K. (2016). *Report of the Special Rapporteur on the right to education*. Geneva, Switzerland: United Nations Human Rights Council.

Steinberg, K., Bringle, R. G., & McGuire, L. E. (2013). Attributes of quality research in service learning. In P. H. Clayton, R. G. Bringle, & J. A. Hatcher (Eds.), *Research on service learning: Conceptual frameworks and assessment. Vol. 2A: Students and faculty* (pp. 27–53). Sterling, VA: Stylus.

Stokamer, S. T., & Clayton, P. H. (2017). Student civic learning through service learning. In J. A. Hatcher, R. G. Bringle, & T. W. Hahn (Eds.), *Research on student civic outcomes in service learning: Conceptual frameworks and methods* (pp. 45–65). Sterling, VA: Stylus.

Strand, K. J., Cutforth, N., Stoecker, R., Marullo, S., & Donohue, P. (2003). *Community-based research and higher education: Principles and practices*. San Francisco, CA: Jossey-Bass.

Tapia, M. N. (2012). Academic excellence and community engagement: Reflections on the Latin American experience. In L. McIlrath, A. Lyons, & R. Munck (Eds.), *Higher education and civic engagement: Comparative perspectives* (pp. 187–203). New York, NY: Palgrave.

Thomson, A. M., Smith-Tolken, A. R., Naidoo, A. V., & Bringle, R. G. (2011). Service learning and community engagement: A comparison of three national contexts. *Voluntas, 22*, 214–237. https://doi.org/10.1007/s11266-010-9133-9.

Ti, C., Tang, J., & Bringle, R. G. (2021). Initiating and extending institutionalization of service learning. *Journal of Higher Education Outreach and Engagement, 25(2), 5–22.*

Toole, J., & Toole, P. (1998). *The essential elements of service-learning practice*. St. Paul, MN: National Youth Leadership Council.

United Nations. (2020). *Sustainable development goals.* https://www.un.org/sustainabledevelopment/

Universal Declaration of Ethical Principles for Psychologists (3rd ed.). (2008). https://www.iupsys.net/about/declarations/universal-declaration-of-ethical-principles-for-psychologists/

Waldner, L. S., McGorry, S. Y., & Widener, M. C. (2012). E-service-learning: The evolution of service-learning to engage a growing online student population. *Journal of Higher Education Outreach and Engagement, 16*(2), 123–150.

Walvoord, B. E., & Anderson, V. J. (1998). *Effective grading: A tool for learning and assessment in college*. San Francisco, CA: Jossey-Bass.

Warren, J. L. (2012). Does service-learning increase student learning?: A meta-analysis. *Michigan Journal of Community Service Learning, Spring*, 56–61.

Wilkenfeld, B., Lauckhardt, J., & Torney-Purta, J. (2010). The relation between developmental theory and measures of civic engagement in research on adolescents. In L. R. Sherrod, J. Torney-Purta, & C. A. Flanagan (Eds.), *Handbook of research on civic engagement in youth* (pp. 193–219). Hoboken, NJ: Wiley.

Xing, J., & Ma, C. (Eds.). (2010). *Service-learning in Asia: Curricular models and practices*. Hong Kong: Hong Kong University Press.

Yorio, P. L., & Ye, F. (2012). A meta-analysis on the effects of service-learning on the social, personal, and cognitive outcomes of learning. *Academy of Management Learning & Education, 11*(1), 9–27.

Assessment of Learning in Psychology

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Summative Strategies in Courses and Programs

Lisa Durrance Blalock, Vanessa R. Rainey, and Jane S. Halonen

Contents

Abstract

Summative assessment practices reveal whether students ultimately are successful in learning what we teach. In this chapter, we explore current insights about what summative practices reveal about effective teaching and learning in psychology's international contexts. We define summative practices and distinguish summative strategies from formative approaches, followed by discussing administrative concerns that help determine summative design choices. We offer exemplars at both the course and program levels to optimize gains from

L. D. Blalock (✉) · V. R. Rainey · J. S. Halonen
Department of Psychology, University of West Florida, Pensacola, FL, USA
e-mail: lblalock@uwf.edu

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assessment for students and teachers alike. We identify the psychometric factors that influence the quality and success of summative designs. We close with an exploration of emerging contemporary issues and some "lessons learned" to optimize gains using summative assessment in psychology contexts.

Keywords

Assessment · Formative assessment · Summative assessment · Psychology capstone · Program evaluation

Introduction

"How will I know if my students got it?" All serious educators entertain this fundamental question in the design and success of their courses. It is uncertain when the practice of incorporating examinations to measure learning began, but it is very clear that professors now almost automatically assume that assessment must be a prominent feature of their professional responsibilities. Assessing is simply part of our academic DNA. Because of their inherent interests in measuring behavior, psychologist-educators may envision greater opportunities associated with measuring the impact of a course on student learning. This chapter addresses the strategies psychologists use to measure whether their students "got it" and the purposes such measurement serves. Although the chapter derived from a collaboration by North American psychology colleagues in a regional comprehensive university, we trust that the content will be valuable across geographic and cultural boundaries.

Assessment practices have been flourishing in the past few years, in part as a response to complaints about the quality of what higher education has accomplished. Educators in North America have mandates to orchestrate their courses around student learning outcomes and to reflect a spirit of continuous improvement in the design and execution of the courses (Halonen, Beers, & Brown, In press). However, those pressures extend across the globe. For example, Boahin (2018) indicated that employers in Africa advocated that universities focus on developing competence in critical thinking and entrepreneurism among other outcomes in their programs to contribute to building a sturdier economy. Identifying evidence about whether students meet specified educational objectives in their programs or courses is the goal of summative assessment.

Part of the challenge of making sense of summative assessment practices across the globe is variable terminology used across contexts. In fact, from the vantage point of China, Cookson (2018, p. 930) characterized the field as suffering from "definitional anarchy." Although researchers have used various terms, such as practical assessment, authentic assessment, or high-impact assessment, *summative* assessment appears to be emerging as the most popular term to address whether or not student performance meets the expectations of the course instructor or department at some meaningful endpoint. That endpoint can conclude a learning experience, success in a course, or success in a program (Scriven, 1967).

Summative assessment involves various modalities. Some formats require students to render performance in a free-standing assessment experience before graduation, such as an exit or "leaving" examination or a performance review by an external monitor or assessor. Summative strategies can also be embedded in a course. As an example, many North American programs incorporate a final integrating experience in the curriculum, such as a senior seminar (a course that often involves independent and original research, including a thesis), a themed capstone (a course that intentionally focuses on helping students integrate their experiences across the curriculum in the context of studying a specific psychology topic in depth), or a practicum (an experiential course that allows students to try out specific psychology-related workforce skills). Regardless of the context, the results of a summative program assessment reflect the fitness of a curricular experience as a whole.

Contemporary practice in assessment makes a distinction between *formative* and *summative* assessment. In the case of formative assessment, instructors conduct performance measurement primarily to foster the growth of students' skills and knowledge or to make some kind of judgment about a student's learning capability. The primary benefit of assessment is directly to students, sizing up what students have achieved, pointing out where more development could occur, or determining optimal future educational pathways. Typically fairly informal, formative assessments tend to be low stakes in relation to what grade students will achieve. Formative assessment has been characterized as assessment *for* learning (McCarthy, 2015). However, Dirkson (2011) advocated faculty benefits since student performance implies where teaching might have fallen short. Formative assessment examples include making observations, homework, reflections, and self-evaluations.

In contrast, summative assessment provides an ultimate judgment on the quality of learning, resulting in high-stakes decisions. In the case of a course assessment, summative performance may determine student grades in the course. However, the results from a summative strategy could also be used to evaluate teacher effectiveness. If a summative assessment transpires at the program level, the primary purpose of the summative assessment facilitates external conclusions about the caliber of teaching and learning that has transpired in the program.

Summative assessments tend to be more formal and rigorous; they can be designed by the course instructor or imported into a course by the department. When the measurement target is program quality, students may participate in the assessment, but may not necessarily receive performance feedback or have it influence their grades. In contrast to formative assessment goals of measurement *for* learning, summative strategies have been characterized as assessment *of* learning (McCarthy, 2015). Examples of summative assessment include projects, portfolios, papers, exams, and state/national tests.

Scholars have debated the relative value of formative and summative assessments. For example, Wiggins (1993) emphasized that formative assessment focuses on improvement, whereas summative assessment is primarily an audit and suggested the evaluative emphasis may taint faculty enthusiasm for summative procedures. Taras (2005, p. 469) observed that formative assessment has been rendered an

"antiseptic version" of summative assessment, which has become synonymous with judgments that may threaten self-efficacy and self-esteem for both students and teachers alike. Lau (2016) even suggested that a dichotomy has evolved that casts formative practices as "good" and summative practices as "bad." Consequently, the value of summative assessment viewed in such pejorative terms makes it easy to see why the summative vs. formative controversy has become so divisive and why summative strategies may have lost their central importance in favor of formative practices (Harlen, 2005). Dixson and Worrell (2016) observed that higher-stakes decisions require more robust psychometrics to ensure that conclusions drawn from the measurement are objective and justifiable.

Many instructors align with formative assessment strategies as the most effective learning technique due to its potential to encourage a growth mindset in students (Dweck, 2016; Taras, 2005). A comparison of international assessment practice (Berenbaum et al., 2015) identified that most countries represented in their review (including the UK, Australia, New Zealand, North America, and Norway) reported a much stronger commitment to the use of formative practices than summative approaches. The authors concluded that overreliance on summative practices reduces teacher autonomy and questioned the validity of drawing conclusions about program quality from the performance metrics that result from summative evaluations.

However, even within countries the educational context itself may demonstrate greater reliance on one form over the other (Tomas & Jessy, 2019). For example, in the UK, research-intensive settings tend to endorse summative practices, whereas other teaching-intensive contexts are more inclined to use a mix of assessment strategies. That pattern is also apparent in North American universities.

Hendrickson (2012), a North American scholar, provided a compelling argument about the relative value of formative over summative assessment. She argued that student placements in international academic rankings could be used as a form of external validation to measure summative assessment value. For example, Finland, which emphasizes the use of formative assessment, tends to head the list for academic achievement among countries of the world. In contrast, in the USA, which may be regarded as more summative-centric, has recently performed at mediocre levels in these comparisons. Hendrickson suggested that outcome is not accidental, but serves as an indictment of overreliance on summative practices.

Although many scholars suggest that an assessment process ideally should be able to serve both purposes, Knight (2010) argued the opposite. He distinguished formative strategies as "feedback" and summative strategies as "feed-out," so those purposes may not be compatible in a single measurement strategy. However, in our view, when a summative measurement takes place, there is no reason why this exercise cannot provide feedback to learners on how well they individually performed so that all stakeholders benefit; who receives the results is just one of many administrative variables that influence summative design and execution.

When achievement in a course is the primary motivation for testing, the instructor designs the best strategy for establishing what students have learned or learned to do in the course. Instructors must plan the mode, possibly the timing, and any potential

weighting of a summative assessment. They may also determine whether a cumulative strategy would be preferable to assessing and combining smaller performances along the way (Lawrence, 2013). Psychology professors are much more likely to be intrinsically interested in the psychometrics that will be available if they are implementing quantitative measures.

Obviously, what summative strategy an instructor chooses will also be influenced by predictable constraints. For example, although an essay tapping higher-order thinking skills might be more effective in distinguishing deep cognitive gains from the course, instructors who have large class sizes typically opt for objective measures that are more easily graded. Program administrators tend to prefer easy assessment techniques to gather feedback on program quality. However, depending on its design, a summative measurement may not allow for targeted feedback for the program as a whole. In addition, the purpose of these assessments can often be misconstrued by faculty as a punishment for poor student performance, justifying why faculty may not be enthusiastic about engaging in summative practices for program evaluation.

Recently, psychology faculty in North America have experienced some institutional pressures to pursue "high-impact practices" (see Kuh et al., 2015); those experiences are likely to reflect corresponding high-impact assessment designs. Similarly, the instructor's personal preferences for assessment will surface and influence design choices. For example, faculty who find personal reflections or student journals too invasive will be disinclined to use personal reflection as a summative strategy, but they may seek other strategies to render fair grades and also get some direction on teaching improvements.

In contrast to course-level assessment, when summative measures address the curriculum quality hosted by a psychology program, design decisions become more complicated. Rather than exercising autonomous choice, an instructor may be obligated to impose assessments designed by other professors or publishers. Consequently, the success of summative options may be limited by the level of cooperation or collaboration that exists across department members. In North America, departments with available financial resources may import publisher-designed, nationally normed tests to gather the information the program needs and make comparisons in performance to other departments in the country to respond to accountability demands. Departments without resources may have to resort to building their own designs.

The purpose of this chapter is to explore the current state of summative assessment practices in psychology classrooms that reflect on both course and program achievement. Our experience as North American educators will be reflected in our perspective; however, we strive to reflect summative practices in other contexts as well. We begin with a brief discussion of traditional summative practices but move to describing more innovative, high-impact designs in both classroom and program contexts, highlighting the unique challenges associated with those efforts. We discuss the psychometric challenges involved in designing and delivering high-quality summative assessment, along with current trends in the literature. We offer tips for optimizing valid and reliable outcomes from summative assessment

practices. Finally, we conclude with an annotated roster of references to support further investigation.

Design Issues and Approaches of Summative Assessment

We cannot deny the utility of formative feedback in the college classroom. However, we also recognize that summative assessment is inherently a part of North American higher education practices, from the dreaded final exam week to the push being experienced in some specific contexts for more data to inform accountability initiatives. In this section, we will present summative assessment techniques as practiced at the college or tertiary level and the design issues that may come with these techniques. We will also discuss exemplary summative assessment techniques, at both the course level and the program level; in some cases, we propose how to infuse formative techniques naturally into these assessments.

Many educators promote backward design (see Fink, 2013) to develop sound assessment strategies. The first step in creating a summative assessment is to create or review course student learning outcomes (see Stanny, 2016 for tips on creating high-quality outcomes). Next, determine what kind of assessment is appropriate for each objective/goal. Focusing on the purpose of the assessment initially will align the assessment with course outcomes. Instructors can map out their outcomes and assessments to ensure they both cover all the necessary material and also promote evaluating many levels of knowledge across assessments (National Research Council, 2001; Svinicki & McKeachie, 2014). Finally, instructors should specify the purpose of the assessment to create clear expectations for students.

Traditional Exams

Popular in North America, objective testing is traditional, although arguably the least creative way to assess students' knowledge. Ostensibly, the purpose of these assessments is to push students to learn the material and to hold them accountable for their learning. The prevailing belief among many academics is that without this kind of ultimate measurement, students would not be motivated to learn vital classroom information.

In many higher education classrooms, traditional exams dominate summative assessment. Although instructors can easily grade objective measures, these strategies entail an assortment of challenges. In some classrooms, summative exams may be the only assessments given throughout the academic term, which tends to involve some risk about the accuracy of conclusions drawn regarding what students actually learn. Some questions used in traditional exams may not clearly align with the course student learning outcomes. Most of the time, students are simply repeating memorized facts and relying on rote memorization (McTighe & Ferrara, 1998). Students may engage in a short, intensive review, but their emphasis is usually on capturing as many points as possible, rather than on learning. Upon completing the exam,

students rarely review exam performance or course information (Wininger, 2005). Students may learn but quickly forget course content after the exam.

Timed exams create additional pressures because they suppress original insights (Elton & Johnston, 2002), which may prevent some students from demonstrating the depth of their learning. For students who fail summative assessments, the consequences may be more severe than just a poor course grade (Kitchen et al., 2006). In the wake of poor summative performance, students may simply repeat unsuccessful strategies in future contexts, blame the incompetence of the teacher or the test, or withdraw from the academic enterprise altogether.

Despite the fact that the more traditional summative techniques do not tend to foster a growth mindset, they can be useful when implemented in more innovative ways that capitalize on critical thinking and reflection techniques (Houston & Thompson, 2017). An exam could incorporate application questions, in which students must apply the information they learned to a case study. For example, a course in abnormal psychology could feature a final exam in which students must make a provisional diagnosis and treatment plan after getting some clinical information on a simulated client (Halonen, 2017).

Another traditional testing strategy involves posing questions that bring together different areas of information, forcing students to go beyond rote memorization. For instance, in a brain and behavior course, after learning about the process of how a brain "builds" a memory, students could be challenged with questions about what variables influence forgetting, encouraging them to think deeply about the process of memory formation.

One innovative variation on traditional testing strategies is to ask students to design their own exam questions (Berrett, 2019). Offering a brief instruction in Bloom's taxonomy (see Anderson & Krathwohl's, 2001 updated version) encourages scaffolding in learning and can help students develop greater savviness about test-taking skills. Collaborating on the development of test questions produces other benefits for students through gaining experience in teamwork skills. According to Berrett, this approach also is especially useful in developing a sense of community in online classes. Finally, metacognitive techniques can be applied to these exams to help students relearn missed information. For example, students can have the opportunity to review the exam questions for credit, explaining why they missed questions, and describing potential improvement strategies for the next exam.

Integrative Papers

In North America, as well as many other countries, instructors may incorporate another traditional summative technique, the final paper, that requires more creativity and less time pressure. Final papers may also have formative checkpoints along the way with feedback from the instructor. However, a summative assignment may leave students in the dark about how exactly the instructor intends to grade the paper. Additionally, students frequently do not examine instructor feedback (Jollands,

McCallum, & Bondy, 2009), since instructors tend to return feedback during the last weeks of class when student motivation may be flagging.

Final papers may facilitate deeper student learning with some simple modifications. For example, a practice that emerged in many countries is the use of a grading "rubric," which provides students with detailed instructions about what will constitute success in their efforts. For example, a writing rubric for an experimental lab report might articulate the important areas of achievement that the student should develop in the lab report (e.g., clear statement of a hypothesis, accurate reporting of statistical findings, proper use of writing conventions, etc.) along with some means of distinguishing performances (does work in each area exceed, meet, or fail to meet the standard). In essence, the rubric answers the question of what instructors want out of student performance in a manner that should help students to understand how they will be graded (McCarthy, 2015).

Students can collaborate on the development of the rubric to enhance their understanding of what is expected. This rubric can then be used as a framework for self- and/or peer assessments, which also facilitates ownership in addition to higher-level reflection on their learning (APA, 2018). However, students benefit from explicit instruction on using the evaluation criteria and rendering constructive feedback. Building these self-assessment skills can lead to better outcomes after students graduate; they are better able to evaluate their work critically and develop self-directed learning skills (National Research Council, 2001).

Integrating summative papers with other assessments throughout the semester can help students improve these papers through feedback. For instance, creating a public speaking assignment in which students must present the main ideas in their papers will force students to process the feedback. The rubric for this presentation can include a criterion that says, "Improved the paper based on feedback from instructor." Or a low-stakes presentation due before the paper deadline and worth a minimal number of points can generate feedback to improve their papers. These strategies reinforce that formative assessments can facilitate even better performance during summative challenges.

Authentic Assessments

Many (but not all) North American educators have recently embraced the value of designing learning experiences that are "high-impact," i.e., strategies that push students out of passive engagement with lectures into active learning strategies (Kuh, 2008). The value of moving into more active engagement has been demonstrated not just in improved retention of the content and skills associated with the course design (see Brown, Roediger, & McDaniel, 2014), but students who report learning from high-impact practices are more likely to persist in their studies to graduate. The ultimate purpose of a high-impact technique is to inspire passion in students and connect them to future career pathways (Houston & Thompson, 2017). With the movement toward more high-impact techniques in the classroom, the appeal of performance-based, authentic assessment techniques is also growing. We

offer three examples that illustrate authentic assessment that can be used for summative purposes, sometimes at the course level and sometimes at both course and program levels.

An authentic assessment in introductory psychology demonstrates how both purposes can be achieved in an easily administered, objective strategy (see Appendix A). In North America, the introductory psychology course serves two purposes. Students who plan to major in psychology will enroll in the course to launch their studies, but nonmajors will also take the course to broaden their knowledge base. In our own undergraduate program, teachers of introductory psychology collaborated on a summative assessment using a flawed research design scenario and agreed to implement the design across sections, either embedded in a final exam or conducted as a freestanding test, mediated digitally.

Using fictional data, we provide a scatter diagram that pairs two sets of college student data: number of absences in college courses and reported stress levels. The protocol describes a process by which multiple researchers haphazardly gather data that produces a strong positive correlation. The researcher concludes that "stress causes higher rates of absence in college courses." A series of multiple-choice questions reveals whether students can *apply basic research methods in solving problems* (the course outcome) and provides specific information on their grasp of correlation, cause-and-effect claims, operational definitions, sample size, and control procedures, among other concepts. This exam also acquaints students with North American protocols for seeking approval of research, which transpires through a process managed by an institutional review board (IRB) and oversight. Performance results contribute both to student grades and judgments about teaching and learning quality across introductory sections.

Another example of authentic assessment requires the production of a portfolio that encompasses students' career development materials created across their university career. A career portfolio, consisting of a curriculum vitae or resume, cover letter, and career plan/backup plan, should generate significant motivation since, for most students, a job search will be looming after graduation. Using rubrics to evaluate each element represents a best practice approach. Another innovative way to assess and provide feedback is to have students present this portfolio to external assessors or monitors who are community professionals in their career areas of interest. The external assessor receives brief training about departmental standards, along with a rubric based on performance standards expected of undergraduate psychology majors (APA, 2013). Through this high-stakes technique, students can get to know professionals, ask questions, and receive high-value feedback from someone besides the instructor (Christopher, Baker, & Beins, in press). Other online platforms can use ePortfolios, where important past course work can be saved and showcased to future employers, along with the main career materials. Assessments can be done through the evaluation of the main materials or through a recorded student presentation of the ePortfolio.

Finally, students can engage in an integrative capstone project that incorporates the knowledge and skills gained in the academic major. For example, in a

thematic capstone course focusing on psychology of the preschooler, students pair up to conceptualize an early childhood intervention that capitalizes on their shared interests (e.g., art, music, autism spectrum disorder). This project allows for creativity, the exploration of passions, and assessment of vital skills learned throughout their tenure in the psychology program. The major summative assessment pieces include a presentation of the intervention to the class and to a panel of community members involved in child development (e.g., Early Learning Coalition director, Department of Health member, pediatric nurse) and a paper outlining the theoretical basis and research that supports the intervention. In the presentations, students receive feedback from the instructor, students, and the community members. Peers use the presentation rubric to rate the presenters and provide feedback. All students must also self-assess their own performances using the rubric. These practices make all students aware of the rubric and requirements.

Additionally, low-stakes formative checkpoints provide useful feedback to the students. For instance, they must create catchy titles for their projects and develop introduction paragraphs and press releases, each worth a small number of points that contribute to their final grade. These checkpoints keep them on track and give them feedback on the vital components of their intervention, as well as their writing style. This combination of assignments optimizes the blend of formative and summative approaches.

Facilitating Successful Student Performance

Rubrics created for capstone presentations and papers can easily be adopted across sections with different organizing themes if they are written generically to capture important components for program-level assessment purposes (see Appendix B for an example of a capstone writing rubric that provides both developmental feedback to students and input for program assessment needs). If faculty can collaborate on the design and implementation of performance criteria, the results contribute to program-level assessment techniques, determining how well students can write using proper conventions, think critically in evaluating psychological evidence, and present in a professional manner. The results of assessing these macro-level skills promote continuous improvement by supporting reforms in courses and experiences earlier in the curriculum (e.g., strengthening research methods, incorporating more instruction about writing standards in earlier classes, requiring more presenting in earlier classes).

Overall, summative assessment techniques can go beyond the traditional midterm/final exams featuring multiple-choice and essay questions. As pressures for high-impact practices proliferate in the postsecondary or tertiary environment, techniques for more innovative assessment protocols have also emerged. In particular, creating well-designed rubrics that students receive at the beginning helps in setting the precedent for the assessment (McCarthy, 2015), and instilling creativity in the classroom context fosters passion and connection to careers.

Evaluation/Research Issues Associated with Summative Assessment

Given that the outcome of summative assessment can have a major impact on a student's progress or placement, faculty strive to implement assessments that are both valid (true representations) and reliable (consistent). In the context of a classroom, primary concerns regarding validity involve *content validity* (does the measure include the appropriate content?), *construct validity* (does the measure accurately represent the appropriate psychological concepts?), and *criterion validity* (does the test effectively correspond to some meaningful external measure?). Determining whether performance is consistent may involve repeated testing *(test-retest reliability)* or comparing one assessor's judgment against another *(interrater reliability),* among other types of reliability. Consistency in evaluating performance reliability can also relate to generalizability of an assessment across learning environments, settings, or students (National Research Council, 2001).

Table 1 provides a brief summary of the key questions that instructors should ask when developing a valid and reliable assessment. In the next section, we will discuss the kinds of reliability and validity for both objective and high-impact summative strategies, as well as the questions and strategies listed to provide guidance for how to create valid and reliable summative assessments. We will conclude with some strategies to enhance reliability and validity in summative strategies.

Establishing Validity of Summative Assessments

Knight (2002, p. 278) notes that summative assessment is a "vexed business" because the lofty goals of higher education are not easily documented through assessment. To satisfy the demands of external stakeholders (e.g., taxpayers, governing bodies, accreditation organizations), adding high-stakes assessments can lead to conflict when results fall short of meeting those demands. Objective assessments distill broad educational experiences into a quantitative representation that may reduce claims of valid measurement. This emphasis can motivate instructors to "teach to the test," which may, ironically, produce higher quantitative scores but erode the overall quality of learning.

Summative performance may directly influence grades, but according to Kohn (1999), grading practices themselves, although widespread, are problematic since they can undermine motivation to learn. For example, letter grades, the most common expression of summative assessment in a North American course, can symbolize achievement, but many other factors can impact letter grades, such as work ethic. If students receive a C in a class or on an assessment, what does it really tell us about their performances? Certainly, their work was passable but not excellent, but in what areas were they most lacking? Did they struggle on multiple-choice questions but do well on written assessments? Is the grade a reflection of poor attendance? Or perhaps lack of access to resources? Distilling performance down to

Table 1 Organizing questions to address summative psychometrics*

Organizing questions to address summative psychometrics[a]
What are my goals for the assessment? Does the assessment meet those goals?
Have I graded consistently?
Is there preexisting psychometric evidence of reliability and validity of this strategy?
Have I adequately covered this material in class or in readings?
How are internal factors impacting student performance (e.g., test anxiety, stress changes over the course of a term)?
What are the consequences of the assessment? Is the outcome justified based on the assessment outcome?
Can I make legitimate estimates about student knowledge based on the content of the assessment?
Do all students have a fair and equitable opportunity to demonstrate their learning, regardless of their heritage, educational background, or socioeconomic status?
Have students received adequate feedback on performance prior to a high-stakes assessment?

[a]*Some of these questions are adapted from the* National Research Council *(2001)*

a single letter simply does not provide a full picture of that student's knowledge and skills (National Research Council, 2001).

What differentiates an A student from a C student? Maybe the A student showed better time management or teamwork skills. What about differentiating a B+ from a B? In this instance, not only is it harder to articulate a meaningful difference, but the importance of validity in assessment is even greater. All grade-rendering faculty know the angst involved in having hardworking students miss a grade cutoff by a point that might have a serious negative impact on the measures of overall performance. For example, in North America, students build a grade point average (GPA) in which grades translate to a number (A=4, B=3, and so forth). The strength of the GPA can sometimes be used to make important decisions about students, such as entrance into honor societies or admission into graduate programs. We provide these examples not to suggest doing away with letter grades, but rather to highlight the shortcomings of grades in capturing what learning has actually transpired in the course and to emphasize the importance of basing letter grades on valid and reliable assessments.

Although there are many kinds of validity, we argue that two kinds should take priority over others in course-level assessments: content validity and construct validity. Content validity evaluates whether or not the assessment includes the appropriate material. For example, your exam questions derive from assigned readings that are covered during the period represented in the exam and not from later reading assignments (APA, 2018). Construct validity evaluates whether or not the assessment measures the relevant constructs or skills you intended. If your questions use a vocabulary level that far exceeds the knowledge base of the students, you will not be able to assess student knowledge. If either of these validities are not met, the assessment will be fundamentally flawed.

In contrast, criterion validity becomes relevant when summative assessments represent program-level assessment. For example, the results from department-

derived exit examinations could be correlated with success in graduate school. However, external correlations do not tend to be much of a concern for faculty managing student achievement in courses.

Approaches in establishing content and construct validity of summative assessments vary in effort and complexity. On the low-effort end of the spectrum, sometimes poor validity of a measure can be inferred based on student feedback and performance. Substantial email complaints or frequent questions asking for clarification regarding test items indicate a question or assessment may not have clarity, accuracy, or coherence sufficient to feel confident about the overall validity of the assessment instrument.

A higher-tech but still relatively low-effort way to evaluate validity is the use of item analysis features in automated grading systems (e.g., online learning management systems or Scantron machines). This practice evaluates distractors in multiple-choice tests to ensure those choices sufficiently distract. The discrimination index identifies questions that discriminate between high- and low-performing students. Similarly, if all students miss an individual item, the question likely did not ask content covered in instruction (content validity) or was not worded clearly (construct validity). Overall performance revealed in the class grade distribution can establish if the results distribute properly, indicating whether the assessment was too easy or hard and suggesting that a more comprehensive overall may be needed.

Instructors can solicit external review of their assessments to increase their efforts in establishing adequate psychometrics. For example, they can simply ask a student to read an assignment for clarity or a colleague to evaluate the appropriateness of the assessment. In core courses with multiple sections taught by more than one instructor (e.g., introduction to psychology, research methods), collaboratively creating common assessments has the potential for better quality summative assessments and improved reliability across sections.

Authentic assessment strategies and program-level evaluations call for criterion-related validity. In this validation strategy, results are compared to some external set of standards, a practice that is sometimes referred to as benchmarking. Comparing to standards established by an external entity ensures that the program is in step with the discipline. External evaluations can also come in more formal formats and procedures, such as the Quality Matters evaluations of online courses (Crews & Wilkinson, 2015) or the external marking model in the UK (British Psychological Society, 2019), though research does suggest consistency between external evaluators is an issue (Bloxham, den-Outer, Hudson, & Price, 2016). The use of criterion-driven strategies provides much richer evidence about the nature of the learning that has transpired, as well as where teaching might need to be improved. Enhancing criterion-related validity can be achieved through collaboration. Conferring with peers regarding the design of the assessment instrument, including the quality of the rubric that specifies performance expectations, can improve the legitimacy of conclusions drawn.

Establishing Reliability of Summative Assessments

Although more straightforward conceptually, reliability may be harder to achieve than validity. The pressure to produce reliable results can drive assessments to be simple, rather than complex, which may make high-stakes assessments incompatible with education (Boud, 1995; Wiliam, 2020). Variations in evaluator experience and student internal states can influence whether consistency can be achieved (National Research Council, 2001; Wiliam, 2020). In addition, unexpected external forces (e.g., weather emergencies, pandemics) can disrupt assessments. Nonetheless, several approaches establish reliability in summative assessments.

Objective assessment strategies lend themselves to the clearest examples of reliability. The most common kind of reliability in a classroom setting is likely test-retest reliability, in which students produce similar results on multiple uses of the same test and/or questions. Establishing test-retest reliability may make more sense for a program-wide assessment that will serve many students and where assessment reporting will be required. However, repeated questions on course-level exams have the added benefit of promoting better long-term learning (Cepeda, Pashler, Vul, Wixted, & Rohrer, 2006). Split-half reliability could be used in a similar manner, though in this case the questions come from the same test and are split evenly between two halves. In larger classes where the instructor is using collections of test questions provided by textbook publishers to create multiple test versions, parallel forms reliability can be used to evaluate the similarity between the test versions. However, objective assessments that establish strong reliability often have lower construct and criterion validity, as they are unable to evaluate all aspects of student achievement. Thus, the higher reliability may lead to overconfidence in the quality of the assessment and its use.

In contrast, reliability for essay-based exam questions and authentic assessments should be more focused on establishing interrater reliability. That is, the instructor should take measures to ensure all graders, or raters, are grading consistently across students and across the semester. However, even in cases where the instructor is the sole grader, variations in internal states or external factors can lead to different grade outcomes, threatening the reliability of the assessment.

A key solution to establishing reliability for authentic assessments is using a rubric with well-defined criteria anchors that illustrate what performance looks like at each level. Rubrics can be holistic (e.g., students "exceed, meet, or fail to meet" established criteria) or analytic (e.g., points awarded for specific dimensions of performance). Analytic rubrics generally have better reliability than holistic rating scales. To improve validity, rubrics should be provided to students before they start working so they are aware of the expectations. Instructors can then use rubrics to grade assessments so that all students are evaluated on the same criteria. This practice can be powerful when using the same rubric across multiple sections of a course (see Appendix B for an example), improving both the reliability and validity of program-wide assessments.

Whereas rubrics provide better reliability, they can only do so when applied correctly. In cases where there are multiple graders within or across courses where

interrater reliability is necessary, a calibration exercise is an effective tool in finding consensus. Here, instructors (or an instructor and a teaching assistant) all grade the same handful of papers (ideally that span the full range of performance) using the rubric and then compare their grades. They can work through discrepancies to reach agreement and attain interrater reliability. Although this approach cannot guarantee adequate reliability across or within graders, it greatly improves the odds that assessment will be more consistent across students and over time.

Providing feedback is a key part of effective rubric use as well, helping students see where they have room to improve. This approach is especially beneficial when students have the opportunity to revise the assignment. However, students often struggle to interpret feedback. For example, Duncan (2007) showed students found many comments on their work to be vague with a heavy emphasis on grammatical errors that failed to address larger areas for improvement. Grading features of learning-mediated systems that are popular in North America may provide some other options for effective feedback (McCarthy, 2015), but they can also be more burdensome on instructors. Regardless of the format of feedback, instructors should work to emphasize broad areas for improvement and avoid a heavy emphasis on grammar correction (unless grammar is the goal of the assessment). They should also work to better articulate feedback to avoid vague phrases (e.g., the ironically vague "improve clarity"; Duncan, 2007; McCarthy, 2015).

Although reliability is often discussed in terms of the consistency of the measure, it can also refer to the generalizability of an assessment or program to other contexts (National Research Council, 2001). Will the skills and knowledge assessed transfer outside of the classroom? This question is becoming more important for higher education as external stakeholders question the value of higher education. This challenge has been particularly pointed in North America since some of our politicians have questioned whether the psychology degree confers any real value to society at large (Halonen, 2011). On this front, it is important that instructors explicitly link classroom assessments to transferrable skills (Landrum & McCarthy, 2018) and that assessments are sufficiently varied so that students are given practice in a wide range of skills across the curriculum (National Research Council, 2001). Authentic assessments, such as portfolios, generally have better generalizability beyond the classroom as well.

Ultimately, experienced scholars who engage in summative assessment in the classroom may find they need to temper their expectations for reliability in summative assessments. Given the balance between validity and reliability (i.e., more objective measures providing better reliability but worse validity), a better approach is to accept lower reliability than we may expect in a research context and be aware of the limitations of our assessment. There are limits to what we can understand about student achievement in any one assessment, so instructors should take care to not place more value on a single assessment than is warranted (Wiliam, 2020). Instructors need to consider their constraints, assessment goals/outcomes, and purpose of the assessment to determine the correct balance of validity and reliability. These variables are almost guaranteed to vary across semesters, making summative assessment a highly dynamic process.

Findings and Current Trends

Although we have attempted to make the case for effective summative assessment strategies, it would be misleading to see this argument as favoring summative over formative approaches. The best, but potentially most effortful, way to establish valid assessments is to rely on a variety of assessments that capture the range of student achievement (National Research Council, 2001).

Adopting a strategy with combined formative and summative assessment has several benefits. First, using several lower-stakes assessments to create an overall assessment will reduce student pressure and anxiety about performance on one large high-stakes assessment (Harlen, 2005). This approach has an overall benefit on accuracy and reliability as student performance is more reflective of their knowledge and skills. Second, using a variety of assessments allows instructors to evaluate different levels of knowledge (e.g., Anderson & Krathwohl, 2001) and ensures students are adequately meeting basic- and high-level knowledge standards. This outcome is especially important in scientific disciplines, such as psychology, because the nature of scientific inquiry requires a wide range of knowledge and skills (National Research Council, 2001). To determine if students are able to engage in scientific inquiry and problem-solving skills, they must first understand basic concepts, how to use those concepts in an appropriate context, and how to apply them in the planning, design, execution, analysis, and interpretation of an experiment. To evaluate all of these skills adequately, multiple assessments will provide the best, most valid, picture of student achievement.

Svinicki and McKeachie (2014) note that, just as in research, we should look for converging evidence of student achievement by providing multiple types of assessment. More varied and frequent assessments can also improve learning, particularly if the assessments are spaced out and emphasize understanding or application. Distributing assessments encourages students to space out their learning, which is beneficial for long-term retention (Cepeda et al., 2006). Additionally, Svinicki and McKeachie predicted that students will change their approach to learning based on how they will be assessed. Assessments focused on understanding and application will promote those skills outside of the assessment itself. Both spacing and promoting higher-level thinking allow for better retention and transfer of knowledge from one class or semester to the next, providing better program outcomes.

Another contemporary concern regarding summative assessment adequacy is linked to equity practices in the classroom (e.g., Hanafin, Shevlin, Kenny, & McNeela, 2007; Maringe & Sing, 2014; Volante, Schnepf, Jerrim, & Klinger, 2019), which is a growing concern in North American classrooms. Higher education is an expensive proposition, made even more challenging by the use of high-cost textbooks and computers to support course learning. As a consequence, North American students graduate with a substantial debt load, a fact that magnifies the importance of ensuring that students are being treated in an even-handed fashion. Establishing equitable conditions may be a concern, even in the absence of economic consequences. This problem is more difficult for an individual instructor to tackle solo; nonetheless, many North American faculty are vigilant in pursuing lower-cost

or no-cost resources to promote equitable access. At our institution, the library works to secure a course reserve copy of every textbook in all undergraduate courses every term. This accommodation allows students who face financial hardship to get full access to texts.

Student facility in the language of instruction should also be considered when adopting an assessment strategy. Exams and assessments should be screened for any cultural references or idiomatic phrases that may not be shared by all students and thus limit understanding of the question (construct validity). This problem can include knowledge that does not span the generational divide. For example, in one question asking about the homunculus of the motor system, the first author (LDB) asked which famous person the somatosensory cortical homunculus most resembled (the correct answer being a famous classic rock icon). Although she thought this was a straightforward question (with a humorous answer), it turns out most contemporary students did not know who the icon was and got the question wrong!

A trend in North American education that grows out of concern for equity is the use of course materials and assessments that are accessible to all students (Steinfeld & Maisel, 2012). If students are not all able to access course materials, especially if that challenge arises from some physical limitations on the part of the student, it poses a major problem in establishing the validity of conclusions drawn from assessments based on those materials. In response to federal legislation, most North American universities have established roles for administrators to oversee "accommodations," strategies that level the playing field, such as allowing students with learning disabilities to have extended completion windows for exams. Other simple solutions include the following: providing class resources in cross-platform and screen reader-friendly formats (e.g., PDF), captioning any video resources (including any narrated lecture slides), using high-contrast instructional materials, avoiding problematic color combinations (e.g., using red and green to denote changes will be imperceptible to those with color deficiencies), and using good design principles (e.g., avoiding complicated layouts/graphics, using simple and clear language, using large, readable fonts). For more examples, posters developed by the UK Home Office offer universal design suggestions and come in a variety of different languages: https://accessibility.blog.gov.uk/2016/09/02/dos-and-donts-on-designing-for-accessibility/ (Pun, 2016). These simple steps allow for equal access to course materials and assessment and improve overall course design for all students.

Finally, we need to address affective factors that can influence summative student performance. Hirsch (2020) listed several adverse emotional effects of summative practice in a study of Swedish students, including undue pressures from demands for continuous improvement, navigating the aftermath of adverse results and saving face, managing optimal performance in time-pressured situations, and coping with the tension that results from feeling like their future hinges on a single performance. Hirsch indicated the pervasiveness of being measured discourages students from performing well and being motivated to learn and alienates teachers from enthusiastic participation in assessment.

Challenges, Lessons Learned, and Implications for Learning and Teaching Psychology

We offer the following summary of recommendations that address challenges in developing and implementing sound summative assessments:

- *Engage in backward design strategies to ensure coherence between assessment and student learning outcomes or program goals.* Clarify your objectives to determine what evidence will satisfy that students have achieved your goals.
- *Where possible, adopt authentic assessment strategies over objective ones.* Students tend to invest more and generate more valid assessment results when meaningfully engaged in how we measure learning.
- *Incorporate technological strategies for summative practices to reduce faculty workloads*. Wherever possible, automating procedures can make assessment demands feel less overwhelming.
- *Actively evaluate psychometrics to improve future uses of the instrument.* Psychometrics provide feedback that lead to more defensible inferences from measurement when the instrument is deployed again.
- *Avoid drawing conclusions based on one performance.* It is simply bad practice to draw high-stakes conclusions on the basis of one data point.
- *Monitor your constructions for social equity concerns.* Strive to reduce obstacles that interfere with students' learning to enhance confidence in making valid interpretations of assessment results.
- *Clarify pathways for high-stakes decisions.* Provide meaningful context for letter grades to anchor student expectations to motivate students' best work.
- *Collaborate on common instruments used for program evaluation.* Sharing design and assessment responsibilities tends to sharpen summative practices and facilitate coherent curriculum delivery.
- *Expect rubrics to be refined potentially with each use.* No rubric will ever be perfect. Each administration should prompt some tweaking to improve its use.
- *Seek external validation/review to ensure clarity and accuracy.* Consider gathering assessment partners to improve external validation.
- *Anticipate potential legal entanglements from negative aftermath from high-stakes decisions.* Be clear about opportunities students can exercise to retest and possibly reclaim a pathway denied from the results of poor performance.

Conclusions

In sum, we discussed summative techniques in this chapter, with an emphasis on moving toward high-impact assessments. We discussed the importance of developing instruments that produce performances with strong psychometric properties of validity and reliability. We also argued that innovative approaches benefit from a fusion of summative and formative techniques. Our recommendations for improving summative assessment include clarifying student learning outcomes and aligning

them with assessment strategies. We also advocated infusing creativity in authentic assessment strategies to promote more enduring gains in learning. We pointed out the value of collaborating with others to monitor and improve evaluation strategies each term. Finally, we reinforced the importance of attending to social equity concerns as a way to make valid and reliable inferences about gains in student learning.

Teaching, Learning, and Assessment Resources Associated with Summative Assessment

American Psychological Association (n.d.) *Teaching, Learning, and Assessment Resources associated with Summative Assessment. Teacher Assessment Guide.* https://www.apa.org/ed/precollege/topss/assessment-guide.pdf

This comprehensive introduction to assessment strategies provides a great resource for individuals who need a review of basic background about assessment practices. The work details contrasts between formative and summative assessment but also provides background information on test question design and psychometric interpretations. The American Psychological Association funded the guide, which is useful for both secondary and tertiary teachers.

Broadbent, J., Panadero, E., & Boud, D. (2018). Implementing summative assessment with a formative flavor: A case study in a large class. *Assessment and Evaluation in Higher Education,* 43(2), 307–322. https://doi:10.1080/02602938.2017.1343455

This paper discusses how summative assessment should have formative elements and how it can be transferred to a large class context without significantly adding to teacher workload. Providing exemplars and an annotated rubric with an explanation of how it is implemented (e.g., video explanation) helps students receive consistent information. The use of multiple, small, low-stakes, iterative assessments facilitates practice and builds skills over time. The balance between formative and summative assessment is important in promoting a learning environment, rather than a performance-based environment.

Harrison, C. J., Könings, K. D., Molyneux, A., Schuwirth, L. W. T., Wass, V., & van der Vleuten, C. P. M. (2013). Web-based feedback after summative assessment: How do students engage? *Medical Education, 47,* 734–744. https://doi:10.1111/medu.12209

Drawing from medical schools, this article discusses how to encourage optimal student performance, rather than mere minimal competence needed to pass an exam. This study examined how motivational variables affected how students processed feedback in a virtual learning environment. Overall, most students visited the website, but the most comprehensive users were those that scored highly on valuing feedback. Minimal users were those who just barely passed the exams.

Harlen, W. (2005). Teachers' summative practices and assessment for learning-Tensions and synergies. *The Curriculum Journal,* 16(2), 207–223. https://doi.org/10.1080/09585170500136093

Harlen discussed how assessments can be used for both summative and formative purposes. For instance, past summative assessments can be used to help students prepare for tests by reviewing their work and screening for weaknesses, helping in forming questions/rubrics, and student-to-student involvement in marking tests (i.e., test analysis; Carter, 1997). Overall, it is important to maintain distinct assessment types but also to create a type of synergy between the two.

Houston, D., & Thompson, J. N. (2017). Blending formative and summative assessment in a Capstone subject: 'It's not your tools, it's how you use them.' *Journal of University Teaching and Learning Practice,* 14(3).

This paper combined formative and summative assessment experiences in a paramedic capstone course, arguing for their interdependence. Connected activities included a topic pretest, problem-based learning, diagnostic exams with student contributions, and final oral exams with self-assessment components. Overall, students described positive impacts, including reviewing existing knowledge, improving critical thinking skills, and preparing for employment.

Knight, P. (August 25, 2010). Summative assessment in higher education: Practices in disarray. *Studies in Higher Education,* 27(3), 275–286. https://doi.org/10.1080/03075070220000662

Knight proposes that summative assessment practices are questionable on two grounds.

He charges that the technique overpromises results since design challenges could weaken confidence in conclusions drawn about performance. He also argues that the value of assessment practices on the whole has become suspect and advocates an overhaul of curricula. Knight discusses the differences between formative (feedback) and summative (feed-out) strategies.

Landrum, R. E., & McCarthy, M. A. (2018). Measuring the benefits of a bachelor's degree in psychology: Promises, challenges, and next steps. *Scholarship of Teaching and Learning in Psychology,* 4(1), 55–63. http://dx.doi.org/10.1037/stl0000101

This theoretical review paper takes a program-level look at how we should assess skills of psychology majors at graduation. They argue that the degree provides a strong preparation for a variety of workforce-ready skills, which are not often well-articulated. The authors propose a more centralized approach to assessment that tracks student progress via observable skills. This strategy would provide a well-rounded evaluation of each student's skills, knowledge, and abilities that the discipline could use for improving the public image of the major.

McCarthy, J. (2015). Evaluating written, audio and video feedback in higher education summative assessment tasks. *Issues in Educational Research,* 25(2), 153–169.

This study examines three different feedback formats for summative assessments in a college course: written, audio, and video. Students overwhelmingly preferred video feedback over written or audio feedback for its clarity and engaging quality. This finding was true across intersectional variables, including gender, nationality, and age. Audio feedback was the least preferred format.

Trotter, E. (2006). Student perceptions of continuous summative assessment. *Assessment and Evaluation in Higher Education,* 31(5), 505–521. https://doi:10.1080/02602930600679506

This study examined students' perceptions of a particular continuous summative assessment procedure (i.e., completing tutorial files). The majority of students found that this procedure motivated them throughout the semester in a continuous manner and felt that it helped to improve their learning. However, students receiving lower marks expressed less motivation to complete more of the tutorial assignments.

Wiliam, D. (2020). How to think about assessment. In S. Donarsky & T. Bennett (Eds.), *The researchED Guide to Assessment: An Evidence-informed Guide for Teachers* (pp. 21–36). John Catt Publishing.

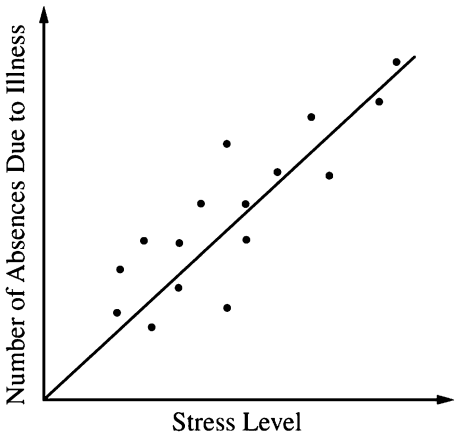
This chapter provides a detailed look at reliability and validity in assessment. Wiliam emphasizes that trade-offs are necessary in any assessment as the goals of reliability and validity are often at odds with one another. He argues there is no perfect assessment and that the trade-offs must be balanced on a case-by-case basis in order to both support learning and assess it.

Appendices

Appendix A: A Summative Protocol for Introductory Psychology

Proposal for Problem-Solving Measure for Introductory Psychology

Outcome: Uses social science methods to solve problems based on 2018 Free-Response Question in Advanced Placement



A team of researchers generated the data above by gathering information from college students at the end of the first semester on the relationship between class absence and perceived stress level. The research assistants were instructed to go into the commons and find first semester students to interview sometime during finals week. Stress was estimated on a 10-point scale with 10 representing the "most stress you could imagine." The researcher concluded that stress causes illness.

1. What is the name of the graphic used to illustrate the relationship between illness-related absences and stress levels?
   a. Histogram
   b. Frequency distribution
   c. Scatter diagram*
2. What was the sample size represented in the data?
   a. 15*.
   b. 30.
   c. Information supplied is insufficient to determine sample size.
3. What is the most plausible correlation coefficient that would correspond to the data presented in the graphic?
   a. -.92
   b. .00
   c. + .83*
4. What is the most likely threat to the quality of the data collected?
   a. Conducting the research at the end of the semester.
   b. Using a team of data collectors who may have differing styles.*
   c. The team of data collectors should have been one gender.
5. Is the operational definition of stress problematic?
   a. Yes. Imaginations are variable so it is not clear that participants are using the same scale in judging their stress.*
   b. No. If the scale is uniformly presented to the participants, it should produce legitimate data.
   c. Maybe. The operational definition will work fine for some participants but probably not as well for others.
6. What is the main reason we will have difficulty justifying that the findings of the sample study could be generalized to the population of first year college students at the university?
   a. The researchers didn't randomly select participants from the population.*
   b. The researchers didn't randomly assign participants from the population.
   c. The researchers didn't employ informed consent when they collected their data.
7. Is the researcher's claim that stress causes illness justified by this research?
   a. Yes. The relationship between stress and illness is strongly identified by the data.
   b. No. The sample size is too small to make this a legitimate claim.
   c. No. Correlation research doesn't produce evidence for causal claims.*
8. If a researcher wanted to convert this design into an experiment, why would an institutional review board likely have difficulty approving the proposal?
   a. Because college students need to have parental approval to participate in experimentation of any kind.
   b. Because researchers are violating ethical rules to do no harm since they would be manipulating stress levels.*
   c. Because IRB officials know this relationship is already firmly established in the psychology literature and they typically don't support replication studies.

9. Martin is introverted and unassertive. When he is approached by an aggressive research assistant, Martin figured out that the researcher was expecting him to report high levels of stress and absence. Although he had a stressful first semester, he didn't miss any classes but told the researcher that he missed a high number. This outcome is explained by which of the following concepts?
   a. Halo effect
   b. Demand characteristics*
   c. Placebo effects
10. The researcher suspects that these data may be problematic and repeats the strategy the next semester. This time the data demonstrate weaker connections between stress and illness-related absence. The difference in the results in the two data collections demonstrates which problem in good research design?
   a. Validity
   b. Parsimony
   c. Reliability*

Appendix B: Example of a Speaking Rubric for Summative Assessment

Capstone Speaking Rubric Final score: _____out of 100 points. *Score each category with a maximum of 10 points for grading purposes. Designate holistic score for department report*. ***Presenter:***

Topic:

Review team:

Holistic Performance Distinctions

3 Exemplary	Exceeds professional standards	90–100% (rating 9–10)
2 Proficient	Achieves professional standards	70–80% (rating 7–8)
1 Developing	Fails to meet professional standards	<70 % (rating <7)
0 Missing	Did not address	0

Area	Criteria	Grading: *Score out of 10. Check off met criteria*	Holistic score
Context	**Follows general project directions**		
	_Chooses topic that fits assignment parameters		
	_Adheres to recommended time constraints		
	_Synthesizes empirical literature to create argument		

(continued)

Area	Criteria	Grading: *Score out of 10. Check off met criteria*	Holistic score
Introduction quality	**Launches presentation effectively**		
	_Introduces self to audience		
	_Crafts compelling title		
	_Clearly communicates thesis		
	_Provides overview of intentions		
Thesis development	**Effectively develops central idea**		
	_Achieves appropriate breadth and depth		
	_Develops coherence in argument (avoids introducing ideas)		
Organization	**Produces effective flow in argument**		
	_Sequences ideas to best advantage		
	_Provides purposeful transitions		
	_Acknowledges contradictory evidence, if needed		
	_Completes appropriate multiple-choice question		
Conclusion	**Ends presentation effectively**		
	_Summarizes key ideas or themes		
	_Avoids abrupt ending		
	_Speculates about implications for the future		
	_Manages Q&A with confidence		
Clarity and engagement	**Establishes common ground with audience**		
	Tailors language to promote understanding		
	_Uses engaging, compelling word choice		
	_Avoids jargon, vagueness		
	_Avoids using deadening phrases, archaic forms (e.g., while, oftentimes)		
Quality of evidence/ sources	**Uses appropriate and relevant sources**		
	_Chooses resources that fit purpose		
	_Cites appropriate number, types of sources (e.g., scholarly sources)		
	_Attributes ideas explicitly in presentation		

(continued)

Area	Criteria	Grading: *Score out of 10. Check off met criteria*	Holistic score
Disciplinary style	**Adheres to APA presentation style**		
	_Clearly represents scientific viewpoint		
	_Emphasizes objectivity, precision, skepticism		
	_Avoids personal testimony/ editorializing		
	_Accurately conveys psychology content		
Delivery/format	**Delivers articulate, polished message**		
	_Demonstrates effects of rehearsal		
	_Presents, rather than reads, presentation		
	_Minimizes placeholders (um, like, you know)		
	_Avoids distracting mannerisms		
	_Uses technology smoothly		
Professionalism	**Achieves professional presentation standards**		
	_Meets specified project deadlines		
	_Adopts professional appearance		
	_Exhibits standard grammar and punctuation		
	_Shares burden if presenting as group		

Please write in a narrative paragraph the strengths that you observed in the presentation
Please write in a narrative paragraph the areas that could have been better developed

References

American Psychological Association. (2013). *APA guidelines for the undergraduate psychology major*. Version 2.0. https://www.apa.org/ed/precollege/about/psymajor-guidelines.pdf

American Psychological Association. (2018). *Teacher assessment guide*. http://pass.apa.org/assessment-resources/

Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York, NY/San Fransico, CA/ London, UK: Longman.

Berenbaum, M., DeLuca, C., Earl, L., Heritage, M., Klenowski, V., Looney, A., Smith, K., Timperly, H., Volante, L., & Wyatt-Smith, C. (2015). International trends in the implementation of assessment for learning: Implications for policy and practice. *Policy Futures in Education, 13* (1), 117–140. https://doi.org/10.1177/1478210314566733.

Berrett, D. (2019, March 28). *Teaching*. Chronicle of Higher Education. https://www.chronicle.com/newsletter/teaching/2019-03-28

Bloxham, S., den-Outer, B., Hudson, J., & Price, M. (2016). Let's stop the pretense of consistent marking: Exploring the multiple limitations of assessment criteria. *Assessment & Evaluation in Higher Education, 41*(3), 466–481. https://doi.org/10.1080/02602938.2015.1024607.

Boahin, P. (2018). Competency-based curriculum: A framework for bridging the gap in teaching, assessment and the world of work. *Journal of Educational Assessment, 13*, 80–92.

Boud, D. (1995) Assessment and learning: Contradictory or complementary? In P.T. Knight (Ed.), *Assessment for learning in higher education*. Kogan page.

British Psychological Society. (2019). *Standards for the accreditation of undergraduate, conversion and integrated masters programmes in psychology.* British Psychological Society.

Brown, P. C., Roediger, H. P., III, & McDaniel, M. A. (2014). *Make it stick: The science of successful learning*. Dreamscape.

Carter, C. R. (1997). Assessment: Shifting the responsibility. *Journal of Secondary Gifted Education, 9*(2), Winter 1997/8, 68–75.

Cepeda, N. J., Pashler, H., Vul, E., Wixted, J. T., & Rohrer, D. (2006). Distributed practice in verbal recall tasks: A review and quantitative synthesis. *Psychological Bulletin, 132*(3), 354–380. https://doi.org/10.1037/0033-2909.132.3.354.

Christopher, A. N., Baker, S. C., & Beins, B. C. (in press). The role of assessment in capstone experiences. *Scholarship of Teaching and Learning.*

Cookson, C. J. (2018). Assessment terms half a century in the making and unmaking: From conceptual ingenuity to definitional anarchy. *Assessment and Evaluation in Higher Education, 43*(6), 930–942.

Crews, T. B., & Wilkinson, K. (2015). Online quality course design vs. quality teaching: Aligning quality matters standards to principles for good teaching. *Journal of Research in Business Education, 57*(1), 47–63.

Dirkson, D. J. (2011). Hitting the reset button: Using formative assessment to guide instruction. *Phi Delta Kappan, 92*(7), 26–31. https://doi.org/10.1177/003172171109200706.

Dixson, D. D., & Worrell, F. C. (2016). Formative and summative assessment in the classroom. *Theory into Practice, 55*, 153–159.

Duncan, N. (2007). 'Feed-forward': Improving students' use of tutors' comments. *Assessment & Evaluation in Higher Education, 32*(*3*), 271–283. https://doi.org/10.1080/02602930600896498.

Dweck, C. S. (2016). *Mindset: The new psychology of success*. Ballantine Books.

Elton, L., & Johnston, B. (2002). *Assessment in universities: A critical review of research*. Learning and Teaching Support Network Generic Centre. https://eprints.soton.ac.uk/59244/1/59244.pdf

Fink, D. (2013). *Creating significant learning experiences: An integrated approach to designing college courses (revised)*. Jossey-Bass.

Halonen, J. S. (2011). *Are there too many psychology majors?* White paper prepared for the staff of the state university system of Florida Board of Governors. Retrieved from http://www.cogdop.org/page_attachments/0000/0200/FLA_White_Paper_for_cogop_posting.Pdf

Halonen, J. S. (2017). Introductory psychology: A postmodern love story. In Dunn, D. S., & Hhand, B. M. (Eds.), *Thematic approaches for teaching introductory psychology.* San Francisco, CA: Cengage, publishers.

Halonen, J. S., Beers, M. J., & Brown, A. O. (In press). Assessment at the crossroads: How did we get here and what do we do now? *Scholarship of Teaching and Learning in Psychology.*

Hanafin, J., Shevlin, M., Kenny, M., & McNeela, E. (2007). Including young people with disabilities: Assessment challenges in higher education. *Higher Education, 54*, 435–448. https://doi.org/10.1007/s10734-006-9005-9.

Harlen. (2005). Teachers' summative practices and assessment for learning – Tensions and synergies. *The Curriculum Journal, 16*(2), 207–223. https://doi.org/10.1080/0958517050136093.

Hendrickson, K. A. (2012). Assessment in Finland: A scholarly reflection on one country's use of formative, summative, and evaluation practices. *Mid-Western Educational Researcher, 25*(1/2),

33–43. https://www.mwera.org/MWER/volumes/v25/issue1-2/v25n1-2-Hendrickson-GRADUATE-STUDENT-SECTION.pdf

Hirsch, A. (2020). When assessment is a constant companion: Students' experiences of instruction in an era of intensified assessment focus. *Nordic Journal of Studies in Educational Policy, 6*(2), 89–102. https://doi.org/10.1080/2002317.2020.1756192.

Houston, D., & Thompson, J. N. (2017). Blending formative and summative assessment in a capstone subject: 'It's not your tools, it's how you use them.'. *Journal of University Teaching and Learning Practice, 14*(3).

Jollands, M., McCallum, N., & Bondy, J. (2009, December). *If students want feedback, why don't they collect their assignments? 20th Annual Conference for the Australasian Association for Engineering Education*. https://search.informit.com.au/documentSummary;dn=919023650136289;res=IELENG

Kitchen, E., King, S. H., Robison, D. F., Sudweeks, R. R., Bradshaw, W. S., & Bell, J. D. (2006). Rethinking exams and letter grades: How much can teachers delegate to students? *Life Science Education, 5*(3), 270–280.

Knight, P. (2002). Summative assessment in higher education: Practices in disarray. *Studies in Higher Education, 27*(3), 275–286.

Knight, P. (2010). Summative assessment in higher education: Practices in disarray. *Studies in Higher Education, 27*(3), 275–286. https://doi.org/10.1080/03075070220000662

Kohn, A. (1999). *Punished by rewards: The trouble with gold stars, incentive plans, A's, praise, and other bribes*. Houghton-Mifflin.

Kuh, G. D. (2008). *High-impact educational practices: What they are, who has access to them, and why they matter*. Association of American Colleges and Universities.

Kuh, G. D., Ikenberry, S. O., Jankowski, N. A., Cain, T. R., Ewell, P. T., Hutchings, P., & Kinzie, J. (2015) *Using evidence of student learning to improve higher education*. National Institute for Learning Outcomes Assessment. Jossey-Bass.

Landrum, R. E., & McCarthy, M. A. (2018). Measuring the benefits of a bachelor's degree in psychology: Promises, challenges, and next steps. *Scholarship of Teaching and Learning in Psychology, 4*(1), 55–63. https://doi.org/10.1037/stl0000101.

Lau, A. M. S. (2016). 'Formative, good/summative, bad?': A review of the dichotomy in assessment literature. *Journal of Further & Higher Education, 40*(4), 509–525. https://doi.org/10.1080/0309877X.2014.984600.

Lawrence, N. (2013). Cumulative exams in the introductory psychology course. *Teaching of Psychology, 40*(2), 15–19. https://doi.org/10.1177/0098628312465858.

Maringe, F., & Sing, N. (2014). Teaching large classes in an increasingly internationalizing higher education environment: Pedagogical, quality, and equity issues. *Higher Education, 67*, 761–782. https://doi.org/10.1007/s10734-013-9710-0.

McCarthy, J. (2015). Evaluating written, audio and video feedback in higher education summative assessment. *Issues in Educational Research, 25*(2), 153–169.

McTighe, J., & Ferrara, S. (1998). *Assessing learning in the classroom*. National Education Association.

National Research Council. (2001). *Classroom assessment and the National Science Education Standards*. The National Academies Press. https://doi.org/10.17226/9847.

Pun, K. (2016, September 2). *Do's and dont's on designing for accessibility*. Accessibility in Government. https://accessibility.blog.gov.uk/2016/09/02/dos-and-donts-on-designing-for-accessibility/

Scriven, M. (1967). The methodology of evaluation. In R. W. Tyler, R. M. Gagne, & M. Scriven (Eds.), *Perspectives of curriculum evaluation* (pp. 39–83). Rand McNally.

Stanny, C. J. (2016). Revaluating Bloom's taxonomy: What measurable verbs can and cannot say about student learning. *Education Sciences, 6*(4), 37. https://doi.org/10.3390/educsci6040037.

Steinfeld, E., & Maisel, J. (2012). *Universal design: Creating inclusive environments*. Wiley.

Svinicki, M. D., & McKeachie, W. J. (2014). *In McKeachie's teaching tips: Strategies research, and theory for college and university teachers* (14th ed.). Cengage.

Taras, M. (2005). Assessment—Summative and formative—Some theoretical reflections. *British Journal of Educational Studies, 53*(4), 466–478.

Tomas, C., & Jessy, T. (2019). Struggling and juggling: A comparison of student assessment loads across research and teach-intensive universities. *Assessment & Evaluation in Higher Education, 44*(1), 1–10.

Trotter, E. (2006). Student perceptions of continuous summative assessment. *Assessment and Evaluation in Higher Education, 31*(5), 505–521. https://doi.org/10.1080/02602930600679506.

Volante, L., Schnepf, S. V., Jerrim, J., & Klinger, D. A. (2019). *Education policy & social inequality* (Vol. 4). Socioeconomic inequality and student outcomes. Springer.

Wiggins, G. P. (1993). *The Jossey-Bass education series. Assessing student performance: Exploring the purpose and limits of testing*. Jossey-Bass.

Wiliam, D. (2020). How to think about assessment. In S. Donarsky & T. Bennett (Eds.), *The researchED guide to assessment: An evidence-informed guide for teachers* (pp. 21–36). John Catt Publishing.

Wininger, S. R. (2005). Using your tests to teach: Formative summative assessment. *Teaching of Psychology, 32*(3), 164–166. https://doi.org/10.1207/s15328023top3203_7.

Formative Assessment and Feedback Strategies

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Susanne Narciss and Joerg Zumbach

Contents

Abstract

Formative assessment and formative feedback strategies are very powerful factors for promoting effective learning and instruction in all educational contexts.

S. Narciss (✉)
School of Science - Faculty of Psychology, Psychology of Learning and Instruction, Technische Universitaet Dresden, Dresden, Sachsen, Germany
e-mail: susanne.narciss@tu-dresden.de

J. Zumbach
Department of Educational Research, University of Salzburg, Salzburg, Austria
e-mail: joerg.zumbach@plus.ac.at

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Formative assessment, as a superordinate term, refers to all activities that instructors and/or learners undertake to get information about teaching and learning that are used in a diagnostic manner. Formative feedback is a core component of formative assessment. If well designed and implemented in terms of a formative feedback strategy, it provides students and teachers with information on the current state of learning in order to help the further regulation of learning and instruction in the direction of the learning standards strived for. This chapter presents the issues in, as well as selected approaches for, designing formative assessment and feedback strategies. Based on recent meta-analyses and literature reviews, it summarizes core theoretical and empirical findings on the conditions and effects of formative assessment and feedback in (higher) education. Furthermore, it discusses challenges and implications for applying the current insights and strategies for effective formative assessment and feedback in higher education. Finally, suggestions on helpful resources are provided.

Keywords

Formative assessment · Assessment for learning · Formative feedback strategies

Introduction

Formative assessment and formative feedback strategies are considered core components for promoting effective learning and instruction in all educational contexts (cf. Hattie, 2009). Within frameworks of formative assessment and feedback strategies, the learner is considered to be an active constructor of knowledge, and thus the formative function of feedback is emphasized. Formative assessment is an essential part of higher education. Formative assessment is an umbrella term for different approaches and strategies to monitor and improve students' self-regulated learning as well as the quality of instruction. As such, formative assessment can also be regarded as a set of cognitive and especially metacognitive strategies that contribute to meaningful learning (e.g., Hattie, 2009). From an evidence-based perspective, the extensive literature review provided by Black and Wiliam (1998) shows that well-designed formative assessment improves students' academic performance in school and in higher education across various fields (see also Black & McCormick, 2010).

Purposes and Rationale

Assessment and feedback strategies can be implemented in a *summative* or *formative* way. If implemented in a summative way, they occur at end or after learners have been provided with an instructional unit. The main purpose of summative assessment is to capture the outcomes of this instructional unit via some kind of final exam. Mostly, the exam score is provided as feedback (▶ Chap. 54, "Assessment of Learning in Psychology," by Blalock, Rainey, and Halonen, this volume). If implemented in a *formative*

way, assessment strategies provide students with opportunities for testing not only at the end but also during or even before learning in order to support their further learning progress by communicating valuable information about their current state of knowledge or learning. It is worth emphasizing that it is not the assessment items or tasks per se that are formative or summative, but *how* they are implemented and used (cf. Wiliam, 2006). Hence, one may well use multiple-choice exam items for formative purposes, if these items are provided before or during an instructional unit with the purpose of gathering information on how well students have understood the material, in order to guide the process of learning and instruction.

The main purpose of implementing assessment and feedback strategies in a formative way is to provide learners as well as teachers with information that can serve as an important basis for guiding and improving (*i.e., forming*) the process of learning and instruction. More specifically, formative assessment and feedback strategies can serve many purposes for both teachers and students, including the following ones:

- Elicit information about learning goals, intentions, and criteria for success.
- Elicit information about students' understanding, state of learning, state of knowledge, etc.
- Elicit information about the benefits and constraints of learning tactics and/or strategies.
- Elicit information about the benefits and constraints of instructional material and strategies.
- Provide information on the kinds of information and/or strategies that would be useful for moving forward in the learning process.
- Provide the basis for adapting instructional material and strategies to students' levels of knowledge and understanding.

Black and Wiliam's theory of formative assessment (Black & Wiliam, 2009) take up Sadler's (1989) key point that eliciting and using information about learning goals and student understandings are not only an instructor's task; peer and self-assessment are also important components of formative assessment (Black & Wiliam, 2009).

Formative Assessment

Formative assessment includes all activities that instructors and/or learners undertake to get information about teaching and learning that are used in a diagnostic manner (Black & Wiliam, 1998; Boston, 2002). This diagnostic information can be used to improve teaching as well as learning and affects the planning, the process, and the outcomes of instructional situations. It includes a variety of methods, such as classroom observation, classroom discussions, students' work, and the like. As the term "formative" suggests, this kind of assessment is used to (re-)"form" the instructional and/or learning process, while "summative" assessments "sum" up outcomes. As

already emphasized, summative assessment instruments (e.g., tests) and outcomes can also be used as information for formative assessment processes. Information retrieved from formative assessment provides the basis for feedback to everyone involved in the learning process (teachers, students, parents, etc.), which in turn should be used to improve the learning environment and its underlying processes and, thus, outcomes.

Several authors have conceptualized the formative assessment process as a cyclical process. For example, Natriello's (1987; see Fig. 1) model describes the evaluation process from a teacher's perspective in eight phases including (1) establishing the purpose of the evaluation, (2) assigning tasks to students, (3) setting criteria for student performance, (4) setting standards on student performance, (5) sampling information on student performance, (6) appraising student performance, (7) providing feedback on student performance, and (8) monitoring outcomes of the evaluation of students.

In their synthesis of feedback research in view of self-regulated learning, Butler and Winne (1995) adopted a cyclical conceptualization of formative assessment and feedback from a learner's perspective. In the context of peer assessment and peer feedback, this cyclical conceptualization of the formative assessment process has been, for example, picked up by Reinholz (2016). While these approaches mainly refer to assessment and feedback of learners, formative assessment can also refer to the design of learning environments itself. As a part of the instructional design process (see also ▶ Chap. 49, "First Principles of Instruction Revisited," by Merrill, this volume), formative assessment can also be applied to all stages of planning, conducting, and evaluating instruction (e.g., by means of peer feedback, student feedback, etc.) in order to improve instruction. This is closely related to action research which is defined by Clark et al. (2020, p. 8) as follows: "Action research is an approach to educational research that is commonly used by educational practitioners and professionals to examine, and ultimately improve, their pedagogy and practice. In this way, action research represents an extension of the reflection and critical self-reflection that an educator employs on a daily basis in their classroom." While action research is commonly described as a tool for improving teaching and learning in primary and secondary education, it can also be applied to higher education. In that sense, formative assessment also includes action research as an instrument for improving teaching and learning in psychology.

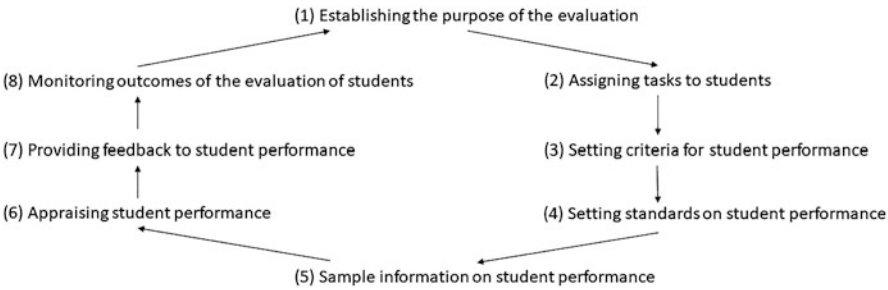

Fig. 1 Formative assessment cycle according to Natriello (1987)

Nevertheless, the primary focus of this chapter is formative assessment for improving student learning. Here, information retrieved within the assessment cycle provides the basis for feedback to students and instructors. Following the model suggested by Natriello (1987; see Fig. 1), feedback is a core element for (future) learning and a student's progress.

Formative Feedback

Feedback is a core component of formative assessment processes and has been identified as a powerful factor influencing learning in various instructional contexts, including higher education (e.g., Evans, 2013; Hattie & Gan, 2011; Hattie & Timperley, 2007; Morris, Perry, & Wardle, 2021; Shute, 2008). In instructional contexts, the term *feedback* refers to information which informs the learner about his/her actual state of learning or performance in order to support the regulation of the further process of learning in the direction of the standards being strived for (e.g., Narciss, 2008; Shute, 2008). This notion of feedback is inspired by cybernetic views of feedback (e.g., Wiener, 1954) and emphasizes that a core aim of feedback in instructional contexts is to reduce gaps between current and desired states of learning (Hattie, 2009; Ramaprasad, 1983; Sadler, 1989).

Within an instructional context, feedback can be provided by various external sources of information (e.g., teachers, peers, parents, computer-based systems) and/or by internal sources of information (i.e., information perceivable by the learner while task processing). External feedback strategies can be designed and implemented in many ways. In order to be effective, feedback content has to be processed and taken up meaningfully by the student. Accordingly, there is a complex interplay of internal and external factors that has to be taken into account when designing and investigating the effects of formative feedback strategies. To capture this interplay, Narciss (2008) has developed the interactive two-feedback loops model (ITFL model, also referred to as the interactive tutoring feedback model; Narciss, 2017).

The ITFL model suggests that feedback is considered as a multidimensional instructional activity that aims at contributing to the regulation of a learning process in such a way that learners acquire the knowledge and competencies needed to master learning tasks as well as the regulation of their learning (Narciss, 2013). The ITFL model considers external and internal feedback as core components of two intertwined feedback loops (see Fig. 2). By doing so, it draws attention to issues of how to design and implement *interactive* assessment and feedback strategies in such a way that the external feedback serves to empower students as self-regulated learners.

The ITFL model suggests that for efficient functioning of the intertwined feedback loops, the following components are crucial:

Internal and external feedback can only serve to close a gap between the standards strived for and a current state of learning if instructional goals, as well as the criteria indicating how well task requirements have been met (i.e., *control variables*), have

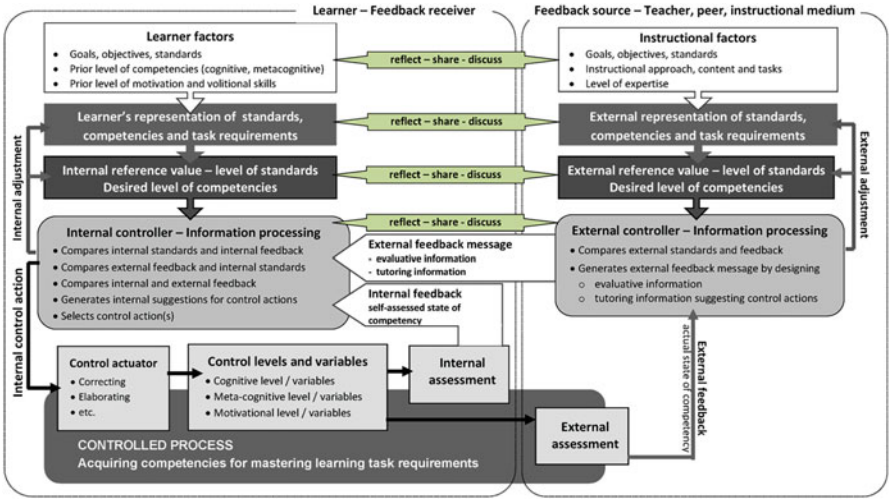

Fig. 2 Interactive two-feedback loops model. (Narciss, 2017; reprinted with permission from Springer Nature)

been identified, and *standards* for these control variables have been specified as clearly as possible. This is relatively easy in domains with well-defined tasks but can be challenging in domains with ill-defined or complex tasks.

Students' and teachers' representations of instructional goals and criteria of successful task completion serve as a basis for determining the *reference values* in the respective loops. Discrepancies between these representations can occur depending on *learner and or instructional factors*. If there are such discrepancies, they will negatively influence the functioning of both feedback loops. Thus, it is worth providing opportunities for reflecting, sharing, and discussing the criteria and standards of high-quality task processing and completion within the given instructional context (e.g., teacher-to-student, peer-to-peer; student-to-teacher).

The accurate (i.e., reliable and valid) *assessment* of the current state of the control variable is a core prerequisite for generating competency-oriented, concrete, and actionable feedback in both feedback loops. With regard to the external loop, the quality of assessment instruments and strategies are crucial. Regarding the internal loop, students' skills in assessing their own learning and performance (i.e., in generating adequate *internal feedback*) need to be trained. This can be done by providing students with opportunities for self-assessment or also peer assessment. Hence, offering immediate external feedback might be criticized, because it may hinder students in self-assessing their task processing and in actively developing a grasp of criteria/standards.

The *external feedback message* is an important source of (a) calibrating the internal feedback and of (b) deriving control actions. Generating a formative external feedback message involves (a) comparing the external standards with the assessed

state of competency and (b) using the result of this comparison to design evaluative information, as well as tutoring information pointing to the control action(s) necessary to achieve a higher level of competency.

The *internal processing* of the external feedback and the *generation of an internal control action* is a complex process. Students need to compare the external feedback, as well as their internal feedback with the standards being sought. Furthermore, they need to compare the external feedback with their internal feedback. Based on these comparisons, they have to figure out which control action(s) would contribute to close the gap and select the most adequate one.

In a formative assessment and feedback cycle, opportunities for applying the control action(s) in a further attempt with the task are generally offered in order to contribute to close the detected gap.

The ITFL model was originally developed for the design and investigation of *interactive tutoring feedback strategies* in (intelligent) computer-based tutoring systems (Narciss, 2008, 2013; Narciss et al., 2014). Here Narciss (2017, p. 174) states:

> Tutoring feedback strategies combine formative elaborated feedback with tutoring and mastery learning strategies. They provide formative evaluative feedback components that help the learners to become aware of any discrepancies that exist between their desired and their current state of competencies. Additionally, they provide (access to) elaborated feedback components (e.g., hints, explanations) that are aimed at supporting learners in acquiring the competencies necessary for mastering the learning tasks. In doing so *tutorial feedback strategies* offer (the access to) strategically useful information for task completion, without providing immediately the correct solution, and prompt the learner to apply this information to a next attempt in accomplishing the learning task and, thus, provide an individualized zone of proximal development. Furthermore, after successful task completion, they provide confirmatory positive feedback components. (a detailed description of such a tutorial feedback strategy is provided by Narciss & Huth, 2006)

However, the conceptual and empirical work on the ITFL model has also provided a basis for developing a competency framework for teacher education courses and higher education on formative feedback (Narciss, Hammer, Damnik, Kisielski, & Körndle, 2021) and for deriving prescriptive principles for designing formative feedback strategies (e.g., Narciss, 2006, 2012; Narciss, 2013).

Design Issues and Approaches

The cyclical feedback frameworks summarized so far reveal that designing and implementing formative assessment and feedback strategies is a challenging task because of the complex interplay of external and internal loop factors in relation to the targeted instructional goals and tasks. Design issues relate to the quality of both the external and internal feedback loops. In the following sections, we will first provide an overview on the design issues and then outline selected approaches that provide suggestions on how to address these issues.

Core Design Issues

In order to implement formative assessment and feedback strategies, teachers and learners need to develop an adequate understanding and representation of the relevant domain knowledge as well as competencies and specify the desired standards for these competencies. Thus, teachers have to analyze the conditions of the instructional context by consulting existing competency frameworks for the relevant domain and/or conducting, for example, cognitive task analyses. Second, they have to analyze the conditions and characteristics of the learner or, as more generally described, the feedback receiver, as well as the available feedback source(s) and measurement instruments. There are multiple sources and instruments that can provide information for feedback: interviews, tests, questionnaires, log-files, etc. Using the available information sources to provide formative feedback, instructors and learners have to be aware of the aim of the feedback. Based on these analyses, teachers may develop a formative assessment and feedback strategy, that is, a coordinated plan which integrates clear and decisive statements regarding the following issues (Narciss, 2012):

(a) What are the scope and functions of the assessment and feedback?
(b) When and how to reflect, share, and discuss the feedback scope and functions with the learners?
(c) When and how to reflect, share, and discuss success criteria and standards with the learners?
(d) When and how often should external assessment take place?
(e) What kind of external feedback sources are available?
(f) When and how often should internal assessment (i.e., students' self-assessment) be prompted?
(g) What kind of instruments or tasks can be used for the external and/or internal assessment?
(h) How can students be supported in using these instruments adequately?
(i) Given the selected functions and standards, what kind of elaborated information should the external feedback provide (*external feedback content*)?
(j) When and how should the selected feedback content be conveyed to the learner (*feedback timing and presentation*)?
(k) When and how to reflect, share, and discuss similarities and differences among the internal and external feedback?
(l) What kind of scaffolds can be provided to learners to support their processing of the external feedback and uptake of the external feedback?
(m) How can students be supported in generating and/or selecting adequate control actions?

Approaches Informing the Design of Formative Assessment and Feedback Strategies

In the last decades, formative assessment and feedback has attracted growing interest in instructional contexts. Accordingly, a number of conceptual approaches have been

developed that aim at informing the practice of formative assessment and feedback in (higher) education.

Wiliam and Thompson (2007), Wiliam (2010, p. 31) suggest five key strategies for designing formative assessment that address in a general way most of the issues raised above: "(1) clarifying, sharing, and understanding learning intentions and criteria for success (issues a, b, c); (2) engineering effective classroom discussion, questions, and tasks that elicit evidence of learning (issues d, e, f, g); (3) providing feedback that moves learners forward (issues i, j); (4) activating students as instructional resources for one another (issues k, l); and (5) activating students as the owners of their own learning (issues h, k, l, m)."

Clarifying the scope and functions of assessment and feedback, as well as sharing and understanding learning intentions, are crucial, because feedback is multifunctional, i.e., it can affect the learning process at various levels, and can therefore have numerous different functions (Narciss, 2008, 2013). It can, for example, acknowledge or confirm correct responses or high-quality learning outcomes and promote the acquisition of the knowledge and cognitive operations necessary for accomplishing learning tasks. Feedback can also contribute to correcting errors, misconceptions, or inadequate task processing strategies, prompt the application of metacognitive strategies (e.g., Butler & Winne, 1995; Mathan & Koedinger, 2005), or encourage students in maintaining their motivation (e.g., Narciss, 2004, 2008). In their feedback intervention theory, Kluger and DeNisi (1996) distinguish three regulation levels, a learning task level related to the processing of task details, a motivational task level, and a self-related meta-task level. Hattie and Timperley (2007) suggest that feedback works at four levels: (1) the task level, (2) the process level, (3) the self-regulation level, and (4) the self-level. Inspired by insights on self-regulated learning, Narciss (2008) suggests classifying the widely varying feedback functions as cognitive, meta-cognitive, and motivational. Several meta-analyses reveal that feedback effects can be detrimental if feedback messages are not task-related but provide person-related information, because the latter attract attention to the self-level (e.g., Hattie & Timperley, 2007; Kluger & DeNisi, 1996).

Regarding issues related to the design of the feedback content, a huge body of feedback research reveals that the abovementioned feedback functions have been addressed by a large variety of feedback types and strategies, which also vary widely regarding their content (for reviews see Hattie & Timperley, 2007; Mory, 2004, Narciss, 2008; Shute, 2008). External feedback content can consist of many different kinds of informative components, including the following:

- Knowledge of performance, providing learners with a summative feedback after they have responded to a set of tasks or accomplished a complex assignment (e.g., percentage of correctly solved tasks; number of errors; grade).
- Knowledge of result, providing learners with information on the correctness or quality of their actual response or outcome (e.g., correct/incorrect; flagging errors; good job).
- Knowledge of the correct response, providing the correct response or a sample solution to a given task.
- Elaborated feedback, providing additional information besides knowledge of results or knowledge of the correct response (e.g., hints, guiding questions,

explanations, worked examples). Since there is a variety of elaborated information that might be added to knowledge of results, Narciss (2008) suggests using at least five different categories in order to make a more subtle distinction regarding feedback types with elaborated feedback content:

- Knowledge about task constraints, offering information on task rules, task constraints, and/or task requirements.
- Knowledge about concepts, addressing conceptual knowledge by providing, for example, response-contingent hints on concept attributes, or attribute-isolation examples.
- Knowledge about mistakes, offering information on errors or mistakes (e.g., flagging location of errors; or providing hints on error type or error sources).
- Knowledge about how to process the task, addressing procedural knowledge (e.g., task-contingent hints about procedural skills or problem-solving strategies).
- Knowledge about meta-cognition, eliciting meta-cognitive knowledge and strategies necessary for self-regulating the learning process (e.g., topic-contingent hints about useful sources of information).

To design formative feedback strategies, several of these content types can be combined depending on the task, learner, and instructional conditions.

Feedback types also vary widely in the way they convey the feedback content to the learner. Addressing formal and technical issues related to the presentation of the feedback content requires decisions about the (a) feedback timing (e.g., immediate, delayed), (b) feedback scheduling (e.g., single try, multiple try, answer until correct), (c) codes and modes of feedback representation and delivery, and (d) adaptation strategy (e.g., non-adaptive, adaptive, adaptable, mixed-initiative, or shared-control adaptation).

Beaumont, O'Doherty, and Shannon (2011) developed a dialogic feedback framework that conceptualizes formative feedback also as part of a feedback cycle. It can inform addressing the engineering issues as well as the issues related to activating the learner as a participant in the assessment and feedback process. Beaumont and colleagues distinguish three phases of a dialogic feedback cycle (see Fig. 3).

1. A guided preparation phase in which students are provided with explanations, discussions, and exemplars in order to clarify task requirements, success criteria, and standards. The results from this phase can serve as feedforward for the task completion phase.
2. A guided in-task phase in which they are offered practice opportunities that should be scaffolded by generic feedback, pre-assessment tips, and/or peer assessment support.
3. The final feedback phase in which students should be provided with formative written feedback that refers clearly to the criteria and standards and are prompted to reflect and discuss it.

In each of these phases, dialogues among teachers and students should be included in order to iteratively develop a common ground concerning task requirements, as well as criteria and standards of assessment.

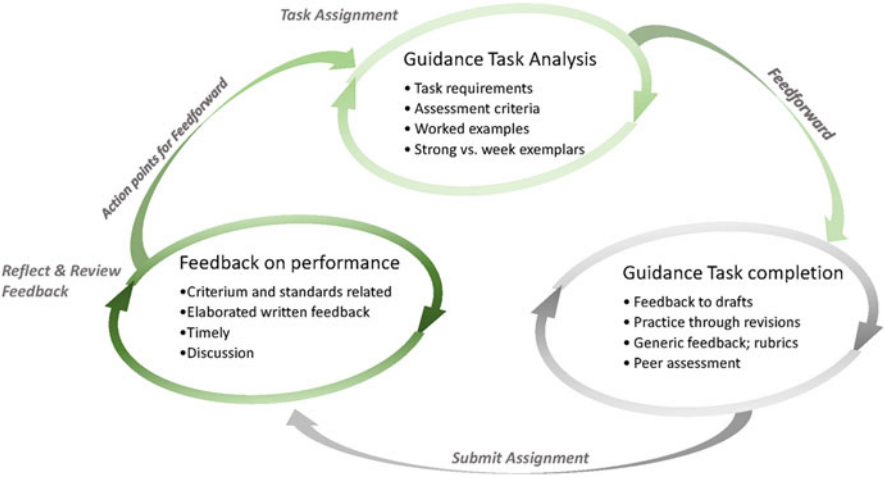

Fig. 3 Dialogic feedback cycle. (Adopted from Beaumont et al., 2011)

Implementing a dialogic feedback cycle requires a kind of "feedback culture" that involves both instructors and learners, and by doing so continuously provides information that may serve to fine-tune the understanding of task requirements, possible shortfalls, and how to overcome them. Robinson, Pope, and Holyoak (2013) show that students have to become used to such feedback approaches, but the process can be supported by scaffolds that show students where and how to engage with the formative feedback (Price, Handley, & Millar, 2011).

Based on a thematic analysis of the research evidence on assessment feedback in higher education from 2000 to 2012, Evans (2013, pp. 80–83) derived the following principles of how to address effectively the feedback design issues:

1. *Feedback is a central, integral, and continuous process of student assessment*. This, in turn, is fostered by ensuring that relevant feedback is provided, that it is aligned with the task, and that it supports students in their productivity. In this context, performance assessment and the associated feedback should be constructively linked to learning objectives or aligned with them (in the sense of constructive alignment; Biggs & Tang, 2007). Feedback should not be isolated, but rather continuous and an integral part of the daily study routine, supporting students in an active working manner. In doing so, feedback should inform them about the learning process, encourage reflection, and promote self-directed learning.
2. *Assessment feedback guidance is explicit*. Feedback should inform students about principles of good (scientific) practice using examples and clear (evaluation) criteria.
3. *Greater emphasis is placed on feedforward compared to feedback activities*. Feedback is formative and not summative. Feedback should support and promote the learning process and be oriented toward the needs of learners.

4. *Students are engaged in and with the process*. Students should be able to comprehend the criteria and feedback practices and thereby develop their own skills regarding understanding and giving feedback.
5. *The technicalities of feedback are attended to in order to support learning*. Feedback must be appropriate to the method of performance review and adapted by students according to their level of performance. Accordingly, feedback should reflect what was done right, what was done wrong and why, and what can be done better and how. Feedback should also provide the opportunity for dialogue between students and lecturers.
6. *Training in assessment feedback/forward is an integral part of assessment design*. The higher education landscape is characterized by feedback of all kinds. As with review processes in everyday academic life, feedback on student performance must and can be practiced and, if necessary, should also be discussed and further developed collegially.

As detailed in Narciss (2017), the ITFL model also provides a rationale for the feedback principles suggested by authors who consider the learners' active participation and agency as central for effective assessment and feedback processes (e.g., Boud & Molloy, 2013; Carless, 2020; Carless, Salter, Yang, & Lam, 2011; Evans, 2013; Nicol, 2021; Nicol & Macfarlane-Dick, 2006; Wiliam, 2010). Table 1 provides a summarizing overview on those prescriptive principles for designing feedback strategies that can be explicitly linked to the components and assumptions of the ITFL model (for more details see Narciss, 2017).

To conclude, there are a number of conceptual frameworks and pedagogical approaches that served as a basis for deriving principles of good formative assessment and feedback practices. They all emphasize that learners have to be actively engaged in the assessment and feedback processes and that these processes should be viewed as cyclically linked. The principles are generically applicable to any performance in everyday university life, be it oral performance, for example, in the context of papers, written homework, laboratory assignments, or theses. Performance feedback, provided it is appropriate, informative, and meaningful, is thus one of the main proven effective factors in learning. However, in order for feedback to meet these criteria, continuous support from lecturers is important.

Research Issues, Core Findings, and Current Trends

Assessment and feedback strategies have been the important topics in educational (psychology) research for more than a century. Accordingly, the body of theoretical as well as empirical papers is huge. Over the last decades, issues in formative assessment and feedback have received much attention, particularly in the field of higher education. This is reflected in a growing body of reviews and meta-analyses (e.g., Ajjawi et al., 2021; Evans, 2013; Morris et al., 2021; Van der Kleij & Lipnevich, 2021) as well as handbooks on formative assessment and feedback (e.g., Andrade & Cizek, 2010; Carless, Bridges, Chan, & Glofcheski, 2017;

Table 1 Feedback design principles and exemplary approaches (adopted from Narciss, 2017)

Feedback design principle	Approaches and examples of good practice
Distinction of an internal and external feedback loop	
Feedback strategies should be interactive rather than just focusing on transmitting external feedback	Ask-tell-ask-act strategy (e.g., French, Colbert, Pien, Dannefer, & Taylor, 2015) GROW strategy (e.g., Whitmore, 2010) Interactive tutoring feedback strategy (Narciss, 2008, 2013)
Controlled process – control levels and variables – standards and reference values for control variables	
Identify malleable and measurable variables that may serve as indicators of how well the process of task completion is currently running	Competence modeling (e.g., Fouad et al., 2009, 2022) Common core standards Assessment rubrics for written assignments Competency scales (e.g., counseling scale Lambie, Mullen, Swank, & Blount, 2018)
Select or specify the criteria and standards of high-quality task processing and completion	
Reflect, share, and discuss the criteria and standards of high-quality task processing and completion within instructional context (e.g., teacher-to-student, peer-to-peer; student-to-teacher)	Provide exemplars of diverse quality to make students actively engage in reflecting, sharing and discussing high vs. low levels of quality criteria Provide competency matrices with criteria for various levels, and make students reflect and discuss them
Assessment instruments and processes – internal an external	
Select or develop means/devices (e.g., assessment rubrics for written assignments) for assessing the current state of competency	Tabular presentation of assessment rubrics with Likert-like response options Competency matrices eliciting behavioral descriptors for various competence levels
Reflect, share, and discuss the assessment instruments	Provide worked examples of diverse quality to clarify if and how the assessment instrument can be applied to measure various levels of competency Provide occasions for peer assessment and/or peer feedback
Provide occasions for generating internal feedback before offering external feedback.	Prompt self-assessment with regard to the relevant assessment standards and make self-assessment overt Provide self-assessment work sheets (e.g., competency matrices, rubric tables) to help students to identify which of the criteria they have met as well as those they have not (yet) met
External assessment	Use assessment work sheets (e.g., competency matrices, rubric tables) to identify the current level of competency
Generate and provide external feedback	
Generate competency-oriented, concrete, and actionable external feedback message(s)	Apply W3-strategy to identify gaps and select or specify control actions that may contribute to close the gaps • What worked well? • What did not work well? • What can be done to . . .?

(continued)

Table 1 (continued)

Feedback design principle	Approaches and examples of good practice
Provide information on the externally assessed level of performance in relation to the standards	Provide a tabular work sheet detailing standards/ criteria, as well as external feedback with regard to the criteria (same structure as the internal feedback work sheet)
Internal processing of feedback and generating of control action	
Scaffold students in using the external feedback mindfully for (a) detecting gaps that have to be filled in order to meet the required standards and (b) deriving control actions to close these gaps	Provide a tabular work sheet detailing standards/ criteria, internal as well as external feedback with regard to the criteria Provide guiding questions for comparing standards with external and internal feedback Prompt students to make a feedback action plan Provide access to tutoring information (e.g., hints; guiding questions, worked examples) that may be used to identify control actions
Reflect, share, and discuss potential control actions for closing gaps between the current level of performance and the standards	Ask students to share and discuss their feedback action plan Ask for a revision letter detailing what corrective actions to take in order to close the gaps Collaborative revision of writing assignments based on feedback Collaborative formulation of concrete suggestions for corrective action
Control action – cyclical processes of acting – assessing – feedback – information processing – controlling	
Offer the occasion for applying the selected corrective actions	Provide occasions for revision, another attempt of task completion, etc.
Prompt students to self-assess and generate internal feedback	Provide self-assessment work sheets (e.g., competency matrices, rubric tables) to help students to identify which of the criteria they have met, what has been improved, and what might still need improvement
Provide external feedback together with tutoring information (i.e., hints, guiding questions, explanations, analogies) to help students select and apply adequate corrective actions if they failed to do so without assistance	Elicit progress and emphasize successful attainments of high-quality standards Emphasize • What worked well • What has been improved • What can be done to further improve . . .
As in the first cycle, offer occasions for engaging in corrective actions which apply the tutoring feedback information	Provide occasions for revision, another attempt at task completion, etc.

Henderson, Ajjawi, Boud, & Molloy, 2019; Nolan, Hakala, & Landrum, 2021; Winstone & Carless, 2019). Nevertheless, gaining an overview on the current state of the art on formative and assessment research is a challenging endeavor, because the issues have been addressed in several lines of research, including research on formative assessment, on formative feedback, on self-assessment, on peer assessment and peer feedback, as well as on technology-enhanced assessment and

feedback strategies (see Lipnevich and Panadero (2021) and Panadero and Lipnevich (2021) for two recent attempts of integrating existing theoretical models and approaches on formative feedback).

Overview on Research Issues

Figure 4 provides a heuristic overview of the numerous issues that can be addressed within the field of research on formative assessment and feedback (see also Narciss, 2013). It reveals that research on formative assessment and feedback is a complex endeavor and can address issues related to, for example:

(a) The (moderating) roles of three core sets of conditions that have to be considered when designing and evaluating formative assessment and feedback strategies, namely, the conditions of the feedback receiver, the feedback source, and the instructional feedback context.
(b) The role of factors influencing the quality of the internal and external assessment.
(c) The role of the three interrelated facets of an external feedback strategy that have to considered when designing a feedback strategy that is tailored to conditions and takes into account the external and, if possible, internal assessment factors.
(d) The (mediating) roles played by the perception, processing, and impact of feedback on levels of task performance, self-regulation, as well as self-concept.
(e) The potential effects that can be investigated on several levels (e.g., cognitive, meta-cognitive, motivational, affective) and with regard to performance or learning outcomes.

As shown in Fig. 4, research on formative assessment and feedback can focus on many aspects and (interacting) variables within a concrete (psychology) course or a specific instructional context. The concrete research issues as well as approaches depend on the research focus. For example, experimental studies focusing on the effects of various kinds of external feedback strategies or types have investigated if and how feedback design factors (e.g., content, timing, scheduling, and presentation modes) affect feedback efficiency in terms of improving students' performance and/or learning). Studies focusing on feedback perception and processing have investigated issues such as if and how students perceive and take-up feedback depending on features of (a) the feedback design (e.g., content or timing) and (b) the feedback source (e.g., peer vs. teacher).

Besides the issues that can be addressed in a specific instructional context, there are also many issues that may arise from superordinate levels that influence formative assessment and feedback. Such issues relate, for example, to the role of establishing a culture of assessment and feedback within and across classes, institutions, and what can be learned from international practice (e.g., Cranney, Hulme, Suleeman, Job, & Dunn, 2021). Research and design issues here can address how, for example, a culture of failure and/or a culture of feedback is possible and can

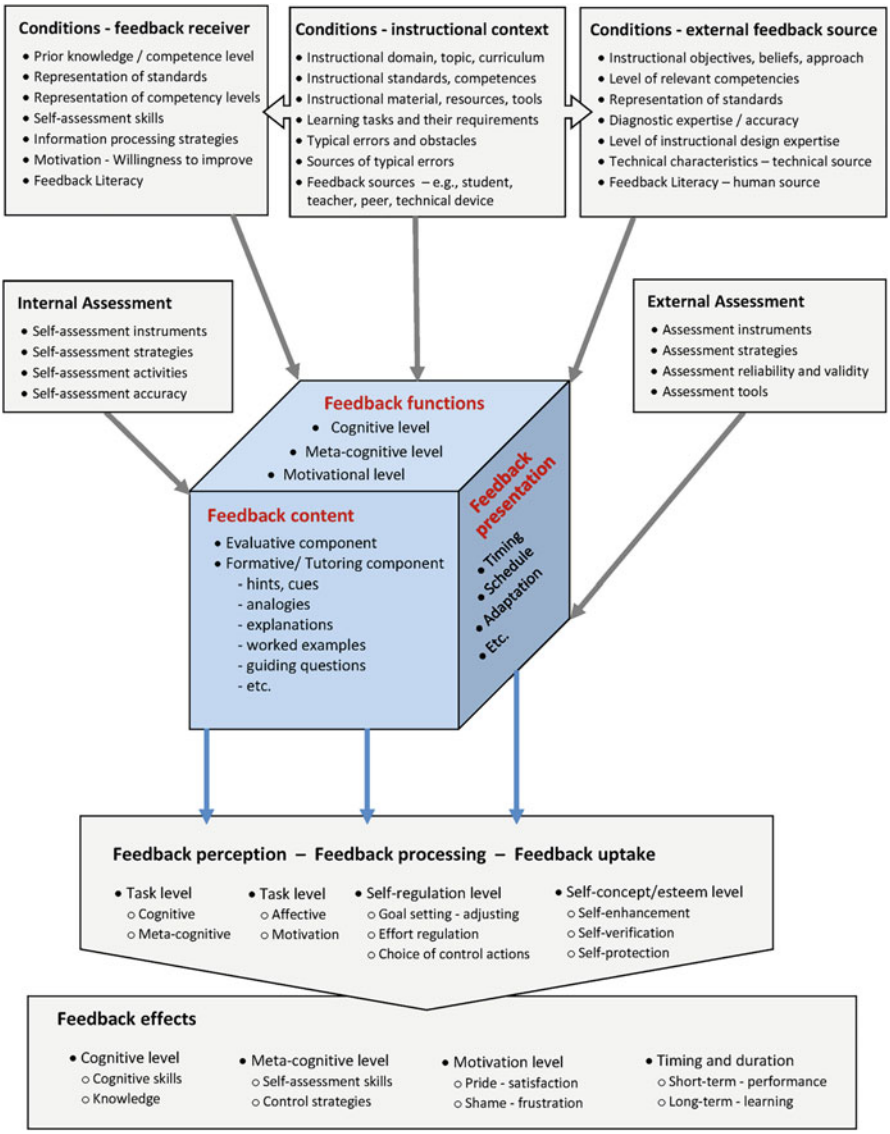

Fig. 4 Heuristic research model eliciting design and research issues on formative feedback for an instructional context

contribute to effective formative assessment (e.g., Todd & Hammer, 2021). According to Bailey and Garner (2010), it seems that a feedback culture as an enacted top-down process does not lead to the desired effects. They conclude from their study (p. 196) that: "Teachers, like students, may experience a sense of disengagement with higher education practices ostensibly designed to support

pedagogical and communicative interactions. Both parties may wonder if feedback is worth the paper it is written on."

Core Findings

While there is a growing body of qualitative research on formative assessment and feedback in higher education, experimental studies in higher education contexts are rare (Evans, 2013; Morris et al., 2021). Thus, to date there is little experimental evidence on the conditions and effects of formative assessment and feedback strategies in these contexts (Morris et al., 2021). In their narrative synthesis of 28 studies (selected from 188 according to quality criteria), Morris and colleagues provide an overview on the empirical evidence regarding the main topics that have been addressed within these studies, including (1) content and delivery of formative assessment and feedback; (2) feedback timing and scheduling; (3) quizzing and testing; (4) peer assessment or peer feedback strategies; and (5) role of technology for providing feedback. In summary, their narrative synthesis reveals the following findings: Studies addressing issues within topic (1) vary in the types of feedback content they compare, their contexts are diverse, and they reveal that providing at least simple feedback is more effective than providing no feedback but that the effects of elaborated feedback vary depending on the characteristics of students and tasks. Studies addressing issues related to feedback timing provided rather mixed results. Studies on the assessment strategy of low stakes-quizzing and testing suggest that these strategies are promising. Studies on issues related to peer assessment and feedback suggest that their benefits depend on implementation factors. Studies investigating how technology-enhanced implementations of formative assessment and feedback strategies influence students' learning are of uneven quality and also provide a mixed picture. Thus, it is difficult to derive clear implications of their benefits and constraints; the authors emphasize that further high-quality studies on the causal link between technology-enhanced assessment and feedback are needed.

Interestingly, the synthesis provided by Morris et al. (2021) about research evidence on formative assessment and feedback effects in higher education overlaps considerably with the synthesis of findings from feedback research across all educational domains provided by Narciss (2008). Accordingly, the following conclusions are worth emphasizing:

Formative assessment and feedback strategies have be viewed as multidimensional instructional approaches. As depicted in Figs. 2 and 4, their effects occur through an interaction with the learner. This in turn means that the effects of various types of external feedback are not general, but only emerge depending on individual and context-related factors. For example, the amount of time it takes for errors to be eliminated with the help of external feedback depends on (a) the characteristics of the learner; (b) the quality of the external feedback design; (c) the type, complexity, and difficulty of the tasks; and (d) the type of error. In highly skilled learners, or with easy tasks or simple slips, simple outcome feedback might be sufficient to yield a correct response the next time or to improve learning. In

learners with a low level of skill working on very complex and difficult tasks, or when errors are serious, it is possible that even elaborated formative feedback may not be sufficient for promoting mastery of the high demands.

How and on what levels of regulation learners perceive, process, and take up the information provided by the external feedback also significantly influences whether and how the effects of this information can unfold. The feedback processing should be mindful and requires that one have the competence to exploit feedback information in the service of one's own learning despite the potentially negative affective reactions that aspects of critical feedback might create. This competence has been referred to as feedback literacy (Carless & Boud, 2018). In addition to the cognitive dispositions of the learner (e.g., prior knowledge, strategic knowledge), individual motivational factors such as self-efficacy and perceived task values and individual meta-cognitive factors such as monitoring competencies and strategies play a role. Hence, in order to draw differentiated conclusions about the effects of various types of external feedback, not only cognitive but also individual motivational and meta-cognitive factors and the nature of individual feedback processing should be investigated.

Effects of feedback can occur on various levels (task, self-regulation, self-esteem) and can be more or less sustainable, i.e., range from short-term performance effects to long-lasting learning effects. Thus, to gain a differentiated picture of the benefits and constraints of various feedback strategies, evaluating their effects requires collecting data both during and after the treatment (Narciss, 2008).

Current Trends

As summarized so far, a wide range of research on formative assessment and feedback strategies has been carried out in all instructional contexts, including higher education, and these research activities continue. After reviewing the core of recent research findings, we identified five trends we consider to be of particular interest for establishing effective formative assessment and feedback practices in psychology teaching and learning:

1. Empowering Students to Self-Assess and Generate Internal Feedback

Students in higher education have to self-regulate their learning. Since Butler and Winne's (1995) seminal synthesis of feedback and self-regulated learning, self-assessment and the ability to generate adequate internal feedback is considered a crucial factor for promoting self-regulated learning. Investigating the conditions and effects of self-assessment and internal feedback is still the focus of current research (e.g., Nicol, 2019; Nicol, 2021; Panadero, Lipnevich, & Broadbent, 2019).

2. Empowering Students to Peer-Assess and Generate Peer Feedback

Peer assessment and feedback strategies have been found to promote students' learning and performance if they are implemented adequately (e.g., Double,

McGrane, & Hopfenbeck, 2020; Li, Xiong, Hunter, Guo, & Tywoniw, 2020; Morris et al., 2021). However, many factors have to be taken into account, and thus, issues of how to promote peer assessment and feedback are still being addressed by current research. How peer assessment influences self-assessment is an important issue addressed by several research groups (e.g., Iglesias Pérez, Vidal-Puga, & Pino Juste, 2020; To & Panadero, 2019; Wanner & Palmer, 2018).

3. Empowering Students to Be Feedback Literate

As mentioned above, the mindful processing and taking up of the information provided by external feedback is crucial for the effectiveness of formative assessment and feedback. Carless and colleagues have developed the concept of *feedback literacy*, to refer to the competence of exploiting the feedback information in service of one's own learning despite the potentially negative affective reactions critical feedback aspects might prompt (e.g., Carless & Boud, 2018). Research on students' feedback literacy is still in its infancy but is receiving increasing attention in current research (e.g., Chong, 2021; de Kleijn, 2021; Winstone, Balloo, & Carless, 2022).

4. Empowering Teachers to Be Feedback Literate

Teachers' competences in designing and implementing effective formative assessment and feedback strategies (also referred to as teacher feedback literacy) have received increasing attention in research in recent years (e.g., Boud & Dawson, 2021). Some of the research in this field is linked to students' feedback literacy (e.g., Carless & Winstone, 2020; de Kleijn, 2021). Other research activities relate to issues of how to promote and support teachers in developing and applying the core competences in mastering the complex practice of formative assessment and feedback (e.g., Narciss et al., 2021; Wylie & Lyon, 2020).

5. Exploiting and Investigating the Potential of Modern Information Technologies

Modern information technologies increase the range of feedback strategies that can be implemented in instructional contexts. Technologies can, for example, support in various ways the phases of the assessment cycle. New, innovative interactive test-items using multimedia technology can be developed. Assessment instruments can be electronically implemented and delivered, for example, via learning platforms or in all kinds of online learning environments. Learner activities within online learning environments can be traced in logfiles, and learning analytics can be used to use these logfiles for assessment purposes. Results of data analyses can be visualized, and these visualizations can be used as components of interactive feedback strategies. Yet, as revealed by the experiences of the online shift due to the COVID-19 pandemic, as well as by recent research (e.g., Goldin, Narciss, Foltz, & Bauer, 2017; Spector et al., 2016; Wang & Han, 2021; Xiong & Suen, 2018), many issues related to formative e-assessment and feedback remain unanswered, and thus, this

field of research needs, and will undoubtedly receive, intensive attention in future research.

Challenges and Implications for Learning and Teaching Psychology

Implementing formative assessment and feedback strategies is a complex endeavor in which teachers and learners have to tackle a number of challenges, particularly in courses with an extremely unbalanced instructor-student ratio. In such courses, there are many practical difficulties that need to be taken care of, and solving these difficulties is very time-consuming, especially where there is a lack of sophisticated technologies. Thus, formative assessment has not yet received enough attention in such courses – and this holds true even for technology-enhanced environments such as massive open online courses (MOOCs; Xiong & Suen, 2018).

One suggested solution for tackling these challenges is using formative self- as well as peer assessment and feedback strategies. However, according to Wanner and Palmer (2018), successful self and peer assessment requires the development of students' capacities for using assessment criteria and giving feedback, as well as the continuous and timely involvement of the teacher. Thus, implementing self- and peer assessment is not simple for teachers or students. Accordingly, it is valuable to have many kinds of (collaborative) activities for developing and sharing strategies, tools, instruments, etc. that support the implementation of formative assessment and feedback strategies, especially in large courses (for a recent collection of such activities see Nolan et al., 2021).

The knowledge domains in all fields of psychology teaching and learning are very complex and thus more or less ill-structured. Developing and implementing formative assessment and feedback strategies for ill-structured knowledge domains is far more difficult than for well-structured domains, because it is challenging to identify and specify clear success criteria and their standards and develop a common ground regarding those criteria and standards. The shift to competency-oriented professional frameworks has added further challenges (e.g., Gonsalvez, Shafranske, McLeod, & Falender, 2021; Rodolfa & Schaffer, 2019). For example, designing reliable and valid assessment tasks and tools for professional competences is very demanding. A promising approach in the field of clinical psychology has been recently published by Gonsalvez and colleagues (Gonsalvez, Deane, Terry, Nasstasia, & Shires, 2021).

As mentioned in section "Current Trends," exploiting and investigating the potential of modern information and communication technologies (ICT) for formative assessment and feedback seems at first glance to be very promising. However, since so many technical as well as practical issues are still open, there is a lack of sophisticated tools. Moreover, technologies are mostly used to substitute traditional assessment practices by digital versions of them (e.g., Gikandi, Morrow, & Davis, 2011), and in many cases – rather than providing support – this creates an additional

load on both teachers and learners. However, according to Puentedura's Substitution, Augmentation, Modification, and Redefinition (SAMR) model, the full exploitation of the potential of ICT would require that it is used to modify and redefine formative assessment and feedback by, for example, creating new assessment tasks and feedback strategies that would not be possible without these technologies (Puentedura, 2012; see also Redecker & Johannessen, 2013). Core issues and approaches in this direction have been published in the book *Re-imagining University Assessment in a Digital World* (Bearman, Dawson, Ajjawi, Tai, & Boud, 2020).

Teaching, Learning, and Assessment Resources

Tips for Teaching and Learning

Prescriptive principles for designing formative assessment and feedback strategies have been suggested by several authors. We have described some of them in section "Approaches informing the design of formative assessment and feedback strategies" and will not repeat them here. However, we want to share here the following ten tips extracted from *Common Formative Assessment: A Toolkit for PLCs at Work* by Kim Bailey and Chris Jakicic (2011) and published by Bill Ferriter in his Teaching Quality Blog (http://bit.ly/10Tips4FormAss).

1. ***Remember That Getting Information Quickly and Easily Is Essential***

   Assessment information is only valuable if you are actually willing and able to collect it and you can act on it in a timely manner. That simple truth should fundamentally change the way that you think about assessments.

2. ***Write Your Assessments and Scoring Rubrics Together Even If That Means You Initially Deliver Fewer Common Assessments***

   Collaborative conversations about what to assess, how to assess, and what mastery looks like in action are just as valuable as student data sets.

3. ***Assess ONLY the Learning Outcomes That You Identified as Essential***

   Assessing nonessential standards just makes it more difficult to quickly and easily get – and to take action on – information.

4. ***Ask at Least Three Questions for Each Learning Outcome That You Are Trying to Test***

   That allows students to fail a question and still demonstrate mastery. Just as importantly, that means a poorly written question won't ruin your data set.

5. ***Test Mastery of No More Than Three or Four Learning Targets per Assessment***

Doing so makes remediation after an assessment doable. Can you imagine trying to intervene when an assessment shows students who have struggled to master more than four learning outcomes?

6. ***Clearly Tie Every Single Question to an Essential Learning Outcome***

Doing so makes it possible to track mastery by student and standard. Your data sets have more meaning when you can spot patterns in mastery of the outcome – not the question.

7. ***Choose Assessment Types That Are Appropriate for the Content or Skills That You Are Trying to Measure***

Using performance assessments to measure the mastery of basic facts is overkill. Similarly, using a slew of multiple-choice questions to measure the mastery of complex thinking skills is probably going to come up short.

8. ***When Writing Multiple-Choice Questions, Use Wrong Answer Choices to Highlight Common Misconceptions***

The patterns found in the WRONG answers of well-written tests can tell you just as much as the patterns found in the RIGHT answers. If you fill your test with careless or comical distractors, you will miss out on an opportunity to learn more about your students.

9. ***When Writing Constructed Response Questions, Provide Students with Enough Context to Allow Them to Answer the Question***

Context plays a vital role in constructing a meaningful response to any question. Need proof? Suppose that a teenage daughter asks her parent, "Can I go to the mall with some friends tonight?" Will the parent ask a few questions before saying yes?

10. ***Make Sure That Higher Level Questions Ask Students to Apply Knowledge and/or Skills in New Situations***

A higher level question that asks students to apply knowledge in the same way as they have previously practiced becomes a lower level question.

Recommended Readings

The following books view formative assessment and feedback as a shared enterprise offering teachers and students opportunities for developing their knowledge, competencies, and identities.

Bearman, M., Dawson, P., Ajjawi, R., Tai, J., & Boud, D. (Eds.). (2020). *Re-imagining university assessment in a digital world*. Singapore: Springer Nature

Carless, D., Bridges, S.M.; Chan, C.K.Y., & Glofcheski, R. (Eds.). (2017). *Scaling up assessment for learning in higher education*. Singapore: Springer Nature.

Nolan, S. A., Hakala, C. M., & Landrum, R. E. (Eds.). (2021). *Assessing undergraduate learning in psychology: Strategies for measuring and improving student performance*. Washington D.C.: American Psychological Association.

Winstone, N., & Carless, D. (2019). *Designing effective feedback processes in higher education: A learning-focused approach*. New York: Routledge.

Online-Resources and Tools

The quickly growing field of formative assessment and feedback in higher education has inspired the development of numerous online resources and tools. The following URLs provide access to valuable resources and tools:

1. APA online resources: https://www.apa.org/ed/graduate/competency.html https://www.apa.org/ed/governance/bea/assess

The APA Board of Educational Affairs has a rich section on issues of professional competencies and their assessment including "*The Assessment CyberGuide for Learning Goals and Outcomes*" compiled 2009 by Thomas Pusateri with assistance from Jane Halonen, Bill Hill & Maureen McCarthy.

2. https://stll.au.dk/en/resources/assessment-methods/innovative-assessment/

This URL link is taken from the website of Aarhus University (Denmark), which describes innovative assessment methods as "hardly used methods of assessment at the Natural Sciences and Technical Sciences faculties." The website lists five innovative methods. These include portfolio, case study, innovative computer-based assessment, and objective structured practical/clinical exam.

3. https://www.open.edu/openlearn/ocw/mod/oucontent/view.php?id=106399&section=_unit1.2.2

Innovative Assessment Methods is a free module offered by Open University (UK). The module equips learners with the skills that enable them to identify and create innovative assessment methods as well as identify enablers and hindrances to innovative assessment. Additionally, learners learn how to make use of assessment tools, as well as analyze the effectiveness of such tools. The module is to be completed in 4 weeks. Key topics that have been covered include competence-based curriculum, formative and summative assessment, and principles of pedagogical techniques.

4. https://www.queensu.ca/teachingandlearning/modules/assessments/31_s4_01_intro_section.html

Queen's University Canada offers a module called assessment strategies. The module comprises 11 sections and covers topics such as concept maps, concept tests, E-portfolios, and podcasts and vlogs as examples of innovative assessments. Diagnostic, formative, and summative are considered as assessment types. Other topics that have been included are assessment methods and assessment tools. The module helps learners to develop skills that enable them to design formative assessment techniques and criticize assessment methods.

5. Peerwise - https://peerwise.cs.auckland.ac.nz/

Peerwise is a free online tool in which students learn through teaching. Students create multiple-choice questions along with answers and explanations. Peers attempt to answer these questions and compare their answers against those of the authors. Peers can also leave a comment or agree/disagree with a previous comment. The platform has competitive features that allow participants to earn scores and badges based on their contribution.

Cross-References

- ▶ Assessment of Learning in Psychology
- ▶ First Principles of Instruction Revisited
- ▶ Psychological Assessment and Testing
- ▶ Psychology in Professional Education and Training

References

Ajjawi, R., Kent, F., Broadbent, J., Hong-Meng Tai, J., Bearman, M., & Boud, D. (2021). Feedback that works: A realist review of feedback interventions for written tasks. *Studies in Higher Education*. https://doi.org/10.1080/03075079.2021.1894115

Andrade, H., & Cizek, G. (Eds.). (2010). *Handbook of formative assessment*. New York: Routledge.

Bailey, R., & Garner, M. (2010). Is the feedback in higher education assessment worth the paper it is written on? Teachers' reflections on their practices. *Teaching in Higher Education, 15*(2), 187–198. https://doi.org/10.1080/13562511003620019

Bearman, M., Dawson, P., Ajjawi, R., Tai, J., & Boud, D. (Eds.). (2020). *Re-imagining university assessment in a digital world*. Springer.

Beaumont, C., O'Doherty, M., & Shannon, L. (2011). Reconceptualising assessment feedback: A key to improving student learning? *Studies in Higher Education, 36*, 671–687.

Biggs, J., & Tang, C. (2007). *Teaching for quality learning at university. What the student does* (3rd ed.). Maidenhead: McGraw-Hill.

Black, P., & McCormick, R. (2010). Reflections and new directions. *Assessment & Evaluation in Higher Education, 35*(5), 493–499.

Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice, 5*(1), 7–74.

Black, P., & Wiliam, D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation and Accountability, 21*(1), 5–31.

Boston, C. (2002). The concept of formative assessment. *Practical Assessment, Research, and Evaluation, 8*. https://doi.org/10.7275/kmcq-dj31. https://scholarworks.umass.edu/pare/vol8/iss1/9

Boud, D., & Dawson, P. (2021). What feedback literate teachers do: An empirically-derived competency framework. *Assessment & Evaluation in Higher Education*. https://doi.org/10.1080/02602938.2021.1910928

Boud, D., & Molloy, E. (Eds.). (2013). *Feedback in higher and professional education: Understanding it and doing it well*. London: Routledge.

Butler, D. L., & Winne, P. H. (1995). Feedback and self-regulated learning: A theoretical synthesis. *Review of Educational Research, 65*, 245–281.

Carless, D. (2020). From teacher transmission of information to student feedback literacy: Activating the learner role in feedback processes. *Active Learning in Higher Education*. https://doi.org/10.1177/1469787420945845

Carless, D., & Boud, D. (2018). The development of student feedback literacy: Enabling uptake of feedback. *Assessment & Evaluation in Higher Education, 43*(8), 1315–1325. https://doi.org/10.1080/02602938.2018.1463354

Carless, D., & Winstone, N. (2020). Teacher feedback literacy and its interplay with student feedback literacy. *Teaching in Higher Education*, 1–14. https://doi.org/10.1080/13562517.2020.1782372

Carless, D., Salter, D., Yang, M., & Lam, J. (2011). Developing sustainable feedback practices. *Studies in Higher Education, 36*(4), 395–407.

Carless, D., Bridges, S. M., Chan, C. K. Y., & Glofcheski, R. (Eds.). (2017). *Scaling up assessment for learning in higher education*. Singapore: Springer.

Chong, S. W. (2021). Reconsidering student feedback literacy from an ecological perspective. *Assessment & Evaluation in Higher Education, 46*(1), 92–104.

Clark, J. , Porath, S., Thiele, J., & Jobe, M. (2020). *Action research*. NPP eBooks. 34. Online: https://newprairiepress.org/ebooks/34

Cranney, J., Hulme, J. A., Suleeman, J., Job, R., & Dunn, D. S. (2021). Assessing learning outcomes in undergraduate psychology education: Lessons learned from five countries. In S. A. Nolan, C. M. Hakala, & R. E. Landrum (Eds.), *Assessing undergraduate learning in psychology: Strategies for measuring and improving student performance* (pp. 179–201). Washington, D.C.: American Psychological Association. https://doi.org/10.1037/0000183-013

de Kleijn, R. A. (2021). Supporting student and teacher feedback literacy: An instructional model for student feedback processes. *Assessment & Evaluation in Higher Education*. https://doi.org/10.1080/02602938.2021.1967283

Double, K. S., McGrane, J. A., & Hopfenbeck, T. N. (2020). The impact of peer assessment on academic performance: A meta-analysis of control group studies. *Educational Psychology Review, 32*(2), 481–509.

Evans, C. (2013). Making sense of assessment feedback in higher education. *Review of Educational Research, 83*(1), 70–120.

Fouad, N. A., Grus, C. L., Hatcher, R. L., Kaslow, N. J., Hutchings, P. S., Madson, M. B., Collins, F. L., & Crossman, R. E. (2009). Competency benchmarks: A model for understanding and measuring competence in professional psychology across training levels. *Training and Education in Professional Psychology, 3*(4), 5–26. https://doi.org/10.1037/a0015832

Fouad, N. A., Hatcher, R. L., & McCutcheon, S. (2022). Introduction to the special issue on competency in training and education. *Training and Education in Professional Psychology, 16*(2), 109–111. https://doi.org/10.1037/tep0000408

Gikandi, J. W., Morrow, D., & Davis, N. E. (2011). Online formative assessment in higher education: A review of the literature. *Computers & education, 57*(4), 2333–2351.

Goldin, I., Narciss, S., Foltz, P., & Bauer, M. (2017). New directions in formative feedback in interactive learning environments. *International Journal of Artificial Intelligence in Education, 27*(3), 385–392. https://doi.org/10.1007/s40593-016-0135-7

Gonsalvez, C. J., Deane, F. P., Terry, J., Nasstasia, Y., & Shires, A. (2021). Innovations in competence assessment: Design and initial validation of the Vignette Matching Assessment Tool (VMAT). *Training and Education in Professional Psychology, 15*(2), 106–116. https://doi.org/10.1037/tep0000302

Gonsalvez, C. J., Shafranske, E. P., McLeod, H. J., & Falender, C. A. (2021). Competency-based standards and guidelines for psychology practice in Australia: opportunities and risks. *Clinical Psychologist, 25*(3), 244–259. https://doi.org/10.1080/13284207.2020.1829943

Hattie, J. A. (2009). *Visible learning. A synthesis of over 800 meta-analyses relating to achievement*. New York: Routledge.

Hattie, J. A., & Gan, M. (2011). Instruction based on feedback. In R. Mayer & P. Alexander (Eds.), *Handbook of research on learning and instruction* (pp. 249–271). New York: Routledge.

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*, 81–112.

Henderson, M., Ajjawi, R., Boud, D., & Molloy, E. (Eds.). (2019). *The impact of feedback in higher education: Improving assessment outcomes for learners*. Singapore: Springer.

Iglesias Pérez, M. C., Vidal-Puga, J., & Pino Juste, M. R. (2020). The role of self and peer assessment in Higher Education. *Studies in Higher Education*, 1–10. https://doi.org/10.1080/03075079.2020.1783526

Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin, 119*(2), 254.

Li, H., Xiong, X., Hunter, C. V., Guo, X., & Tywoniw, R. (2020). Does peer assessment promote student learning? A meta-analysis. *Assessment & Evaluation in Higher Education, 45*(2), 193–211. https://doi.org/10.1080/02602938.2019.1620679

Lipnevich, A., & Panadero, E. (2021). A review of feedback models and theories: Descriptions, definitions, and conclusions. *Frontiers in Education*. https://doi.org/10.3389/feduc.2021.720195

Mathan, S. A., & Koedinger, K. R. (2005). Fostering the intelligent novice: Learning from errors with metacognitive tutoring. *Educational Psychologist, 40*(4), 257–265.

Morris, R., Perry, T., & Wardle, L. (2021). Formative assessment and feedback for learning in higher education: A systematic review. *Review of Education, 9*(3). https://doi.org/10.1002/rev3.3292

Mory, E. H. (2004). Feedback research revisited. In D. H. Jonassen (Ed.), *Handbook of research on educational communications and technology* (2nd ed., pp. 745–783). Mahwah, NJ: Lawrence Erlbaum Associates.

Narciss, S. (2004). The impact of informative tutoring feedback and self-efficacy on motivation and achievement in concept learning. *Experimental Psychology, 51*(3), 214–228.

Narciss, S. (2006). *Informatives tutorielles feedback* [Informative tutorial feedback]. *Entwicklungs- und Evaluationsprinzipien auf der Basis instruktionspsychologischer Erkenntnisse*. Münster: Waxmann.

Narciss, S. (2008). Feedback strategies for interactive learning tasks. In J. M. Spector, M. D. Merrill, J. J. G. van Merrienboer, & M. P. Driscoll (Eds.), *Handbook of research on educational communications and technology* (3rd ed., pp. 125–144). Mahwah, NJ: Lawrence Erlbaum Associates.

Narciss, S. (2012). Feedback strategies. In N. Seel (Ed.), *Encyclopedia of the learning sciences* (Vol. F(6), pp. 1289–1293). New York: Springer.

Narciss, S. (2013). Designing and evaluating tutoring feedback strategies for digital learning environments on the basis of the interactive tutoring feedback model. *Digital Education Review, 23*, 7–26. Retrieved from http://greav.ub.edu/der

Narciss, S. (2017). Conditions and effects of feedback viewed through the lens of the Interactive Tutoring Feedback Model. In D. Carless, S. M. Bridges, C. K. Y. Chan, & R. Glofcheski (Eds.), *Scaling up assessment for learning in higher education* (pp. 173–189). Singapore: Springer.

Narciss, S., Hammer, E., Damnik, G., Kisielski, K., & Körndle, H. (2021). Promoting prospective teacher competencies for designing, implementing, evaluating, and adapting interactive formative feedback strategies. *Psychology Learning & Teaching, 20*(2), 261–278.

Narciss, S., & Huth, K. (2006). Fostering achievement and motivation with bug-related tutoring feedback in a computer-based training on written subtraction. *Learning and Instruction, 16*, 310–322.

Narciss, S., Schnaubert, L., Andres, E., Eichelmann, A., Goguadze, G., & Sosnovsky, S. (2014). Exploring feedback and student characteristics relevant for personalizing feedback strategies. *Computers & Education, 71*, 56–76.

Natriello, G. (1987). The impact of evaluation processes on students. *Educational Psychologist, 22*(2), 155–175.

Nicol, D. (2019). Reconceptualising feedback as an internal not an external process. *Italian Journal of Educational Research*, 71–84.

Nicol, D. (2021). The power of internal feedback: Exploiting natural comparison processes. *Assessment & Evaluation in Higher Education, 46*(5), 756–778.

Nicol, D. J., & Macfarlane-Dick, D. (2006). Formative assessment and self-regulated learning: A model and seven principles of good feedback practice. *Studies in Higher Education, 31*, 199–218.

Nolan, S. A., Hakala, C. M., & Landrum, R. E. (Eds.). (2021). *Assessing undergraduate learning in psychology: Strategies for measuring and improving student performance*. Washington, D.C.: American Psychological Association.

Panadero, E., & Lipnevich, A. (2021). A review of feedback typologies and models: Towards an integrative model of feedback elements. *Educational Research Review, 100416*. https://doi.org/10.1016/j.edurev.2021.100416

Panadero, E., Lipnevich, A., & Broadbent, J. (2019). Turning self-assessment into self-feedback. In M. Henderson, R. Ajjawi, D. Boud, & E. Molloy (Eds.), *The impact of feedback in higher education* (pp. 147–163). Cham: Palgrave Macmillan.

Price, M., Handley, K., & Millar, J. (2011). Feedback: Focusing attention on engagement. *Studies in Higher Education, 36*, 879–896.

Puentedura, R. *(*2012). *Building Upon SAMR.* www.hippasus.com/rrpweblog/archives/2012/09/03/BuildingUponSAMR.pdf

Ramaprasad, A. (1983). On the definition of feedback. *Behavioral Science, 28*, 4–13.

Redecker, C., & Johannessen, Ø. (2013). Changing assessment – Towards a new assessment paradigm using ICT. *European Journal of Education, 48*(1), 79–96.

Reinholz, D. (2016). The assessment cycle: A model for learning through peer assessment. *Assessment & Evaluation in Higher Education, 41*(2), 301–315.

Robinson, S., Pope, D., & Holyoak, L. (2013). Can we meet their expectations? Experiences and perceptions of feedback in first year undergraduate students. *Assessment & Evaluation in Higher Education, 38*, 260–272.

Rodolfa, E., & Schaffer, J. (2019). Challenges to psychology education and training in the culture of competence. *American Psychologist, 74*(9), 1118–1128. https://doi.org/10.1037/amp0000513

Sadler, D. R. (1989). Formative assessment and the design of instructional system. *Instructional Science, 18*, 119–144.

Shute, V. J. (2008). Focus on formative feedback. *Review of Educational Research, 78*, 153–189.

Spector, J. M., Ifenthaler, D., Samspon, D., Yang, L., Mukama, E., Warusavitarana, A., . . . Gibson, D. C. (2016). Technology enhanced formative assessment for 21st century learning. *Educational Technology & Society, 19*(3), 58–71.

To, J., & Panadero, E. (2019). Peer assessment effects on the self-assessment process of first-year undergraduates. *Assessment & Evaluation in Higher Education, 44*(6), 920–932.

Todd, J. S., & Hammer, E. Y. (2021). How to create a culture of assessment. In S. A. Nolan, C. M. Hakala, & R. E. Landrum (Eds.), *Assessing undergraduate learning in psychology: Strategies for measuring and improving student performance* (pp. 67–76). Washington, D.C.: American Psychological Association. https://doi.org/10.1037/0000183-006

Van der Kleij, F. M., & Lipnevich, A. A. (2021). Student perceptions of assessment feedback: A critical scoping review and call for research. *Educational Assessment, Evaluation and Accountability, 33*(2), 345–373.

Wang, D., & Han, H. (2021). Applying learning analytics dashboards based on process-oriented feedback to improve students' learning effectiveness. *Journal of Computer Assisted Learning, 37*(2), 487–499.

Wanner, T., & Palmer, E. (2018). Formative self-and peer assessment for improved student learning: the crucial factors of design, teacher participation and feedback. *Assessment & Evaluation in Higher Education, 43*(7), 1032–1047. https://doi.org/10.1080/02602938.2018.1427698

Whitmore, J. (2010). Coaching for Performance: *The principles and practice of coaching and leadership fully revised 25th anniversary edition*. Hachette UK.

Wiener, N. (1954). *The human use of human beings: Cybernetics and society.* Oxford: Houghton Mifflin.

Wiliam, D. (2006). Formative assessment: Getting the focus right. *Educational Assessment, 11*(3-4), 283–289.

Wiliam, D. (2010). An integrative summary of the research literature and implications for a theory of formative assessment. In H. Andrade & G. Cizek (Eds.), *Handbook of formative assessment* (pp. 18–40). New York: Routledge.

Wiliam, D., & Thompson, M. (2007). Integrating assessment with instruction: What will it take to make it work? In C. A. Dwyer (Ed.), *The future of assessment: Shaping teaching and learning* (pp. 53–82). Lawrence Erlbaum Associates.

Winstone, N. E., Balloo, K., & Carless, D. (2022). Discipline-specific feedback literacies: A framework for curriculum design. *Higher Education, 83*, 57–77. https://doi.org/10.1007/s10734-020-00632-0

Winstone, N., & Carless, D. (2019). *Designing effective feedback processes in higher education: A learning-focused approach*. London: Routledge.

Wylie, E. C., & Lyon, C. J. (2020). Developing a formative assessment protocol to support professional growth. *Educational Assessment, 25*(4), 314–330.

Xiong, Y., & Suen, H. K. (2018). Assessment approaches in massive open online courses: Possibilities, challenges and future directions. *International Review of Education, 64*, 241–263. https://doi.org/10.1007/s11159-018-9710-5

Technology-Enhanced Psychology Learning and Teaching

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Helmut Niegemann

Contents

H. Niegemann (✉)
Saarland University, Educational Technology, Saarbrücken, Germany
e-mail: helmut.niegemann@uni-saarland.de

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Abstract

The design and development of technology-enhanced psychology learning units underly the same principles as any other content. The specificity results from variables concerning the structure of the respective subject matter and variables of the learners. The chapter shows main aspects of the instructional design (ID) of multimedia-supported psychology teaching units to be considered in ID decisions. These aspects are bundled in the DO ID framework model; the focus here is on suitable formats of instruction and technical topics.

Keywords

Instructional design · Formats · Simulation · Interactive videos

Introduction

In 2020, due to the Corona pandemic, technology-enhanced learning and teaching changed from an optional, often occasional, or experimental format of teaching to the standard format. Many lecturers and professors had to flip their complete teaching habits and behavior in a short time. On the other hand, the use of multimedia-based teaching started in many domains of university teaching, including psychology, at least in Germany 20 years ago, when governmental programs fostered the use of computers and the Internet in universities. The favorite method of digital teaching has been recording normal lectures, more or less post-processed and made available on specific streaming servers in addition to or as a substitution for face-to-face lectures. Besides storage of learning material on learning platforms, other methods of technology-based teaching were quite seldom. There are several reasons (before the pandemic) for the slow adoption of the use of digital systems for teaching by professors and lecturers (not only) in psychology. One reason could be the lack of systematic knowledge and skills to use digital media efficiently in university teaching. The academic disciplines, which deal with the technological application of multimedia learning research, are educational technology (ET) and its sub-discipline instructional design (ID). Both are informed by instructional psychology and partly by computer science but being technological disciplines ET and ID normally do not just immediately apply results of psychological basic research. Technological statements need always to be specifically tested concerning side effects and the influence of moderating variables sometimes not taken into account by basic research. Criteria for the value of technological statements are not truth and reliability but the efficiency of problem-solving (Herrmann, 1979a, b; Bunge, 1998).

Purposes and Rationale

This chapter tries to point out and to discuss efficient possibilities of technology-enhanced psychology teaching and learning structured by an ID framework model (DO ID model). After a short glance backward on ID as a discipline, a framework ID

model is introduced which structures the presentation and discussion of the different facets of instructional design for technology-enhanced psychology teaching and learning. It should be made clear that instructional design is always a process of a series of interdependent *design decisions*, preferably based in general on theoretically based empirical findings and on the findings of thorough analyses concerning the specific conditions of the special case of conveying specific content to a specific group of people in a specific context. Being a framework model, the ID model focuses on aspects to be considered in the design; recommendations for specific design strategies can be found in specific ID models.

Design Issues and Approaches

Although educational psychologists did research on teaching and learning since the beginning of the discipline more than 100 years ago, the development of educational or instructional technology was not part of the research programs for a long time. Educational (instructional) technology in its infancy was mostly technology, i.e., the focus has been on the use of audiovisual technical devices (Saettler, 1990) in education. This lasted in general the image of educational (instructional) technology for the public, but it does not correspond to the self-image of the discipline whose most important part is instructional design (ID). When ID started to get a technological academic discipline in the 1960s, theories and models were not at all concerned with the teaching and learning with computers or other media.

The AECT defined the discipline as "[. . .] the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning" (Seels & Richey, 1994).

One reason ID became more and more associated with the use of computer technology could be the permanent need to meticulously design computer-supported formats of teaching, while classroom teaching allows improvisation and many (experienced) teachers do not seem to like precise planning of their lessons.

Based on and inspired by theoretical approaches and models of Gagné and Briggs (1979); Morrison, Ross, and Kemp (2004); Smith and Ragan (2005); Klauer (1985); and Oser and Baeriswyl (2001), the author and his co-operates developed a framework ID model aimed to provide an orientation especially for practitioners designing multimedia-based learning environments. The model does not prescribe or proposes fixed paths to build technology-enhanced teaching units but emphasizes facets to be considered in making design decisions allowing large spaces for instructional creativity. We called it decision-oriented ID model (DO ID model).

Decision-Oriented Instructional Design (DO ID) Model

The DO ID model (Fig. 1) is a framework model developed over the last 14 years (Niegemann, et al., 2008) to support instructional design by providing sound scientific information to make efficient ID decisions.

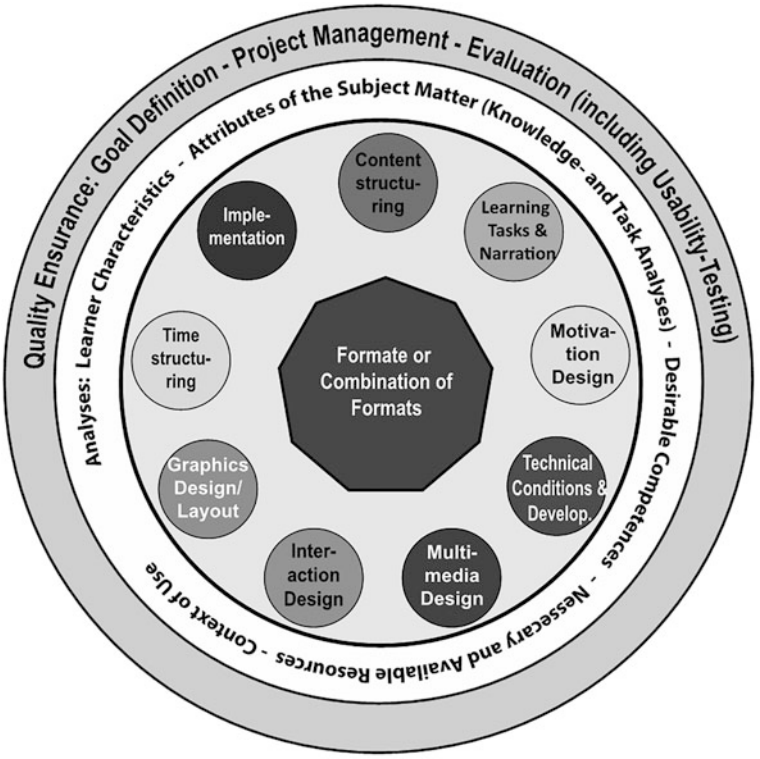

Fig. 1 Decision-oriented instructional design model (Niegemann, 2020; Korbach & Niegemann, 2020)

The model represents three areas of instructional design: (1) A goal perspective and measures to ensure an appropriate standard of quality (external shell); (2) suitable procedures to analyze the needs, the relevant conditions, and the context of the planned instructional programs (second shell); and (3) the fields of concrete decisions to be made by instructional designers. As a framework model, DO ID could not be seen as concurrent to specific ID models (e.g., 4C/ID model, van Merriënboer, & Kirschner, 2018), instead it shows what aspects of design decisions should be considered and refers to relevant research findings.

Inside the two shells of the model, there are ten fields representing categories of decisions to be made in any instructional design process. The field in the very middle of the model represents the decision for a format, sub-formats, or a combination of formats. Formats are more or less schematic ways to convey the subject matter, e.g., e-lectures, webinars, computer-supported collaborative learning, serious games, explain videos, simulations, etc. The decision for a specific format, or a combination of formats, is the first decision, and many other decisions are swayed by it. The course of the further decisions is mostly not linear, many decisions and their respective consequences interact.

Analyses

Analysis of the Addressees: Needs

Generally, essential features of the addressees should be assessed. In case of psychology students at universities, there is a relative homogeneous group concerning prior knowledge, cognitive abilities, and motivation. In cases of psychology courses in further education prior knowledge, the motivation to enroll in the course and attitudes toward the subject matter and the teaching method should be assessed.

Analysis of the Subject Matter

Teaching psychology as an academic domain comprehends theoretical knowledge but also procedural knowledge and strategic knowledge. Theoretical knowledge comprehends knowledge on relationships between concepts, including factual knowledge and conceptual knowledge.

Procedural knowledge is more differentiated concerning the structure of the abilities and skills, and it seems often not clearly separable from theoretical knowledge. Necessary competencies comprise developing hypotheses for research or diagnosing, designing empirical studies, developing and selecting tools and instruments for empirical studies (questionnaires, tests) or clinical use, application of tools and instruments, conducting statistical analyses, requiring statistical background knowledge, as well as the practical use of statistics software or even basic abilities in programming (e.g., R). The instructional challenges result not from the structure of the subject matter but from the pedagogical and instruction-specific relationships between the elements of the content.

Apart from the academic instruction, teaching clinical or counseling issues implies conveying behavioral skills ("soft skills") concerning the complete interaction with patients or clients.

Analysis of the Resources

This step requires an alignment of the required and the available resources. Resources comprehend money, space, hard- and software tools, time, and competencies of colleagues or co-operates. Except for the payment of the staff involved, money is also needed to pay missing material, travelling, etc. Any ID project has to compare the available resources and the ones required. Shortage concerning resources constraints decision options.

Formats

If there are no a priori decisions by principals, almost any instructional design process starts with a decision concerning the format of the instruction. Traditional

theoretical content, especially overviews or introductions, are often conveyed via lectures. Deepening or consolidation of the subject matter could be possible by practicing self-regulated learning via reading texts and writing essays. There are also practical exercises concerning skills and the linking of theory and practice by working on more or less authentic tasks. Technology-based instruction contains a series of formats which partly are trials to fulfill the instructional functions of traditional formats, partly they are designed to optimize or enhance classical formats. To classify formats (originally named "models") systematically from an instructional psychology point of view, W. Schnotz and a group of colleagues and co-operates proposed a de- and re-construction of formats describing and analyzing them by typical facets (dimensions) Schnotz et al. (2004, 76 f.):

Facets (dimensions) relevant for learning as construction of representatives

- Organization of information (canonical – problem-based structure)
- Level of abstraction (decontextualization – contextualization)
- Use of knowledge (explication – application)

Facets (dimensions) relevant for learning as increasing participants and control of the learning process

- Locus of control (external regulation – self-regulation)
- Direction of channel (one-way – two-way communication)
- Mode of activity (receptive – productive)

Four more facets seem relevant to analyze and differentiate formats 15 years later:

- Social organization (individual learning – collaborative learning)
- Time structuring (singular units – sequence of connected units)
- Relation to real life (fictional – near to real)
- Kind and size of the device respective the display

The defining features of the different formats provide indications which format could be preferred depending on the learning objectives. Easy to grasp basic knowledge may be conveyed by video-lectures (with a possibility to ask questions via a forum), whereas complex topics which can be discussed under different views would need a format with bi-directional communication

A list of common formats in university and company education comprehends

- *Web-lectures, E-lectures:* records of normal lectures in classrooms or lecture rooms presented after the application of post-production techniques via streaming servers.
- *Mini-lectures:* E-lectures recorded by the trainer or professor at the desktop at home or in a studio, mostly much shorter than the conventional 45/60 or even 80/90 min; education companies offer the format in the context of MOOCs (massive open online courses) in many teaching subjects, including psychology.

- *Tutorial programs:* classical computer-based trainings, comprehending written and/or spoken texts, pictures, short videos or animations, and quizzes or other kinds of assessment.
- *Online-seminars, webinars:* Synchronous or asynchronous seminars; groups of learners present and discuss knowledge together.
- *Simulations:* Use of models of a section of reality to learn by doing and/or problem-solving and exercising complex skills riskless, sometimes supervised by a trainer.
- *Serious games:* Kinds of simulations containing features of games but designed to foster learning. Learning tasks in serious games are often wrapped into more or less fictitious stories.
- *Goal-based scenarios:* Kind of game-like simulation of a complex task; conveying information and requiring decisions by the learners, followed by feedback as natural consequences. Different from serious games, there should be no elements which are not closely related to the subject matter;
- *Computer-based collaborative learning (CSCL):* Collaborative learning with learners connected via a computer network instead of sitting in the same room. Often the collaboration is "scripted," i.e. there is some guidance for the learners concerning their tasks.
- *Problem-based learning; case-based learning*: Learners solve problems or work on realistic cases in virtual situations; e.g., in clinical training a virtual patient is presented and the learners have to make a diagnosis or to decide for therapeutically measures
- *Explaining videos*: Short videos explaining clearly a fact or a situation, often using cartoon-like drawings.

Hybrid formats are

- *Flipped classroom/inverted classroom:* Information is provided via video-lectures to follow at home, but come together physically to discuss or to work practically hand-in-hand
- *Performance support systems:* Combination of short instructions (different formats), help system, and supporting tools (e.g., prepared Excel sheets, templates, questionnaire items) (Rosenberg, 2018)
- *Multimedia-assisted self-learning (MASL):* Self-regulated learning with texts or other sources, guided by an application program with hints, guidelines, self-assessment tasks, and feedback

The list is not complete and there are some overlapping and fluent transitions. Serious games and goal-based scenarios will probably even in near future play no role in psychology teaching practice due to high costs of development.

Criteria for the selection of a suitable format could be (a) the matches of the above described facets, (b) characteristics of the respective content, and (c) the desired learner activities in the context of different learning tasks. This will be discussed later.

Content Structuring

The structuring of the content follows often common textbooks. A major decision concerns always the *general instructional strategy*, i.e., the choice between an inductive (from the specific to the general) or deductive strategy (from the general to the specific). For *sequencing* decisions, the work of Reigeluth (1999) may be a fruitful guide. Considerations concerning *segmentation* are especially necessary if the format decision is for mini-lectures or micro-learning: How much information should be packed in one mini-lecture of, e.g., 15 min and how much on one page? How much in a micro-learning unit of 5 min? If learners use small displays and the displayed information can be controlled in advance by using an authoring system supporting features like fluent transition, the displayed portions of content should not be left to chance.

Learning Tasks and Narration

Understanding theories and methodological relationships are common learning tasks in most psychology courses. The more application oriented the subject matter is, the more practical (procedural) are the learning tasks and require interactive design.

Psychologists know of the important role of stories (Schank, 1990) for recall; technology-based instruction allows support by pictures, animations, and short videos. Even very short stories can be supportive if they are suited to get the attention of the learners and have them actively deal with the topic. Explaining videos including simple stories have been shown to be successful in company learning and could be generated quite easily even without excellent drawing skills (Zander, Behrens, & Mehlhorn, 2020).

Technical Aspects

For many professors and lecturers (not only) in psychology, a first question willing or forced to change the format of their teaching from the familiar face-to-face lectures, exercises, and seminars to online formats due to the pandemic regulations referred to the technical possibilities and resources. The origin of question mostly is "how can I use (which) technology to do my teaching as usual," i.e., the focus is understandably on the conservation of the familiar teaching methods, just by using technology.

The basic technical equipment consists of a desktop computer, at least a laptop. Most current computers have a built-in webcam and a microphone. While built-in webcams are often good enough to provide the image of the lecturer, the built-in microphones are mostly not sufficient for teaching tasks. Even rather cheap external microphones or headsets make a much better job. If pictures from printed material or physical material should be demonstrated a document camera could be useful investment. Separate loudspeakers could also be advantageous, although the light

should not be neglected. Additional LED lights could avoid backlight or hard shadow effects in the face of the instructor. If the normal background of the workplace should not be seen by the learners, a blue (or green) screen could be used to show an individually selected or corporate identity compliant background picture. Some software products produce the same effect by AI technic.

The required software equipment depends partly on the format decision: In case of home or desktop made (mini-)lectures for asynchronous presentation, a recording software is required. Cost-free products are available (e.g., OBS) as well as commercial recording and production software (e.g., Camtasia, Capture). These software products allow records of the computer display (or a defined part of it) along with a picture of the speaker and the tone. The records offer possibilities of post-production (cutting, inserting assets like intros or outros, videos, etc.) and the record can be rendered into different formats (e.g., avi., .wmv, .mov, .mp4). Recording a sequence of slides with the spoken explanations of the instructor is also possible with common presentation software (e.g., Microsoft PowerPoint, Apple Keynote), including the production of a video, but without the speaker's picture.

To organize synchronous online-lectures, a video conferencing system is necessary. Probably all universities and most schools and education companies today have one or more conference systems licensed, e.g., Zoom, Teams, Webex, Adobe Connect, GoToMeeting, and Vitaro.

There rather small differences in the functionalities of these software. Helpful are

- Opportunities for participants to (virtually) put ones hand up
- The possibility to assign small groups of learners into different breakrooms to collaborate on a task
- Different opportunities for feedback during or after the end of a presentation
- The visibility of all participants during a session
- Chat functions

In case of the decision for the production of classical e-learning units (sequences of text, speech, pictures, animations, quizzes, and interactive work on tasks and problems with more or less rich feedback), an authoring system is necessary (e.g., Adobe Captivate, Articulate, Lectorate, iSpring). Authoring software allows to put all the categories of information presentation as well as some interactivity on the screen, and the pace of learning is mostly self-regulated by learners.

To offer all kinds of instructional presentations, a learning platform (learning management system, LMS) is essential. Widespread systems (e.g., Moodle, Canvas, Adobe Captivate Prime, easyLMS, NeoLMS; in Germany Ilias, OLAT) are quite similar concerning most functions. The LMS offer functionalities to present information in different formats:

- Discussing subject matter or other topics in forums
- To upload and download instructional materials
- To upload assignments
- To structure the evaluation and the grading of assignments

- To insert links to libraries
- To send e-mails or messages to all or a part of the participants
- To administrate the roles and rights of teachers, tutors, learners, etc.

Most LMS are compatible with worldwide accepted norms like SCORM (sharable content object reference model), LOM (learning objects metadata), or xAPI, and compliant learning programs are therefore interchangeable.

If images or photos should be digitally processed, changed, adapted, or optimized before included in an instructional unit, some kind of image processing software is required, e.g., GIMP (free), Photoshop, or Affinity.

Virtual reality (VR), augmented reality (AR), or mixed reality (MR) is already used for psychological research (Foreman, 2009); applications to use the technology are proposed in the same paper. Meaningful uses could be in clinical trainings or in observation trainings (e.g., in educational psychology, psychology of sports, organizational psychology).

Multimedia Design

Designing e-learning raises questions on efficient ways to combine different codes. As research on these questions is well known in (educational) psychology since about 30 years and easily to get accessible, the practical recommendations derived from this research must not be outlined here (see Plass, Moreno, & Brünken, 2010; Mayer, 2021).

Motivational and Emotional Design

Similar to multimedia design research, the foundations of motivational and emotional psychology could be assumed to be known to psychologists. Technological-oriented instructional theories and models concerning concrete ways to design motivating learning units or to optimize affects and mood of learners may be a domain rather familiar to instructional psychologists. Surveys of instructional design research in this area are provided by Keller and Deimann (2018) and Um et al. (2012).

Interaction Design

Interaction design refers to design decisions concerning learner actions or activities on the one hand and the actions or activities of the technical system on the other hand. In many e-learning products, interactivity is actually quite poorly shaped. Learners are allowed to jump around between parts of a course, take quizzes or solve other tasks with drag and drop or filling in texts, and get rather simple

feedback. There are many more learners' actions and much more specific and adaptive reactions by the system possible: Information-rich feedback (Narciss, 2008, 2020) includes feedback based on an analysis or diagnoses of the causes of failures, providing information and explaining why an answer is not correct. Learner's question asking is scarcely offered. There are several possibilities to realize question asking (Graesser et al., 1993): selecting from frequently asked questions or filling in domain specific "question stems" by drag and drop. Examples of question stems are "What is the cause of X?", "What is the result of the combination of X and Y?", "How do X and Y depend?". X and Y are gaps to be filled in by meaningful concepts from the relevant domain. Even asking (simple) questions in natural language could be offered without using AI technology. For many cases, the analysis of relevant key words by simple snippets of programming could be sufficient.

Theoretical models of interaction design have been proposed by Domagk, Schwartz, and Plass (2010) and Niegemann and Heidig (2020).

The analysis of learner input or tracking learner behavior could also be used as the basis for adaptive instruction. Depending on learners' behavior (navigation, clicking, keyboard input), additional or alternative information could be offered, or a different learning path could be generated (Ifenthaler & Drachsler, 2020; Kögler, Rausch, & Niegemann, 2020).

A rather seldom used interactive format are interactive videos: The learners' task is to detect features, moves, and patterns in a video. If a learner detected something, he or she clicks on the screen (if relevant on the location of the specified thing or person), the video stops, and a window opens requesting a description or explanation referring to the observation task. There are several examples in teaching psychology such an interactive video could fit. Another version of interactive videos shows an episode and requires the learner to make a decision deputizing for a character in the video. Depending on the decision (multiple choice), the video shows immediately or later the consequences of the decision as feedback.

Realization of more complex interaction requires more demanding authoring software or programing. Unfortunately, most current authoring systems refrain from the use of variables and capabilities to even simple programming. With such a system, it is no longer possible to address learners by their names, to compute numbers, to diagnose failures, etc.

Time: Time Allocation

Carroll's model of teaching (1963; 1989) focuses on time as an important predicting variable in learning and instruction. Despite empirical evidence for successful technological application in the context of Bloom's mastery learning (Slavin, 1990), the control of time seems to play a rather minor role in instructional practice (schools, universities) and research today. Learning with digital technologies raises the question, how long information can be received without break until depletion

respective a markable decrease in attention arises. This question is also relevant for usual teaching, but there are normally fixed organizational conditions (45, 60, 90 min for one unit) which have not to be observed if lectures are held online and offered asynchronously.

The question what length off a video lesson is optimal seems not easy to be answered. Obviously, there is a bunch of variables influencing the endurance of attention and information processing (Bradbury, 2016; Wilson & Korn, 2007).

Learning motivation, interest, physical resp. physiological state (tiredness, depletion), and features of the presentation (comprehensibility, enrichment, size, and contrast of the display) could have an impact.

Rather short lectures (mini-lectures: 10–20 min) could be a solution but raise further questions: what is the optimal length of pauses between the online lectures? Will longer time-distance and/or the kind of activities during breaks between the mini-lectures have an impact on the learning efficiency?

Graphics Design: Layout

The most used presentation software for the academic teaching of psychology or other social sciences is PowerPoint or similar products. Multimedia presentations accompanying lectures, exercises, and seminars contain mostly written text and pictures. To be effective, common principles and criteria of graphics design and layout should be considered, even if divergent results from multimedia learning research sometimes still inhibit to express clear recommendations. Besides the huge corpus of multimedia learning research, there are traditional principles applied daily by graphics designers producing newspapers, commercial ads, and other written material (for an overview: Seidl 2020). The same criteria are applicable for e-learning presentations produced with authoring systems at least as long as we miss empirically based guidelines.

Even the use of technology in traditional university teaching (e.g., PowerPoint, electronic blackboards) requires some basic knowledge and skills to select appropriate sizes and styles of fonts as well as combinations of colors, etc.

Implementation

Different from situations in the past when the implementation of digital instruction and learning in organizations and companies often required a lot of time and negotiations (Fishman & Penual, 2018), the digital learning innovations forced by the pandemic made e-learning and the use of instructional technology known in almost all areas. So, the problems to introduce new technologies can be expected to decrease considerably. Nevertheless, all stakeholders should be involved into the implementation strategy, and the information policy should be adapted to the specific needs and interests of the target group.

Suitable E-Learning Formats for Psychological Contents

Due to the fact that many teachers acquired skills and abilities to design and develop e-learning sessions technically, there will probably be more online-teaching in psychology courses in the future then before the pandemic, but offline teaching formats will again dominate the teaching.

Online-Lectures: Mini-lectures

Online or hybrid formats are especially suitable for content which changes only slowly, e.g., statistics and other methodological subject matter. The availability of mini-lectures in methodology courses could be advantageous in combination with exercises and formats of instruction and learning: Lectures could often not be synchronized with the progress in study projects of students, e.g., the computation of sample sizes is needed rather early in a term or study year, when students plan their projects, but it is taught systematically some weeks later. If all mini-lectures of a course are available from the beginning, and any time students can learn some content just in time they need it.

E-seminars (Webinars)

A variation of the "flipped classroom" format could require students to produce their presentations as videos which are uploaded to the learning management systems a couple of days in advance of the final discussion. Experiences of the author during pandemic times especially in case of block seminars at two universities showed the students appreciated this format and agreed to use it further in normal times.

Simulations

For more than 20 years, the use of simulation (e.g., case-based learning) has proven its worth in teaching different domains of medicine. Similar simulation environments are possible and, in some cases, already realized for psychology teaching (McMinn, 2009; Cleland, 2017; Chen, Kong, & Wei, 2020). For example, avatars representing patients or clients could be interviewed, and in combination with virtual results of tests, observations, or neuropsychological data (e.g., fMRT), students can learn diagnostics (psychotherapy/clinical psychology). Other applications are possible in social psychology (e.g., decision theory experiments) or organizational psychology. Serious games (games for learning) are technically a kind of simulation. In some psychology domains, simulation games concerning decision-making in complex situations had been used even 40 years ago (Dörner et al., 1983) for research and later for diagnostics (as part of assessment centers). A special kind of game for learning represents the format "goal-based scenarios" (Schank et al., 1999; Zumbach

2002). Actually, the use of simulations and games in everyday university teaching today is rather seldom; the development of appropriate games, simulations, or goal-based scenarios for learning is quite expensive.

Videos: Interactive Videos

In teaching developmental psychology, the use of videos is usual, and a lot of material is easily available. This material is mostly used to demonstrate child behavior. Advanced technology has been developed for the systematic analysis of individual and group behavior in sports (Wilson 2008) (partly including the possibility of annotations into videos) and can be used in all domains where observation is part of the educational program (e.g., http://www.dartfish.com).

Augmented Reality (AR)/Virtual Reality (VR)/Mixed Reality (MR)

Virtual reality generates 3D graphic environments which create in users impressions of being physically present in a virtual world and allows them to interact there with objects, characters, or persons in real time. Even if there are proposals to use VR in psychology (Foreman, 2009), the use of this technology in teaching is not (yet) usual.

Augmented reality allows to superimpose the natural visual perception by virtual images or texts to show hidden features or processes or to enrich the perceived environment by explanations or guidelines. Mixed reality combines the possibilities of VR and AR (Winn and Jackson 1999).

MASL Multimedia-Assisted Self-Regulated Learning

A practicable way to combine self-regulated learning from texts and necessary guidance can be realized by a format invented first by the German expert of physics pedagogy Klaus Weltner in the 1970s, called "integrating guidance programme" (Weltner & Wiesner, 1973; Weltner, 1975). The idea is to guide learners in working with textbooks by proposing selected paragraphs to read, followed by quizzes or self-tests with feedback commentaries recommending or assigning re-reading or alternative presentations. While the method could be shown successful in university physics education, it was purely text based at that time, and getting feedback was somewhat uncomfortable and less adaptive. Multimedia guidance programs, available on tablets or smartphones, containing adaptive testing and rich feedback, could revitalize this format.

Conclusion, Challenges, and Current Trends

There are many ways to foster and enhance teaching and learning psychology by (digital) technology. Most forms of application of digital technology is not specific to psychology, but as in other domains the efficiency of the use depends on the

matching of the learning prerequisites of the learners and the features of the subject matter as well as the quality of the presentation. Educational technology can support the presentation of subject matter by making features or processes more salient or visible, allowing riskless learners' actions and experiences and allows flexibility of the instructional process in time and location. Collecting individual experiences with teaching psychology using digital technology could lead to new hypotheses concerning instructional technology not only in the domain of psychology. Technological research may differ in several aspects from mainstream nomological psychological research. External validity and criteria of efficiency play a greater role, and quasi-experimental methodology cannot longer be viewed as the stepchild of empirical research; new approaches (Reichardt, 2019) may provide the means for appropriate research design. After about 30 years of investigating mainly cognitive variables in multimedia learning, questions concerning the role and the impact of affective responses to information learners perceive in multimedia learning environments. Another challenge in technology-enhanced psychology teaching and learning will probably be the use of artificial intelligence-supported learning environments. Especially digitally conveyed subjects like statistics, diagnostics, etc. which change rather slowly learning analytics (Ifenthaler & Drachsler, 2020) could support adaptive learning. Other possible AI applications in psychology learning comprehend the simulation of patients in clinical situations and simulations of students in classrooms. Last but not least a renaissance of the use of simulation models (not only in cognition) for research and instruction (Dörner et al., 1983; Anderson, 1983, 1990) could change psychology learning in higher education.

Recommended Further Readings

- Reiser, R. A. (2018). What field did you say you were in? Defining and naming our field. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and Issues in Instructional Design and Technology* (4th ed., pp. 1–7). New York: Pearson.

  This contribution shows and discusses definitions of educational technology and instructional design as well as their change over time.
- Merrill, M. D. (2002). *First principles of instruction.* Educational Technology Research and Development, 50(3), 43–59.

  Probably one of the most cited articles in instructional design by one of the "founding fathers" of the discipline. A trial to summarize basic results of empirical research in instructional research for practise.
- Reigeluth, C. M., Beatty, B. J., & Myers, R. D. (Eds.). (2017). *Instructional-Design Theories and Models* Volume IV. New York, London: Routledge/Taylor & Francis.

  This is the 4th (and up to now the last) volume of a series of fundamental papers on instructional design. While the first volume about 40 years ago provided an overview over the most relevant theories and models of that time, volume 2 (1999) shows the progress in ID research and the development in the late 1990s, claiming a new paradigm of ID theories in the Information age. The purpose of the 3rd volume (2009) is a proposal to unify the different approaches

in ID by building a common knowledge base and a common use of terms. The 4th volume takes a broader perspective and discusses what the authors call a "learner centered paradigm of education".

- Spector, J. M. (2016). *Foundations of educational technology: integrative approaches and interdisciplinary perspectives* (2nd ed.). New York: Routledge.

  *One of the best textbooks to get a comprehensive introduction into the field of learning and teaching from an application (*i.e. *technology) point of view. The book shows different approaches of the sciences of learning and theoretical as well as practical perspectives, both with example applications.*
- Domagk, S., Schwartz, R., & Plass, J. (2010). *Interactivity in multimedia learning: An integrated model*. Computers in Human Behavior, 26, 1024–1033.

  Interactivity is a basic feature of technology-based learning environments. The authors deliver an integrated model to clarify the concept of interactivity including the user, the learning environment, and a system of connections and concepts that together make up interactivity. The model can help inform research, discussion, and design decisions on interactive multimedia instruction.
- Keller, J. M., & Deimann, M. (2018). Motivation, volition, and performance. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and Issues in Instructional Design and Technology* (4th ed., pp. 78–86). New York: Pearson.

  Keller's ARCS-model is one of the most successful dedicated ID models: It focuses on possibilities to initiate, to foster and to maintain the motivation of learners. Developed and evaluated since more than 50 years it has been shown helping instructional designers to find appropriate means to create motivating learning environments.
- Plass, J. L., & Kaplan, U. (2016). Emotional Design in Digital Media for Learning. In S. Y. Tettegah & M. Gartmeier (Eds.), *Emotions, Technology, Design, and Learning* (pp. 131–161). Amsterdam/Boston: Elsevier/Academic Press.

  Emotional design is an emergent aspect of ID research and development. Much earlier research focused on cognitive processes and outcomes and neglected affective responses to the information learners perceive. This chapter presents basics of learning and emotions and develops an integrated cognitive affective model of learning with multimedia (ICALM).
- van Merriënboer, J. J. G., & Kirschner, P. A. (2018). Ten steps to complex learning. A systematic approach to four-component instructional design (3th ed.). New York: Routledge Taylor & Francis.

  At least one of the most successfully applied specific instructional design models world-wide: an ID model dedicated to the design of cognitive complex learning tasks. Theoretically based on cognitive science theories and findings it meets the criteria of instructional psychology as well as the affordances of practitioners.
- Graesser, A. C., Hu, X., & Sottilare, R. (2018). Intelligent Tutoring Systems. In F. Fischer, C. E. Hmelo-Silver, S. R. Goldman, & P. Reimann (Eds.), International Handbook of the Learning Sciences (pp. 246–255). New York: Routledge.

From a computer science point of view, Intelligent Tutoring Systems (ITS) represent a gold standard in educational technology. They integrate different uses of Artificial Intelligent in education. This contribution describes the structure and the functions of Intelligent Tutoring Systems and discusses the challenges and limitations.

- McKenney, S., & Reeves, T. C. (2018). Conducting Educational Design Research (2nd ed.). New York: Routledge.

  Research on instructional design and educational technology is different from research investigating basic relationships between variables. The authors present an approach which intertwines empirical investigation with systematic intervention development in the field and differentiate from older "action research" with rather weak methods.

References

Anderson, J. R. (1983). *The architecture of cognition*. Cambridge, MA: Harvard University Press.

Anderson, J. R. (1990). *The adaptive character of thought (studies in cognition)*. New York: Taylor & Francis.

Bradbury, N. A. (2016). Attention span during lectures: 8 seconds, 10 minutes, or more? *Advantages in Physiology Education, 40*, 509–513.

Bunge, M. (1998). *Philosophy of science: From explanation to justification* (vol. 2). Boston, MA: Transaction Publishers: (1967, Springer)

Carroll, J. B. (1963). A model of school learning. *Teachers College Record, 64*, 723–733.

Carroll, J. B. (1989). The Carroll model. A 25-year retrospective and prospective view. *Educational Researcher, 18*(1), 26–31.

Chen, D., Kong, X., & Wei, Q. (2020). Design and development of psychological virtual simulation experiment teaching system. *Computer Applications in Engineering Education*. https://doi.org/10.1002/cae.22293

Cleland, J. (2017). Simulation-based education. The Psychologist (30, October). https://thepsychologist.bps.org.uk/volume-30/october/simulation-based-education (access february 2021)

Domagk, S., Schwartz, R., & Plass, J. (2010). Interactivity in multimedia learning: An integrated model. *Computers in Human Behavior, 26*, 1024–1033.

Dörner, D., Kreuzig, H. W., Reither, F., & Stäudel, T. (1983). *Lohhausen*. Huber, Bern/Stuttgart/Wien: Vom Umgang mit Unbestimmtheit und Komplexität.

Fishman, B., & Penuel, W. (2018). Design-based implementation research. In F. Fischer, C. E. Hmelo-Silver, S. R. Goldman, & P. Reimann (Eds.), *International handbook of the learning sciences* (pp. 393–400). New York: Routledge.

Foreman, N. (2009). Virtual reality in psychology. *Themes in Science and Technology Education*, 2(1–2). https://files.eric.ed.gov/fulltext/EJ1131318.pdf

Gagné, R. M., & Briggs, L. J. (1979). *Principles of instructional design*. New York: Holt, Rinehart & Winston.

Graesser, A. C., Person, N. K., & Huber, J. (1993). Question asking during tutoring and in the design of educational software. In M. Rabinowitz (Ed.), *Cognitive science foundations of instruction* (pp. 149–172). New York: Routledge. (eBook edition: 2020). https://doi.org/10.4324/9781315044712

Herrmann, T. (1979a). Psychologie als problem. Herausforderungen der psychologischen Wissenschaft. Stuttgart: Klett-Cotta.

Herrmann, T. (1979b). Pädagogische Pychologie als psychologische Technologie. In J. Brandtstädter, G. Reinert, & K. A. Schneewind (Eds.), *Pädagogische Psychologie: Probleme und Perspektiven* (pp. 209–236). Stuttgart: Klett-Cotta.

Ifenthaler, D., & Drachsler, H. (2020). Learning analytics. In H. Niegemann & A. Weinberger (Eds.), *Handbuch Bildungstechnologie* (pp. 515–534). Berlin, Germany: Springer.

Keller, J. M., & Deimann, M. (2018). Motivation, volition, and performance. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (pp. 78–86). New York: Pearson.

Klauer, K. J. (1985). Framework for a theory of teaching. *Teaching and Teacher Education, 1*(1), 5–17.

Kögler, K., Rausch, A., & Niegemann, H. (2020). Interpretierbarkeit von Logdaten in computerbasierten Kompetenztests mit großen Handlungsräumen. bwp@ Profil6. Berufliches Lehren und Lernen: Grundlagen, Schwerpunkte und Impulse wirtschaftspädagogischer Forschung. Hrsg. v. Karin Heinrichs, Kristina Kögler & Christin Siegfried, September 2020. https://www.researchgate.net/deref/https%3A%2F%2Fwww.bwpat.de%2Fprofil6_wuttke%2Fkoegler_etal_profil6.pdf

Korbach, A., & Niegemann, H. (2020). Microlearning via smartphones in VET for professional drivers: The case of securing cargo for international transport. In E. Wuttke, J. Seyfried, & H. Niegemann (Eds.), *Vocational education and training in the age of digitization. Challenges and opportunities* (pp. 183–201). Leverkusen: Barbara Budrich.

Mayer, R. E. (2021). *Multimedia learning* (3rd ed.). Cambridge/New York: Cambridge University Press.

McMinn, M. R. (2009). Ethics case-study simulation: A generic tool for psychology teachers. *Teaching of Psychology, 15*(2), 100–101. https://doi.org/10.1207/s15328023top1502_9

Morrison, G. R., Ross, S. M., & Kemp, J. E. (2004). *Designing effective instruction* (4th ed.). New York: Wiley.

Narciss, S. (2008). Feedback strategies for interactive learning tasks. In J. M. Spector, M. D. Merrill, J. van Merriënboer, & M. P. Driscoll (Eds.), *Handbook of research on educational communications and technology* (3rd ed., pp. 125–143). New York: L. Erlbaum Associates.

Narciss, S. (2020). Feedbackstrategien für interaktive Lernaufgaben. In H. Niegemann & A. Weinberger (Eds.), *Handbuch Bildungstechnologie* (pp. 369–392). Springer. https://doi.org/10.1007/978-3-662-54373-3_8-1

Niegemann, H. (2020). Instructional design. In H. Niegemann & A. Weinberger (Eds.), *Handbuch Bildungstechnologie* (pp. 95–152). Berlin: Springer.

Niegemann, H. M., & Heidig, S. (2020). Interaktivität und Adaptivität in multimedialen Lernumgebungen. In H. Niegemann & A. Weinberger (Eds.), *Handbuch Bildungstechnologie*. Berlin, Germany: Springer.

Niegemann, H. M., et al. (2008). *Kompendium multimediales Lernen*. Heidelberg, Germany: Springer.

Oser, F., & Baeriswyl, F. J. (2001). Choreographies of teaching: Bridging instruction to learning. In V. Richardson (Ed.), *Handbook of research on teaching* (4th ed., pp. 1031–1065). Washington, DC: American Educational Research Association.

Plass, J., Moreno, R., & Brünken, R. (Eds.). (2010). *Cognitive load theory*. Cambridge: Cambridge University Press.

Reichardt, C. S. (2019). *Quasi-experimentation: A guide to design and analysis*. New York: Guilford Press.

Reigeluth, C. M. (1999). The elaboration theory: Guidance for scope and sequence decisions. In C. M. Reigeluth (Ed.), *Instructional-design theories and models. A new paradigm of instructional theory* (pp. 425–453). Hoboken, NJ: L. Erlbaum Associates.

Rosenberg, M. J. (2018). Performance support. In R. A. Reiser & J. V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (4th ed., pp. 132–141). New York: Pearson.

Saettler, P. (1990). *The evolution of American educational technology*. Englewood, Colorado: Libraries Unlimited, Inc.

Schank, R. C. (1990). *Tell me a story : A new look at real and artificial memory*. New York: Scribner.

Schank, R. C., Berman, T. R., & Macpherson, K. A. (1999). Learning by doing. In C. M. Reigeluth (Ed.), *Instructional-design – Theories and models. A new paradigm of instructional theory* (pp. 161–182). Mahwah, NJ: Erlbaum.

Schnotz, W., Eckhardt, A., Molz, M., Niegemann, H. M., & Hochscheid-Mauel, D. (2004). Deconstructing instructional design models: Toward an integrative conceptual framework for instructional design research. In H. Niegemann, D. Leutner, & R. Brünken (Eds.), *Instructional design for multimedia learning* (pp. 71–90). Münster, Germany: Waxmann.

Seels, B. B., & Richey, R. (1994). *Instructional technology: The definition and domains of the field*. Washington, D.C.: Association for Educational Communications and Technology.

Seidl, R. (2020). Grafikdesign: eine Einführung im Kontext multimedialer Lernumgebungen. In H. Niegemann & A. Weinberger (Eds.), *Handbuch Bildungstechnologie* (pp. 439–478). Berlin, Germany: Springer. https://doi.org/10.1007/978-3-662-54373-3_8-1

Slavin, R. E. (1990). Mastery learning re-reconsidered. *Review of Educational Research, 60*(2), 300–302.

Smith, P. L., & Ragan, T. J. (2005). *Instructional design* (3rd ed.). Hoboken, NJ: Wiley/Jossey-Bass.

Um, E. R., Plass, J. L., Hayward, E. O., & Homer, B. D. (2012). Emotional design in multimedia learning. *Journal of Educational Psychology, 104*(2), 485–498. https://doi.org/10.1037/a0026609

van Merriënboer, J. J. G., & Kirschner, P. A. (2018). *Ten steps to complex learning. A systematic approach to four-component instructional design* (3rd ed.). New York: Routledge Taylor & Francis.

Weltner, K. (1975). Das Konzept des integrierenden Leitprogramms - ein Instrument zur Förderung der Studienfähigkeit. *Informationen zur Hochschuldidaktik, H., 12*, 292–305.

Weltner, K., & Wiesner, H. (1973). Förderung von Selbstinstruktionstechniken im Hochschulunterricht durch integrierende Leitprogramme. Unterrichtswissenschaft(2/3), 111–120.

Wilson, B. D. (2008). Development in video technology for coaching. *Sports Technology, 1*(1), 34–40. https://doi.org/10.1080/19346182.2008.9648449

Wilson, K., & Korn, J. H. (2007). Attention during lectures: Beyond ten minutes. *Teaching of Psychology*, 85–89.

Winn, W., & Jackson, R. (1999). Fourteen propositions about educational uses of virtual reality. *Educational Technology* (July-August), 5–14.

Zander, S., Behrens, A., & Mehlhorn, S. (2020). Erklärvideos als format des E-learning. In H. M. Niegemann & A. Weinberger (Eds.), *Handbuch Bildungstechnologie* (pp. 247–258). Berlin, Germany: Springer. https://doi.org/10.1007/978-3-662-54373-3_8-1

Zumbach, J. (2002). Goal-Based Scenarios. Realitätsnahe Vorgaben sichern den Lernerfolg. In U. Scheffer & F. W. Hesse (Eds.), *E-Learning. Die Revolution des Lernens gewinnbringend einsetzen* (pp. 67–82). Stuttgart: Klett-Cotta.

A Blended Model for Higher Education

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M. Beatrice Ligorio, Francesca Amenduni, and Katherine McLay

Contents

Abstract

The revised capability benchmark in professional psychology (APA, 2012) identified a set of core competencies for professional psychologists to develop during training. These competencies include professional identity, reflective practice, self-assessment, interpersonal relationship skills, and affective skills. In addition, psychologists' daily practice is increasingly shaped by the affordances of digital technologies. The global health emergency highlights the urgent need to advance professional psychologists' digital skills in different fields, from online

M. B. Ligorio (✉)
University of Bari, Bari, Italy
e-mail: mariabeatrice.ligorio@uniba.it

F. Amenduni
University of Rome 3, Rome, Italy

K. McLay
University of Queensland (AU), Brisbane, Australia

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psychotherapy to school psychologists. The case study in this chapter explores the professional development of future human resources psychologists where a blended method – called Blended Collaborative and Constructive Participation (BCCP) – has been tested and developed.

This model allows students to directly experience several evidence-based methods for enhancing learning through digital technologies. The Trialogical Learning Approach improved the BCCP model by enriching evidenced-based techniques, such as Role-Taking and Jigsaw. The course is divided into two modules: Module 1 covers the course content, while Module 2 focuses on activities designed and performed in concert with agencies beyond the classroom.

Different methods are combined to assess students' learning outcomes and course effectiveness. In this chapter, we will describe how the e-portfolio is used and how introducing a specific role, called the friend of zone of proximal development, can support dyadic interaction that promotes self-direction toward new learning and professionalization.

While the impression may be that the course architecture is complex, the model we developed can be unpacked and recombined, depending on the specific contextual needs and affordances. We seek to make it clear that, to ensure the quality of a blended course, it is important to adhere to psycho-pedagogical bases. To do this, we provide several recommendations, including the importance of specific teacher training.

Keywords

Blended learning · Trialogical learning approach · Jigsaw · Role-Taking · Online collaboration · E-portfolio

Introduction

The revised capability benchmark in professional psychology developed by the American Psychological Association (APA)[1] identified a set of core competencies for professional psychology that students should develop during their training. These competences include a focus on professional identity (Amenduni & Ligorio, 2017; Avedon & Grabow, 2010), reflective practice and self-assessment (Bruno & Dell'Aversana, 2017), interpersonal relationship skills (Pan, Zhong, Zhang, & Chang, 2020), and affective skills (Arifin & Ikhfan, 2018). Further to these competencies, the daily practice of psychologists is increasingly shaped by the affordances of digital technologies. Nothing illustrates this better than the global health emergency caused by COVID-19. From online psychotherapy (Erbe, Eichert, Riper, & Ebert, 2017) to school psychologists (Pham, 2014), the pandemic

[1] https://www.apa.org/ed/graduate/benchmarks-evaluation-system

has highlighted the critical need for professional psychologists in all fields to develop digital skills.

Technology is affecting content creation, social interaction, information acquisition, collaboration, and communication (Lenhart, Purcell, Smith, & Zickuhr, 2010; Thibaut, Curwood, Carvalho, & Simpson, 2015). Under this enormous pressure to innovate based on rapid technological diffusion, education is increasingly adopting digital tools to promote online spaces for learning. But this has not been a smooth or uniform process. Rather, online learning tools and approaches have been deployed in relation to variables such as socioeconomic context, teacher training, student attitudes and culture, organizational support, and many others. Therefore, educational research is constantly seeking to understand how to design effective educational tasks and how to use blended spaces productively. Indeed, blended learning has been a growing topic of research in higher education over the last decade (Bliuc, Ellis, Goodyear, & Piggott, 2011; Means, Murphy, & Baki, 2013; Sharpe, Benfield, & Roberts, 2006).

In a report published on the APA website (Naufel et al., 2018), five basic skill domains and 17 individual skills were identified as key to successful workforce preparation. These skills were identified through an analysis of online employment advertisements for psychologist positions. The so-called technological skills were included as one of the five basic skills, which were further operationalized as follows:

- *Flexibility/adaptability to new systems*: Be willing and able to learn and/or adapt to new computer platforms, operating systems, and software programs.
- *Familiarity with hardware and software*: Demonstrate competency in using various operating systems, programs, and/or coding protocols; troubleshoot technical errors; and use software applications to build and maintain websites, create web-based applications, and perform statistical analyses.

Purposes and Rationale

One of the psychological professions shaped by the so-called digital transformation is *Work and Organizational Psychologists*. Recruitment, training, and development of human resources are among the traditional psychologist-based tasks which have been enhanced and transformed by digital technologies in the last 20 years (Egloffstein & Ifenthaler, 2017; Melanthiou, Pavlou, & Constantinou, 2015). Given this context, higher education (HE) programs aimed at the professional development of future human resources (HR) psychologists should include educational opportunities that enhance students' digital skills and literacy. We suggest that the case study presented in this chapter offers one way of achieving this goal, that is, a course in which technology is simultaneously the content and the method for teaching at a HE level. To demonstrate the value of this approach, we describe the course design and then provide an overview of the assessment tools, which not only evaluate the learning outcomes but also promote the digital skills that are arguably so critical in the contemporary context.

Design Issues and Approaches: The Blended Collaborative and Constructive Participation (BCCP) Model

In this chapter, we propose the Blended Collaborative and Constructive Participation (BCCP) model we developed over more than 10 years of experimentation (Ligorio & Annese, 2010; Ligorio, Loperfido, Sansone, & Spadaro, 2011; Ligorio & Sansone, 2009; Sansone, Cesareni, Ligorio, Bortolotti, & Buglass, 2020). This model does not merely alternate between online and offline learning. Rather, there is cross-fertilization between online and face-to-face interactions. The first iteration of this model was introduced in 2005, and since then, several challenges have been considered in re-designing subsequent versions. Currently, the model divides the course into two modules, Module 1 (M1) covering the curricular content and Module 2 (M2) focusing on activities designed and performed in concert with companies operating in a field relevant for the course, for instance, e-learning companies or – for psychologists aiming to work in these fields – companies with human resources departments. Some psycho-educational techniques are included in this model, in particular, those that can be enhanced by the support of technology, such as Role-Taking (Cesareni, Cacciamani, & Fujita, 2016) and the Jigsaw method (Aronson & Patnoe, 2010). These techniques inspired the design of learning activities in the course.

In designing the BCCP method, several psycho-educational approaches were used as inspiration. Among those, the Trialogical Learning Approach (TLA) was particularly valuable. This approach worked as a practical and theoretical frame that enabled us to renew and adapt the psycho-pedagogical methods, such as Role-Taking (RT) and Jigsaw, to enrich the blended dimension of the model. In the following section, we describe the TLA in more detail and then explore how RT and Jigsaw were implemented by taking account of suggestions arising from TLA.

The Trialogical Learning Approach (TLA)

The Trialogical Learning Approach (TLA) combines knowledge building theory (Scardamalia & Bereiter, 2006) and Engeström's concept of expansive learning (Engeström, 1999). Despite the differences among these theories, both agree that learning occurs when people collaboratively create knowledge artifacts. Paavola and Hakkarainen (2005, 2014) have proposed the term "Trialogical" to refer to those processes where people are collaboratively and systematically developing shared and real "knowledge objects." The Trialogical metaphor tries to overcome dichotomies between individual (monological) and social processes (dialogical) involved in learning (Sfard, 1998). In Trialogical learning settings, students collaboratively develop new objects of inquiry, such as knowledge artifacts, practices, ideas, models, and representations. Interaction is strongly supported when participants are committed to building Trialogical objects. People do not only dialogue with each other; rather, communication is directed toward and shaped by the shared object under construction. However, participation is not enough to achieve learning; people

should have a common goal which directs their practices and actions. The work of the group is animated by the different versions of an object, and people adapt their actions to achieve the object's transformation.

The Trialogical metaphor can be understood as a continuum from dialogues to trialogues. Dialogues among people are ensured by *common ground* or what Wenger (2009) terms a *shared repertoire*, which provides a set of common concepts, language, and tools that support mutual understanding of the objects. The possibility to reshape and negotiate meanings of the shared repertoire comes very close to the idea of trialogues. The trialogic adds to the dialogic perspective an important focus on the objects built, which orient and shape both the dialogue and the processes necessary to build the objects. Paavola and Hakkarainen (2009) argue that from a Trialogical learning perspective, "people don't need to have complete agreement or shared understanding of these shared objects but these objects provide a concrete reference point which can then be collaboratively modified and clarified during the process" (p. 12).

The line between dialogue and trialogue is not clear cut because often dialogue and participation are strictly intertwined when realizing a Trialogical work. The main feature of the TLA is the focus on participation in the development of the shared object. TLA is strongly connected to the emergence of technology that can be used to transform intangible ideas into shareable digital artifacts. New technological trends, such as Cloud and Open-source, can promote collaborative work at a distance around shared objects. However, the use of technology is not enough to guarantee Trialogical processes. To transform existing pedagogical practices toward more Trialogical knowledge practices, we suggest six design principles (DPs), which characterize the general features of the TLA (Table 1).

Table 1 The design principles (DP) defined by the TLA

DP1: Organizing activities around shared "objects." The central idea of TLA is that learning is organized around shared objects like conceptual artifacts, tangible products, and/or practices
DP2: Supporting interaction between personal and collective agency. The way in which people integrate their own personal and group work for developing shared objects by dividing labor and combining participants' expertise into the group's achievement
DP3: Fostering long-term processes of knowledge advancement. Learning and working around shared objects that do not have a specific deadline but are always considered improvable. Recognitions of the limits and indications for further improvements should be outlined
DP4: Emphasizing development through transformation and reflection between various forms of knowledge and practices. Knowledge could be converted from one form to another one, for instance, from a text to a map; from a list to a project; and from a draft prototype to a functioning object
DP5: Cross-fertilization of various knowledge practices across communities and institutions. TLA requires that learners solve complex authentic problem outside educational institutions. Hybridization among communities and practices can support these investigative learning processes
DP6: Providing flexible mediation tools. TLA requires appropriate technologies that help participants to create, share, and transform artifacts and practices

TLA has been used in HE to reduce the gap between university education and the needs of a workforce in a knowledge society. Lakkala, Toom, Ilomäki, and Muukkonen (2015) compared benefits and challenges of three re-designed university course based on TLA. The results suggested that when professional working processes are used to design the courses, the shift from individual practice to collaborative outcomes supports greater success. The authors further suggest that teachers and trainers should create a meaningful, overarching object that can orient group assessment, drawing on authentic professional working processes rather than artificial collaboration activities.

The ideas and principles of the TLA are deeply embedded into the BCCP model. Techniques such as Role-Taking and Jigsaw, which were already implemented in the previous version, were redefined in the light of TLA suggestions. For instance, in M1, the DP1 of the TLA is applied by organizing the activities around the collaborative construction of a concept map. The map is conceived as a way to gather a collective answer to a question the teacher poses at the outset of the course. These questions are meant to challenge the sense of the course and to model students' thinking around critical argumentation, leading toward knowledge building.

The group activity and the interaction between individual and collective agency (DP2) are supported and structured by combining the Jigsaw technique and the RT (described in detail in 3.2 and 3.3), which allow participants to shift between individual and group dimensions. The maps developed by the groups could be reused as theoretical references to design the objects built in M2, fostering long-term processes of knowledge advancement (DP3). This is just one example of how the DPs of the TLA are implemented in M1. A full report is provided in Table 2.

In M2, corporate representatives from professional domains relevant to the course are invited to introduce their company via webinars or in person (depending on availability and preference). They describe the object they would like the students to participate in constructing it and provide the criteria they will use to assess the object and the group work. Each company nominates at least one tutor to maintain constant communication with the students throughout the M2. About halfway through M2, each group presents a first draft of the object to the whole course cohort. During this presentation, the audience provides feedback and the presenters draw on this feedback to finalize the object, which is displayed – again face-to-face – at the end of the module. This activity is designed to develop several skills such as public speaking and responsiveness to feedback, in the sense of both providing insightful comments and implementing the feedback received.

In Table 2, there is a summary of how the DPs are applied in our course, in both M1 and M2.

As already stated, the TLA opened up new ways of considering existing and familiar techniques, such as RT and Jigsaw. In the next section, we describe how these two techniques were implemented in both modules.

Table 2 The six TLA design principles applied in M1 and M2 composing the BCCP model

DP1	M1: The teacher asks students to collaboratively design a map aimed at answering a general question about the course M2: Companies introduce themselves and proposed to develop an object which is part of their core business. Students use different digital tools and interact with the companies, receiving specific feedback
DP2	RT and the Jigsaw are combined to support the shift from individual to groups and vice versa M1: Individually, students learn about the educational material assigned and then compare what they learned with other students who had the same material. Later, students are assigned to groups where each member has different study material M2: Students are assigned to a specific company to develop the object required. During the building process, they also join groups comprised of students allocated to different companies to compare the work and provide reciprocal feedback
DP3	M1: The materials created by the students are meant to be used in the M2 as theoretical bases for the construction of the objects commissioned by the companies M2: Students consider how their objects could be further developed and placed into the market. Companies and students may decide to implement the changes outlined when the course is ended
DP4	M1: Students are provided with educational materials in the format of chapters and papers. These materials can be transformed individually (for instance, individual reviews) or through a collaborative process (the conceptual map) M2: Students use the knowledge acquired in M1, together with the instruction given by the company, into a first draft or prototype. In turn, these can be transformed into PowerPoint presentations, videos, or reports to present the objects In both modules, each transformation is supported by reflective discussions via web forum
DP5	M1: By studying the educational material, students enter the scientific world. To make this transition more effective, some contemporary authors of the material could be invited to discuss their articles or chapters with the students via web forums, emails, or social media platforms M2: Entrepreneurs are invited (either face-to-face or remotely) to introduce their companies and the objects they would like the students to build. During the building process, students are exposed to professional practices because they are included in the professional groups made available by the company
DP6	In both modules, many technological tools are used: An open-source learning management system (LMS), Google drive, LinkedIn, Padlet, WhatsApp, and doodle. In some cases, companies proposed other communication tool (e.g., Slack, Trello, Yammer)

Role-Taking (RT)

RT can be considered a specific type of peer collaboration (Fischer, Kollar, Stegmann, & Wecker, 2013). In education, a "role" is defined as a system of functions that students should assume when working in a group, to guide individual behaviors and regulate interactions among the group members (Cesareni et al., 2016). Covering a role implies being "associated with a position in a group with rights and duties toward one or more other group members" (Hare, 1994, p. 434). Research has shown that RT can promote individual responsibility and group cohesion, as well as positive interdependence (Strijbos & Weinberger, 2010). Taking

a role facilitates the social dimension of group dynamics, such as group members' awareness of peer contributions and a group's overall performance (Strijbos, Martens, Jochems, & Broers, 2004). Role-Taking also supports collaborative knowledge building because the roles can be viewed as "multiple interpretive perspectives that conflict, stimulate, intertwine and be negotiated" in a community (Stahl, 2006, p. 4).

In the BCCP model, RT has been implemented by requiring each student to experience a series of roles, deliberately aligned with the course aims. The roles are outlined in detail at the outset of the course, including the tasks, the timing, the tools recommended, and the precise activities to be performed. Instructions are given face-to-face, and the role is initially taken up in the digital environment based on the belief that online, the screen can be a mediator to overcome shyness or embarrassment in public speaking.

Here are some examples of roles used in the course:

(i) E-tutor or leader. This student coordinates discussions and collaborative activities within the group, stimulates the participation of colleagues, and monitors deadlines. This role requires the student in charge to have a clear conception of the objectives of the group discussions and related tasks. The e-tutor is a temporary leader, using appropriate communication strategies to stimulate the group to be collaborative (Sansone, Ligorio, & Buglass, 2018).

(ii) The process supervisor. When taking on this role, students summarize the content and lead discussion in their groups. It is a metacognitive role, promoting the capacity to analyze and describe dynamics and discussion methods, acquiring and giving back to the group an overview of the discussions. The skills acquired in this role involve carefully reading the discussion, its management, and evolution, with the ultimate aim of giving directions about how to make the discussion more effective and attuned to knowledge building principles.

(iii) The researcher. This role supports the teacher's work by seeking additional educational documents and sources related to the topic under discussion. It is not uncommon, in fact, that the teaching materials provided by the teacher generate requests for clarification and/or more information. In this instance, the researcher has the specific task of satisfying the demands emerging during the discussion. Since this task is carried out mainly online, this role also promotes the capacity to identify reliable and reputable digital sources and make connections with material already provided by the instructor.

These are just a few examples of roles that can be designed and implemented online. Roles can be conceived both as a method and as a goal.

RT is also active in M2, although it is implemented in a more flexible way. The assumption is that, once the students have experienced the RT, they may internalize this strategy and take up the role autonomously. In addition to the roles already deployed in M1, companies may propose new roles taken from their actual organization charts (e.g., story-boarder, video-maker). RT in M1 gave an initial impression of how roles can support group work, which can be considered an accessible way to

introduce professional roles. In M2, roles are more aligned with those in real professional contexts. Through this mechanism, students can approach professional roles gradually and with support.

As a method, roles are used to structure participation; as a goal, roles allow students to develop critical skills, teamwork, and a positive attitude toward the online experience (Edwards & La Ferle, 2003). For this reason, it is important to rotate roles, so that each student can experience the skills associated with the various roles. Furthermore, in our case, we also created a specific forum for each role where those students who have just completed a role can reflect upon their experience. Students describe their expectations of and fears about the role and how the role was activated and offer suggestions for the next student who will take on that role. This forum helps the newcomers avoid silly mistakes and advances the efficacy of the role.

The Jigsaw Method

The term "Jigsaw" indicates a particular type of saw used for cutting pieces with rounded corners. This is a fitting metaphor to describe this educational strategy. In the original formulation proposed by Aronson (1978), Jigsaw is a group training and management technique where groups are formed, work separately, and are then broken down and re-formed. The procedure comprises the following steps:

(i) Brainstorming. The aim of the initial brainstorming is to stimulate interest in and curiosity about the topic proposed by the teacher. Post-it notes can be used in the classroom to be distributed to the participants, asking them to write down their own ideas or curiosities. If anonymity is desired, students can be asked not to sign the post-it. Anonymity is also possible online by using tools such as Padlet. This modality supports democratization of brainstorming, as all the contributions are treated equally, without being influenced by knowing who produced the notes.

(ii) Formation of the main concepts. This stage involves collective discussion – either online or face-to-face – around the topics that emerged during brainstorming, to identify the main themes. If post-it notes are used, these can be easily grouped together after placing them on a wall or a blackboard. The same is possible with Padlet or a web forum. In any case, we recommend that the teacher knows in advance how many groups to form and then identify the same number of thematic concepts. In this way, at the end of this step, a different theme can be assigned to each group.

(iii) Expert groups. After deciding which and how many thematic concepts will be addressed during the course, the expert groups are formed. At this stage, each participant chooses the topic to work on and, consequently, the group to participate in. Students could select a certain group because they recognize their own contribution to a specific theme or because they want to be part of a group formed by certain peers. In any event, letting students choose what group

to join is a way to enhance motivation and interest. These groups will have to become experts on the topic assigned to them because they must teach the topic – in the next step – to a new group. This phase enhances involvement and increases responsibility-taking, as work done here will be the foundation for future collaborative work. Expert groups can produce a summary or critical text or draw up a scheme. Furthermore, because of the acquired expert knowledge, these groups elaborate on assessment tasks, which can be in the form of tests, questionnaires, games, etc., to be submitted to the whole class to verify the knowledge of the specific theme in which they are expert. Of course, elaboration on the assessment tasks is itself a learning moment and simultaneously makes students active participants in a task (the evaluation) from which they are normally excluded.

(iv) Jigsaw or learning groups. In this phase, expert groups are dissolved and new groups are formed, comprising at least one member from each of the previous groups. Participants in the Jigsaw groups must contribute by offering the "piece" on which they had worked in the expert groups. As a group product, students can create various objects: a conceptual map that captures the links between the content analyzed; a multimedia product such as blog, video, and interactive presentation; or a professional tool such as an observation grid or a questionnaire. Furthermore, these groups may collect and organize the evaluation materials elaborated on by the expert groups in the previous phase to build a unique and coherent tool.

(v) Comparison of products. If desired, this step can be added to support the creation of a collective work in which the products of each Jigsaw group are compared with a view to developing a single final product which captures and refines the various groups' work.

Within both expert and Jigsaw groups, students are required to take on the roles described in the previous paragraph.

In M1, the Jigsaw activity can be organized as follows. During the first week, the teacher divides the students into groups – called "expert" groups – of between four and 10 students. The teacher selects a range of study material corresponding to the number of students in the groups. All the material is introduced during an initial face-to-face lecture, which ends by negotiating a challenging research question to guide subsequent activities. The purpose of setting a research question is to avoid rote learning and trigger a progressive inquiry approach (Hakkarainen, 2003). Students download the learning materials from Google Drive and discuss these materials within expert groups via asynchronous environments, complemented by scheduled face-to-face discussions. For this activity, up to five days a week may be needed. Once the "expert" discussion ends, students are individually required to write a brief review, using a template provided by the teacher. In these reviews, students highlight content useful for answering to the research question. Once the reviews are ready, they are posted on Google Drive. The Jigsaw groups are then activated, and they compare and combine the various answers to the research question, gleaned through the reviews with the aim of creating a map, collaboratively designed using online tools (e.g., Google Drawing).

This activity again takes place via web forum, interspersed with scheduled face-to-face encounters.

In M2, students will replicate the same structure as M1 with a few differences. The content is different: M1 is adherent to the syllabus and covers the theoretical and practical information considered essential for understanding the course content. In M2, the content is driven by the knowledge and competencies required by the companies. Therefore, in M1, the expert groups studied the content provided by the instructor; in M2, expert groups are involved with a company. Furthermore, in M1, Jigsaw groups compared different educational content; in M2, Jigsaw groups examined and commented on the different objects commissioned by the companies. In this way, students can acquire a broad picture of educational content (M1) and of the companies' products (M2). Contrasting different cases can also support understanding of specific features that make a case distinctive (Schwendimann et al., 2015). These two processes – comparing and specifying – allow students to experiment with shifting between contextualized practice (in the expert group; working with a company) and a de-contextualized and broader integration of companies' knowledge practices (in the Jigsaw group).

Across the two modules, we also implemented informal discussions via web forum. These were intended to support a sense of belonging to a virtual community (Blanchard & Markus, 2002; Tonteri, Kosonen, Ellonen, & Tarkiainen, 2011). To this end, when groups are formed, they should give themselves a name. Searching for a name involves identifying commonalities and distinguishing features. Therefore, participants are encouraged to talk about themselves and build relationships.

A few more activities are included in the model for assessment purposes; these are described in the following section.

A synopsis of the internal structure of the two modules is reported in Fig. 1 and Fig. 2.

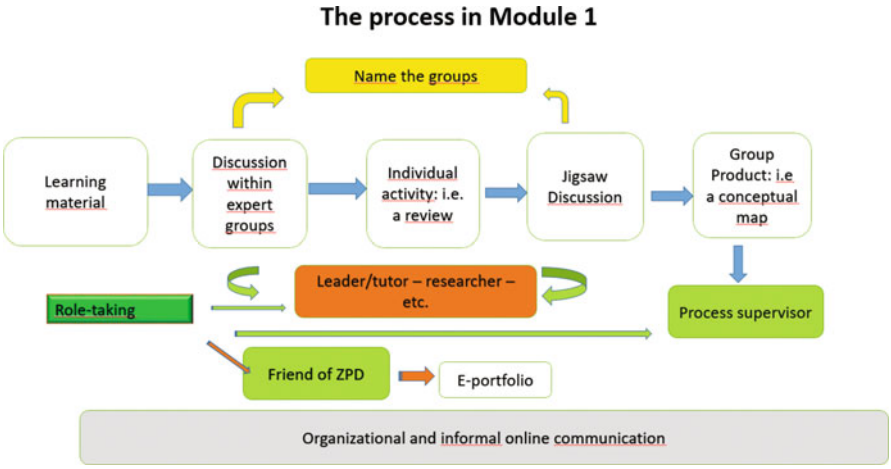

Fig. 1 Synopsis of the internal structure of Module 1

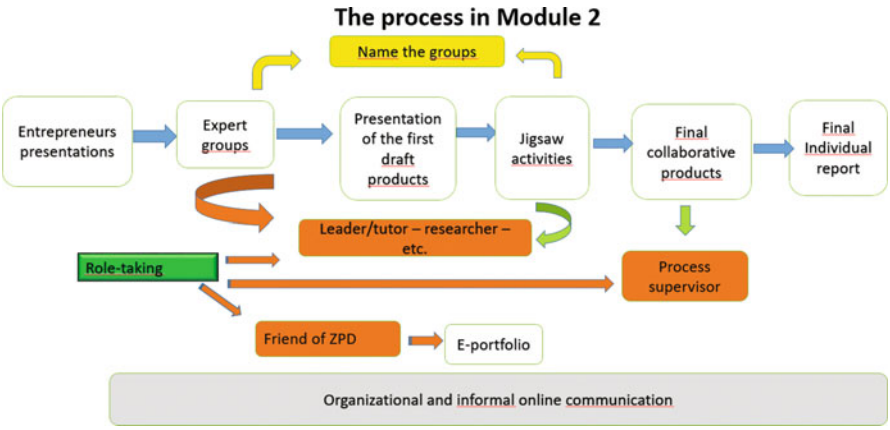

Fig. 2 Synopsis of the internal structure of Module 2

Evaluation: E-Portfolio and "Friend of Zone of Proximal Development" (ZPD)

In an innovative course such the one implemented using the BCCP model, assessment cannot follow the traditional format. This model encourages collaborative strategies, personal involvement, and reflexive strategies; therefore, these are the dimensions that need to be monitored and assessed. In our case, we developed a specific multidimensional assessment protocol where both the effectiveness of the group and the individual participation is assessed for each activity (Sansone & Ligorio, 2015). Learning outcomes are not necessarily useful indicators, because all the students who participated in our course received high scores based on the assessment received through the protocol and the product assessment. The way the course is structured, with so many activities and repetition of the modules' internal structure, makes failure very unlikely. Moreover, we consider the best learning outcome is that companies employ students who demonstrate potential. This means the BCCP model can actually increase professional opportunity and employability. Furthermore, we are interested in the processes activated by the BCCP model. In particular, we want to address the question of how to sustain and assess the soft skills advocated by APA (see the Introduction).

For these reasons, two tools are embedded into the BCCP model: the e-portfolio and a new role called the "friend of proximal zone of development" (ZPD).

E-portfolios are a purposeful aggregation of digital items – ideas, evidence, reflections, feedback, etc., – which "presents" evidence of learning and/or ability to a selected audience (Sutherland & Powell, 2007). This tool allows users to create a representation of the self, to gather evidence of personal development, and to describe the competencies achieved (Brown, 2015). In e-portfolios, students are required to tell a story about themselves in the form of self-narratives (Humpreys &

Brown, 2002) that include what they believe to be the most significant aspects of their history/biography as learners and aspiring professionals. E-portfolios are artifacts supporting transition to professional contexts. Akkerman and Bakker (2011) interpret the e-portfolio as a "boundary object" that supports connection and communication between different aspects of educational interaction, such as learning and professionalization.

In our case at the end of M1, students outline personal goals for M2. At the end of M2, students summarize the competencies acquired during the course, examine their initial expectations, and comment on them. The activities around the e-portfolio begin as soon the course starts. To familiarize them with the platform provided by the course, students are required to create personal e-portfolios, including anything personal they would like to share and their expectations of the course in general. At the end of M1, students select what they think best represents their performance during the module and then set their personal goals for M2. Our model suggests to initially (in M1) host the e-portfolio on a Learning Management System (LMS). Later (in M2), students are required to describe skills acquired, expectations not met or achieved, and goals for their professional life. In doing this, students are required to consider a wider audience than that of the course; they can do it by addressing the wider professional community of which they would like to be a part. In this case, LinkedIn was considered a suitable digital tool.

Furthermore, within their e-portfolio, students are required to select a peer and to nominate him/her as "friend of zone of proximal development" (ZPD), based on personal relationship and trust. The person covering this special role should monitor the activities in the e-portfolio and give suggestions for improvements. Clearly inspired by Vygotsky (1978), this role is crucial in supporting interaction and improving e-portfolio quality. Within the e-portfolio, a web forum is reserved for the dyad comprising the e-portfolio holder and her/his friend of ZPD. The implementation of this role allows animation of activities within the e-portfolio that would otherwise be independent or private activity.

Although the whole course was designed to support boundary crossing between university and professional competences, we believe that the e-portfolio is the place where such boundary crossing is made most visible. We assume that to cross-boundaries between university and workplaces, students need to renegotiate their identity positions (Hermans, 2013) by combining practical activities and self-reflectiveness.

Hermans' vision on the "self" is influenced by William James (1890) who considers the "self" not as a whole, but as consisting of multiple "selves" or "I-positions," depending on where people are or which role they assume at a particular point in time. For instance, a coach or counsellor may enter the life of a client as an external position in the self and may give, in a particular period of the client's life, a valuable contribution to his or her internal dialogues and self-reflections (Visser, 2016). In our case, we suggest that positions can be triggered by the various activities comprising the BCCP. Roles, for example, can be seen as tools that push participants to try out and, maybe, internalize positions connected to the roles.

Inspired by the polyphonic novel of Dostoevsky (1985), the self is conceived as comprising several characters who are not subordinate to the author but have their own voice, thoughts, and behavior. Each of these characters can have independent viewpoints, sometimes agreeing and at other times disagreeing with the author. They can tell their own story and are involved in dialogical relationships. The central theme in Hermans' theory (Meijers & Hermans, 2017) is that there is a dialogical relationship not only between the self and his (social) environment but also between different positions within the same person, for example, "I as student" and "I as professional." One must know the parts to understand the functioning of the self as a whole.

There is never a fixed set of positions; each person has a specific position-scenario, and this may evolve depending on experience and context. Therefore, considering the relevance of the TLA in our case, we defined three clusters of positions inhabiting the e-portfolios that developed during the course: monologic, dialogic, and trialogic. Monologic positions are internal positions (e.g., I think, I am a student, I want to. . .), dialogic positions concern the relationship between two or more positions (e.g., my colleague told me, the tutor said to us, our group), and trialogic positions consider the relationship between positions and a shared object.

Core Findings and Current Trends

The applications of the BCCP model have been analyzed in many contexts. When applied to higher education, our main research interest was on the development of students' I-positions. To look at students positioning trajectories, we defined a grid of positions used to analyze positions emerging in M1 and M2. Table 3 displays the positions we defined, based on the content analysis of students' e-portfolio.

Each of these positions developed a unique pattern across the course (Amenduni & Ligorio, 2017; Ligorio, Amenduni, & McLay, 2019), and, when looking at the differences between M1 and M2 e-portfolios' positions, we found that Trialogical positions occurred more in the latter. A closer qualitative interrogation revealed that in M2, the objects were used by the students as *evidence* of their professional identity. The impact of the friend of ZPD is also significant. When comparing the first time this role was introduced with previous course iterations when this role was not assigned, we found that this role significantly promoted the emergence of professional I-positions (Impedovo, Ligorio, & McLay, 2018).

Boundary-crossing can be also studied and assessed by analyzing the features of the objects students built. These objects can be defined as boundary objects, since they support boundary crossing by fulfilling a bridging function and intersecting at least two communities – students and professionals, but also many other sub-communities involved, and several practices (Star, 1989). Boundary objects have different meanings in different social contexts but, at the same time, have a structure that is common enough to make them recognizable across these contexts (Akkerman & Bakker, 2011).

Table 3 Grid of identity positioning categories used to analyze students' e-portfolios

Positioning's cluster	Positioning	Description
Monologic positions (M)	Personal position	Personal emotions, ideas, attitude
	Student position	I as student
	Formal role	I as …. *[one of the roles assigned during the course]*
	Professional position	I as skillful, oriented to professional role
	Meta-positioning	Reflections about the current position
	Past position	Positions in the past
	Present position	Positions in the present
	Future position	Positions in the future
	Promoter position	Giving support and suggestions to another student
Dialogical positions (D)	Peer otherness	Explicit or implicit reference to other students
	Teacher/tutors otherness	Explicit or implicit reference to professional tutors and teacher
	Professionals otherness	Explicit or implicit reference to professional tutors
	Shared object – Personal	Interaction between a student and the object
Trialogical positions (T)	Shared object – Intra-student groups	Interaction between students of the same group and the object
	Shared object among student and future target	Reference to people that can re-use the shared object

In our case, the objects proposed by companies are boundary objects creating bridges between academic and professional communities. Companies were asked to assess the final objects constructed with the participation of the students, based on their own criteria. We placed the criteria proposed by the companies into three categories: (i) criteria related to the intrinsic qualities of the object, that is, the extent to which the object is aligned with specific quality standards; (ii) criteria related to the process, or the extent to which the collaborative process of object creation was effective and efficient; and (iii) criteria related to the technical skills acquired by the students while building the object. Table 4 provides a summary of how many companies adopted these criteria in the last five years.

The criteria connected to the objects are most frequently used by the entrepreneurs. We suggest this indicates that entrepreneurs are primarily interested in the features the object can display as a product for the market. Entrepreneurs expect students to be able to consider such criteria and may also feel this is their main mission in participating to the course. The least used criteria (only one company) relate to technical skills. It is evident that companies do not consider it crucial to provide computer- or software-based skills. This type of capability changes rapidly, along with the arrival of new technologies and tools; therefore, they are considered to be self-taught skills that are always changing.

Table 4 Criteria used by companies to assess the objects

Criteria	Examples	Number of companies adopting the criteria
Related to the objects	• How engaging the object is • Coherence with the target • Reusability	9
Related to the process	• Internal communication within the group • External communication with the company • Realistic and achievable objectives	5
Related to the students' technical skills	• Video-making skills • Planning • Editing	1

Teaching and Learning Resources

The BCCP model requires the combined used of many digital tools. First, the course should be implemented in a Learning Management System (LMS) where the two modules can be easily visualized. Online environments supporting document sharing should be embedded into the LMS. These tools can be used not only to download and upload the educational material but also to share documents students are building collaboratively, for instance, Cloud tools (e.g., Google Drawing) that support the collaborative construction of the maps, required within M1.

Furthermore, the BCCP model creates regular opportunities for informal discussions, for instance, when groups are required to name themselves, or when students exchange impressions and recommendations about a role just completed or yet to be adopted. In these cases, students could be free to select tools for synchronous meetings (e.g., WhatsApp) or to use asynchrony tools, such as web forums. To plan the work and have a wide overview of the deadlines for the various activities, project management tools are recommended (e.g., Trello, Slack, or Yammer).

It is also suggested that teachers create an email list of students for general communication with the whole class.

Some activities may need to be preceded by brainstorming, for instance, when deciding the relevant concepts to be included into the maps. In these instances, we recommend using tools such as Padlet or Mentimeter.

Company presentations should be organized via Webinar to facilitate entrepreneurs' participation (they usually prefer not to leave the company for such commitments). Webinars could also be recorded so students can review the presentation when needed while participating in M2.

Finally, we included the use of LinkedIn as a continuation of the e-portfolio started in M1 and, consequently, as a strategy to support students in moving from the learning community of the course to the professional community.

Challenges and Lessons Learned

When first introducing the BCCP model, students often reported difficulties in shifting from traditional study methods to practices that are typical of workplaces. Usually, in the first module, students reported anxiety about deadline pressure and time management. Moreover, some students did not feel at ease working with so many technologies at one time and did not trust that real learning could be accomplished. To overcome this aspect, we suggest that M1 should be conceived as a safe warm-up for M2, when students will meet the companies and the entrepreneurs. Other challenges faced relate to poor resources provided by the university. Before the COVID-19 emergency, no institutional LMS was available, and even during the lockdown, the platforms are not always purposely designed for education. This often means that students and teachers have to adapt or "tweak" the features of digital tools at their disposal.

Overall, the reader may have the impression that the course's architecture is complex and perhaps hard to manage. But the model we developed can be unpacked and recombined, depending on the specific contextual needs and available affordances. For instance, the number of roles introduced can be increased or decreased, as can the number of modules. In our case, e-learning companies functioned as an external community, but in other cases, the external agent can be other institutions or agents related to the objectives of the course (e.g., hospitals, clinics, private psychotherapists, etc.). However, it is crucial to have a psycho-pedagogical vision of the BCCP model of teaching and learning. Using proven and tested techniques – such as RT and Jigsaw – is a good starting point, but new theories and approaches should also be considered to address contemporary needs and demands. In our case, the TLA helped to renew "old" techniques, empowering the blended dimension and making the course more effective overall.

To this end, specific teacher training would be beneficial. University teacher training is a contested issue, rarely tackled in the literature and even less frequently in practice (Guasch, Alvarez, & Espasa, 2010). Teaching at any level needs to be constantly engaged with social change, and tertiary educators should not be exempt. In designing a training program for academics, we suggest the following:

(i) Allot adequate time for planning, testing, assessing, and monitoring. These are time-consuming activities, and it is very hard to do these important tasks well within the hours currently devoted to teaching.
(ii) Connect teaching to research. Research on the effectiveness of academic teaching is needed, and each teacher could contribute. This does not need to be completely new research but could connect with existing research in this field by contributing, for instance, reflective field notes, questionnaires, interviews, and any other form of data. Results on a large scale will support better understanding of which features of a blended or online course work better and why.
(iii) Tutor training. The amount of work needed to plan, test, and monitor a BCCP course is considerable, so having tutors supporting the teacher is a great solution. Tutors could be drawn from the previous course iterations or from

former students working in a relevant field. Some extra time should be allocated for this training, but it is worthwhile. Tutors, once trained, relieve the teachers' workload, function as a mediator between students and the professor, and can help monitor online activity and give timely feedback to the teacher about the course development.

(iv) Ask the company to provide a contact person. Companies may be very busy, and despite their best intentions, it may be difficult to answer students' requests promptly. Therefore, it is important to know exactly who is responsible for supervising the students. It is also important that the contact person is provided with the assessment criteria and interacts with the university teacher and tutor. This will reassure students that curriculum, pedagogy, and assessment are aligned when interacting with the company. It is also advisable to ask tutors to collect questions and requests and to act as a bridge between students and companies.

(v) The content needs to be re-designed. It is naive to think that a blended format can deliver the same content in the same way as it would be face-to-face. First, it is important to set at least two modules with the content of each sufficiently distinct. Second, the course should foster a learning object-like organization (Wiley, 2000), which is required by any online course. This means the content should be chunked into meaningful pieces, and connections between the pieces should also be considered as learning objects.

(vi) Prevent attrition. Online and blended courses suffer of a high attrition rate, but both internal and external factors can help reduce this. Internal factors include self-efficacy, self-determination, autonomy, and time management, while external factors include family, organizational, and technical support (Street, 2010). Furthermore, students should have enough time to familiarize themselves with the digital tools and structure, the overall management of the course should be transparent, problems with technology should be minimized, and individual learning preferences should be considered. These elements may affect motivation and, in turn, the learning outcomes (Frankola, 2001).

(vii) Care about students' interaction. We have often witnessed online courses that tend to be a close replication of face-to-face instruction. However, it is widely recognized that knowledge transfer is not enough to achieve the various goals of contemporary education. Formal and informal social interaction, collaborative building of ideas, collaborative construction of objects, teamwork, and dialogic interaction are all elements that enrich learning, both online and face-to-face. Therefore, this aspect must not be neglected. Having parallel groups working online is much easier than having them operate face-to-face; therefore, we recommend exploiting all the potentialities technology may offer and not using technology only to transmit information.

Recommended Further Reading References

1. Blanchard, A. L., & Markus, M. L. (2004). The experienced "sense" of a virtual community: characteristics and processes. *ACM Sigmis Database: the database for advances in information systems*, *35*(1), 64–79.

This paper explaines in what consists the "sense of community" within virtual communities and how it differs comparing to physical communities. The nature of these differences is plausibly related to the differences between electronic and face-to-face communication. The authors content that even digitally is possible to create and recognize identities and to develop reciprocal trust. The implications for electronic business are also discussed.

2. Bonk, C. J., Graham, C. R., Cross, J., & Moore, M. G. (2005). *The handbook of blended learning: Global perspectives.* Local Designs, Pfeiffer & Company.

This is a fundamental book to understand the practices and trends in blended. The book provides examples of learning options that combine face-to-face instruction with online learning in the workplace, more formal academic settings, and the military. The focus is on real-world practices, and it targets trainers, consultants, professors, university staff distance-learning center directors, learning strategists general managers of learning, CEOs, chancellors, deans, and directors of global talent and organizational development. This diversity and breadth helps understanding the wide range of possibilities available when designing blended learning environments.

3. Ligorio, M. B., & César, M. (Eds.). (2013). *Interplays between dialogical learning and dialogical self*. IAP.

The Dialogical Approach, inspired by Bakhtin, has considerably contaminated education. This book is a collection of experiences and theoretical implications concerning new questions that this approach has raised, for instance: How does learning affect identity? How does participation to educational settings, scenarios, and situations impact the way we are or became? Can changes in how we perceive ourselves be considered as part of the learning process? As the blended approach touches also these issues, this book will help in framing them.

4. Loperfido, F. F., Sansone, N., Ligorio, M. B., & Fujita, N. (2014). Understanding I/We positions in a blended university course: Polyphony and chronotopes as dialogical features. *Open and Interdisciplinary Journal of Technology, Culture and Education*, *9*(2), 51.

In this paper, the dialogical approach has been used to explore university students' positions before and after participating to a BCCP instantiation. The results discussed are obtained through the qualitative analysis of focus group discussions held at the beginning and at the end of the course. An increase of students' polyphony has been recorded together with We-positions, probably connected to the strong collaborative dimension of the model.

5. Mercer, N., Wegerif, R., & Major, L. (Eds.). (2019). *The Routledge international handbook of research on dialogic education.* Routledge London.

This book provides a comprehensive overview of the main ideas and themes within the framework of Dialogic Education. A few chapters refer also to the dialogical dimensions when blended education is considered. Indeed, there is a specific section devoted to Dialogic Education and digital technology and a nice chapter, authored by Wegerif, about Dialogic Theory of Education for the Internet Age.

6. Shroff, R. H., Deneen, C. C., & Ng, E. M. (2011). Analysis of the technology acceptance model in examining students' behavioural intention to use an e-portfolio system. *Australasian Journal of Educational Technology*, *27*(4).

This paper analyses the Technology Acceptance Model (TAM) in order to examine students' behavioral intention to use an electronic portfolio system, meaning how students use and appropriate it within the specific framework of a course. This paper is recommended to those who want to elaborate on the use of e-portfolio.

7. Strivens, J. (2015). A Typology of ePortfolios. *The international Journal for Recording Achievements Planning and Portfolios*. (Vol 1) 3–5.

This paper helps in understanding what an e-portfolio can be. Different types of e-portfolios are described: personal portfolio, the so-called me-portfolio; professional e-portfolio, a "workbook" that learners use to learn through reflection on their experiences; and "promotional" e-portfolio that students can use to demonstrate their achievements in job application. Another type of e-portfolio is the task-portfolio. This type of e-portfolio does not contain a personal message but a description of what has been done, including processes, projects, placements, and products. These features inspired the definition of the e-portfolio in our BCCP model.

8. Tannhauser, A., C., Reynolds, S., Moretti M., Cariolato E. (2010) Trialogical Learning – A handbook for teachers. Retrieved from: https://docplayer.net/47420549-Trialogical-learning.html

This is a handbook specifically addressing teachers in higher education. It represents the first complete publication introducing the Trialogical approach. The roots and general frame within which this approach raised is explained, with particular reference to the knowledge society requirements.

9. Traetta, M. (2012) (Eds.) Dialogical Approach in Virtual Communities: Theories and Methods. *Qwerty International Journal* http://www.ckbg.org/qwerty/index.php/qwerty/issue/view/27

This is a special issue with a collection of papers useful for who is searching appropriate tools to study complex dynamics in communities with different degrees

of virtuality (virtual and blended). The interconnections between methods and theoretical questions are always in the foreground. A few case studies are reported.

10. Cattaneo, A., Evi-Colombo, A., Ruberto, M. & Stanley, J. (2019). *Video Pedagogy for Vocational Education. An overview of video-based teaching and learning*. Turin: European Training Foundation.

This report aims to provide a research-grounded and, at the same time, practice-oriented overview of how video can contribute in different contexts related to learning at the boundaries between education and workplaces, as suggested in the Trialogical Learning literature, reported in this chapter. Authors explained how video can make connections between learning contexts, for example, work-based and school-based. Video can be used also to support learners to form a community or support each other through observation, trial and error, and peer coaching.

Cross-References

- ▶ Educational Psychology: Learning and Instruction
- ▶ Formative Assessment and Feedback Strategies
- ▶ General Psychology Motivation
- ▶ Teaching of General Psychology: Problem Solving
- ▶ Technology-Enhanced Psychology Learning and Teaching
- ▶ Teaching of Work and Organizational Psychology in Higher Education

References

Akkerman, S. F., & Bakker, A. (2011). Boundary crossing and boundary objects. *Review of Educational Research, 81*(2), 132–169.

Amenduni, F., & Ligorio, M. B. (2017). Becoming at the borders: The role of positioning in boundary-crossing between university and workplaces. *Cultural-Historical Psychology, 13*(1), 89–104.

APA (2012). https://www.apa.org/ed/graduate/benchmarks-evaluation-system

Arifin, S., & Ikhfan, H. (2018). Assessing soft skills of undergraduate students: Framework for improving competitiveness, innovation and competence of higher education graduates. *Studia Humanitatis, 1*.

Aronson, E. (1978). *The jigsaw classroom*. Sage.

Aronson, E., & Patnoe, S. (2010). *Cooperation in the classroom: The jigsaw method*. Pinter & Martin.

Avedon, M., & Grabow, K. (2010). Professional identity: Organizational psychologists as chief human resource executives. *Industrial and Organizational Psychology, 3*(3), 266–268.

Blanchard, A. L., & Markus, M. L. (2002, January). Sense of virtual community-maintaining the experience of belonging. In *Proceedings of the 35th Annual Hawaii International Conference on System Sciences* (pp. 3566–3575). IEEE.

Bliuc, A., Ellis, R. A., Goodyear, P., & Piggott, L. (2011). A blended learning approach to teaching foreign policy: Student experiences of learning through face-to-face and online discussion and their relationship to academic performance. *Computers & Education, 56*(3), 856–864.

Brown, P. (2015). Communities of practice: A heuristic for workplace reflection in higher education. *The International Journal for Recording Achievement, Planning and Portfolios., 1*(1), 31–41.

Bruno, A., & Dell'Aversana, G. (2017). Reflective practice for psychology students: The use of reflective journal feedback in higher education. *Psychology Learning & Teaching, 16*(2), 248–260.

Cesareni, D., Cacciamani, S., & Fujita, N. (2016). Role taking and knowledge building in a blended university course. *International Journal of Computer-Supported Collaborative Learning, 11*(1), 9–39.

Dostoevsky, M. (1985). *The double* (E. Harden, Trans.). Ann Arbor, MI: Ardis. (Original work published 1846).

Edwards, S. M., & La Ferle, C. (2003). Role-taking: Enhancing the online experience. *Journal of Current Issues & Research in Advertising, 25*(2), 45–56.

Egloffstein, M., & Ifenthaler, D. (2017). Employee perspectives on MOOCs for workplace learning. *TechTrends, 61*(1), 65–70.

Engeström, Y. (1999). Activity theory and individual and social transformation. *Perspectives on Activity Theory, 19*(38), 19–30.

Erbe, D., Eichert, H. C., Riper, H., & Ebert, D. D. (2017). Blending face-to-face and internet-based interventions for the treatment of mental disorders in adults: Systematic review. *Journal of Medical Internet Research, 19*(9), e306.

Fischer, F., Kollar, I., Stegmann, K., & Wecker, C. (2013). Toward a script theory of guidance in computer-supported collaborative learning. *Educational Psychologist, 48*(1), 56–66.

Frankola, K. (2001). Why online learners drop out. *Workforce-Costa Mesa, 80*(10), 52–61.

Guasch, T., Alvarez, I., & Espasa, A. (2010). University teacher competencies in a virtual teaching/learning environment: Analysis of a teacher training experience. *Teaching and Teacher Education, 26*(2), 199–206.

Hakkarainen, K. (2003). Progressive inquiry in a computer-supported biology class. *Journal of Research in Science Teaching, 40*(10), 1072–1088.

Hare, A. P. (1994). Types of roles in small groups: A bit of history and a current perspective. *Small Group Research, 25*, 443–448.

Hermans, H. J. (2013). The dialogical self in education: Introduction. *Journal of Constructivist Psychology, 26*(2), 81–89.

Humpreys, M., & Brown, A. D. (2002). Narratives of organizational identity and identification: A case study of hegemony and resistance. *Organization Studies, 23*(3), 421–447.

Impedovo, M. A., Ligorio, M. B., & McLay, K. F. (2018). The "friend of zone of proximal development" role: Empowering ePortfolios as boundary objects from student to-work I-position transaction. *Journal of Assisted Computer Learning, 34*(6), 753–761.

James, W. (1890). *The principles of psychology* (Vol. I). London: Macmillan.

Lakkala, M., Toom, A., Ilomäki, L., & Muukkonen, H. (2015). Re-designing university courses to support collaborative knowledge creation practices. *Australasian Journal of Educational Technology, 31*(5).

Lenhart, A., Purcell, K., Smith, A., & Zickuhr, K. (2010). Social Media and Mobile Internet Use among Teens and Young Adults. *Pew Internet & American Life Project*. http://www.pewinternet.org/2010/02/03/social-media-and-young-adults

Ligorio, M. B., Amenduni, F., & McLay, K. (2019). Triangulating identity, groups and objects. A university case. In N. Mercer, R. Wegerif, & L. Major (Eds.), *The Routledge international handbook of research on dialogic education* (pp. 509–5249). Routledge.

Ligorio, M. B., & Annese, S. (2010). Blended activity design approach: A method to innovate e-learning for higher education. *Psychology Research*, 165–188.

Ligorio, M. B., Loperfido, F. F., Sansone, N., & Spadaro, P. F. (2011). Blending educational models to design blended activities. In *Techniques for fostering collaboration in online learning communities: Theoretical and practical perspectives* (pp. 64–81). IGI Global.

Ligorio, M. B., & Sansone, N. (2009). Structure of a blended university course: Applying constructivist principles to blended teaching. In *Information technology and constructivism in higher education: Progressive learning frameworks* (pp. 216–230). Igi Global.

Means, B., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers College Record, 115*(3), 1–47.

Meijers, F., & Hermans, H. (Eds.). (2017). *The dialogical self theory in education: A multicultural perspective* (Vol. 5). Springer.

Melanthiou, Y., Pavlou, F., & Constantinou, E. (2015). The use of social network sites as an e-recruitment tool. *Journal of Transnational Management, 20*(1), 31–49.

Naufel, K. Z., Appleby, D. C., Young, J., Van Kirk, J. F., Spencer, S. M., Rudmann, J., . . .Richmond, A. S. (2018). *The skillful psychology student: Prepared for success in the 21st century workplace*. Retrieved from: www.apa.org/careers/resources/guides/transferable-skills.pdf

Paavola, S., & Hakkarainen, K. (2005). The knowledge creation metaphor–an emergent epistemological approach to learning. *Science & Education, 14*(6), 535–557.

Paavola S., and Hakkarainen K. (2009). From meaning making to joint construction of knowledge practices and artefacts: a trialogical approach to CSCL. In *Proceedings of the 9th international conference on Computer supported collaborative learning – Vol. 1 (CSCL'09). International Society of the Learning Sciences* (pp. 83–92).

Paavola, S., & Hakkarainen, K. (2014). Trialogical approach for knowledge creation. In *Knowledge creation in education* (pp. 53–73). Singapore: Springer.

Pan, L., Zhong, T. T., Zhang, X. Y., & Chang, Y. C. (2020). A study of the effects of school environment, teacher identity, and students' self-efficacy and interpersonal relationship on learning outcomes of students in the universities in Hainan, China. *International Journal of Organizational Innovation (Online), 13*(1), 290–230.

Pham, A. V. (2014). Navigating social networking and social media in school psychology: Ethical and professional considerations in training programs. *Psychology in the Schools, 51*(7), 767–778.

Sansone, N., Cesareni, D., Ligorio, M. B., Bortolotti, I., & Buglass, S. L. (2020). Developing knowledge work skills in a university course. *Research Papers in Education, 35*(1), 23–42.

Sansone, N., & Ligorio, M. B. (2015). A protocol for multidimensional assessment in university online courses. *Research on Education and Media, 7*(1).

Sansone, N., Ligorio, M. B., & Buglass, S. L. (2018). Peer e-tutoring: Effects on students' participation and interaction style in online courses. *Innovations in Education and Teaching International, 55*(1), 13–22.

Scardamalia, M., & Bereiter, C. (2006). Knowledge building. *The Cambridge*.

Schwendimann, B. A., Cattaneo, A. A., Dehler Zufferey, J., Gurtner, J. L., Bétrancourt, M., & Dillenbourg, P. (2015). The 'Erfahrraum': A pedagogical model for designing educational technologies in dual vocational systems. *Journal of Vocational Education & Training, 67*(3), 367–396.

Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational Researcher, 27*(2), 4–13.

Sharpe, R., Benfield, G., & Roberts, G. (2006). *The undergraduate experience of blended e-learning: A review of UK literature and practice*. London: Higher Education Academy.

Stahl, G. (2006). *Group cognition: Computer support for building collaborative knowledge*. Cambridge, MA: MIT Press.

Star, S. L. (1989). The structure of ill-structured solutions: Boundary objects and heterogeneous distributed problem solving. In *Distributed artificial intelligence* (pp. 37–54). Morgan Kaufmann.

Street, H. (2010). Factors influencing a learner's decision to drop-out or persist in higher education distance learning. *Online Journal of Distance Learning Administration, 13*(4).

Strijbos, J. W., Martens, R., Jochems, W. M. G., & Broers, N. J. (2004). The effect of functional roles on group efficiency: Using multilevel modeling and content analysis to investigate computer-supported collaboration in small groups. *Small Group Research, 35*(2), 195–229.

Strijbos, J. W., & Weinberger, A. (2010). Emerging and scripted roles in computer-supported collaborative learning. *Computers in Human Behavior, 26*, 491–494.

Sutherland, S., & Powell, A. 2007, July 9. CETIS Portfolio SIG mailing list discussions https://ipark.hud.ac.uk/content/e-portfolios

Thibaut, P., Curwood, J. S., Carvalho, L., & Simpson, A. (2015). Moving across physical and online spaces: A case study in a blended primary classroom. *Learning, Media and Technology, 40*(4), 458–479.

Tonteri, L., Kosonen, M., Ellonen, H. K., & Tarkiainen, A. (2011). Antecedents of an experienced sense of virtual community. *Computers in Human Behavior, 27*(6), 2215–2223.

Visser, H. (2016). Self-confrontation method: Assessment and process-promotion in career counselling. In *Assessing and stimulating a dialogical self in groups, teams, cultures, and organizations* (pp. 19–36). Cham: Springer.

Vygotsky, L. (1978). Interaction between learning and development. *Readings on the Development of Children, 23*(3), 34–41.

Wenger, E. (2009). A social theory of learning. In *Contemporary theories of learning* (pp. 217–240). Routledge.

Wiley, D. A. (2000). *Learning object design and sequencing theory* (Doctoral dissertation, Brigham Young University).

Learning and Instruction in Higher Education Classrooms

58

Neil H. Schwartz and Anna N. Bartel

Contents

Abstract

This chapter inventories the essential components necessary to leverage theory and research in the deployment of effective instruction in higher education. The chapter begins with a discussion of the importance of structuring and organizing a higher education course to foster deep and enduring learning based on the evidence which supports it. The chapter then provides a rich chronology of the

N. H. Schwartz (✉)
Department of Psychology, California State University, Chico, CA, USA

A. N. Bartel
Department of Psychology, University of Wisconsin, Madison, WI, USA

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seminal theoretical ideas that support the value of student cognitive and behavioural activity that gives rise to active engagement during learning. Next, the importance of activities in and out of the classroom are discussed, with evidence-based examples illustrating the diverse and effective methods that lead to deep learning. Finally, for better or for worse, higher-educational classrooms still deliver much their instruction using the method of lecture. Thus, the chapter concludes with evidence-based research that explains the way to lecture properly by directing and sustaining attention, using personal examples, and activating student emotions to build cognitive models of new knowledge and motivate students to learn.

Keywords

Course organization · Course structure · Higher education · Learning and Instruction · Activity as engagement · Cognitive elaboration · Effective lecturing · Activating positive emotions · Learning activity

Introduction

Your course should be organized. However, it is not so much that it is organized, it should make sense. Many people organize a course around the table of contents of the book they use for the course—at least in the USA, since most courses in the USA are built around a required textbook. However, just because a textbook author organized content around what made sense to him or her, the course should be organized around what makes sense to you. After all, you are teaching it.

There are many ways to do this: Pick a book with a table of contents that makes sense to you; rearrange chapters in a book so that the order of assigned chapter readings conforms to the way you want to use the book; get copyright permission and assemble chapters from various books (and/or research articles) into a purchasable compendium in the order you see fit; or write the book yourself.

The organization of your course needs to build logically. This logical structure is known as an instructional hierarchy. That is, you start with the prerequisite information necessary to teach subsequent information and order the content relative to the layers of knowledge necessary for subsequent understanding. In math and statistics, for example, the instructional hierarchy is clear. In history, while it may appear that the instructional hierarchy is also clear—that is, a chronology of events and dates is most sensible for delivering content—the hierarchy is not necessarily clear at all. You may want students to develop an understanding of the social, economic, and educational factors that give rise to authoritarian leaders among developed and transitioning countries. The instructional hierarchy for this content certainly has a common core of prerequisite knowledge, but it also would be expected to be built with the unique thumbprint of the way you understand and view the topic conceptually.

Once the content of a course is logically assembled, the methods and activities need to be selected for teaching that content. There is little doubt that students need to be active when learning in order to build knowledge. Activity in learning makes concepts not only easier to understand, but it also makes the concepts more enduring in memory over time. This means that activities need to engender an engaged response from the learner. Engaged learning can be generated in activities as simple as taking notes during a lecture (Bretzing & Kulhavy, 1981; Peper & Mayer, 1978, 1986), creating a personal mind map of target information after a lecture has been completed, or, for example, building an infographic that consolidates the information into a sensible graphic display. Engaged responding can also be complex—for example, building a scale model of a timeline leading up to a historical event, writing and producing a homemade documentary, or working in the community on a social problem. What is common in these examples is that learning becomes embodied and personal so that students integrate the knowledge they already have with the knowledge that is new. The activities serve to ground that knowledge—to anchor it in substantive artifacts that have personal meaning. This engagement is essential for the new knowledge you seek to build within the learners who take your course—engagement that requires attention, reasoning, problem-solving, decision-making, and judgment, the kind of cognitive activities from which authentic learning is borne.

At the same time, most instructors do some variety of lecturing. Often those lectures make use of visual media—PowerPoint, Prezi, Canva, Google Slides, Samepage, Adobe Connect, and others—but the way you lecture and the visual media you choose has a powerful influence on your students. Lecturing also has an important affective component—the degree to which you can grab attention, keep that attention, and stir emotional arousal.

In the chapter that follows, we will examine these pedagogical features. First, we will discuss the value and necessity of structure; next, we will explore the value of activity during learning and why student engagement is so important; in the third section, we will explain the necessity and methods of directing attention and awakening emotions of students during classroom instruction; at the end, we will conclude with final remarks.

Section 1: Organizing and Structuring Your Course

The Value of Organization

Constructing and organizing a course for your students may sound simple enough: create student learning objectives, create the curriculum to help students meet said objectives, and prepare exams to assess how effectively you presented the course content. However, these steps are not necessarily simple to complete and should not be overlooked. While there is always new, up-and-coming research to support different instructional practices, it is important not to lose sight of the simple impact

that course organization has on different student outcomes. Sometimes it does not have to be a showy solution; in fact, research throughout the decades has consistently suggested that the order and organization of course content affects student achievement (Braxton, Bray, & Berger, 2000; Bray, Pascarella, & Pierson, 2004; Feldman, 1989; Glynn & Di Vesta, 1977; Roksa, Trolian, Blaich, & Wise, 2017).

Consider Feldman (1989); he examined several different teaching practices and their relationship with student achievement (e.g., teacher availability and interest, intellectual challenge, encouragement of questions, discussion/openness to opinions of others, etc.). Among all of the different teaching practices, the **two** specific practices that emerged as having the strongest relationship with student achievement were (1) organization of course and (2) clarity.

Additionally, Wang, Pascarella, Nelson, Laird, and Ribera (2015) analyzed longitudinal survey data comprised of student data from multiple different institutions. Across four years of student data, the authors revealed that students' perceptions of receiving organized course instruction were positively associated with higher-order learning (e.g., applying theories to novel situations), integrative learning (e.g., integrating information from various sources), and reflective learning (e.g., learning something that influenced a student's perspective to understand). Additionally, organized course instruction had positive effects on students' critical thinking and need for cognition by the end of the students' fourth year.

Another benefit of effective course organization is that it is a low-cost way to increase students' academic engagement and performance (Pascarella, Salisbury, & Blaich, 2011; Pascarella, Seifert, & Whitt, 2008). Pascarella et al. (2011) expanded upon a previous study (Pascarella et al., 2008) which suggested that being exposed to organized course instruction had an influence on first year university students' intent to re-enroll in school for a second year. Pascarella et al. (2011) replicated and expanded upon the previous study by discovering that the effect of student persistence on exposure to organized course instruction held true across different types of universities (e.g., community colleges, teaching and research universities, etc.) **and** for students with different levels of college preparation.

In short, having an organized course is of considerable importance for student achievement in classroom learning. However, as Pascarella and colleagues demonstrate, creating an organized course could also have important implications from a socioeconomic perspective. That is, creating an organized course, which is essentially cost-free, could help first-generation students and students from low socioeconomic statuses stay engaged in courses, receive better grades, and, in the long run, graduate.

It is interesting to note that, for the most part, the studies above used student ratings on various scales to obtain an aggregate score of student perceptions of course organization. While statements measuring course organization and clarity may vary across authors, we present an example set of questions used by Blaich, Wise, Pascarella, and Roksa (2016) to measure student perception of course organization. To be specific, Blaich et al. (2016) asked students to rate how often they had experienced the following statements given their interactions with different faculty on a five-point scale ranging from **Never** to **Very Often.**

The statements were as follows:

- Faculty gave clear explanations.
- Faculty made good use of examples and illustrations to explain difficult points.
- Faculty effectively reviewed and summarized the material.
- Faculty interpreted abstract ideas and theories clearly.
- Faculty gave assignments that helped in learning the course material.
- The presentation of material was well-organized.
- Faculty were well prepared for class.
- Class time was used effectively.
- Course goals and requirements were clearly explained.
- Faculty had a good command of what they were teaching.

What all of this information suggests is that student perceptions of organization matter for learning. Even if you believe your course to be organized and clear, it is still important to remember that the ideas and experiences your students bring into the classroom matter. If you are ever curious, you may consider giving these items to your students to get a better understanding of their perceptions of your course before the students give their formal course evaluations.

The research examining how organized instruction is related to academic performance and beyond is based in the constructivist theory of learning (Dochy & Alexander, 1995; Neumann, 2014). The most basic principle of the constructivist approach is that new knowledge is **constructed** from a prior knowledge base. You should recognize that the experiences students bring into your classroom are fundamental to their learning, and the way you organize your course should enable them to engage and activate their existing knowledge. In the constructivist framework, creating an engaging environment between you and your students enhances your students' active role in learning. The take-home message regarding course organization in a constructivist framework is that it allows there to be an emphasis on learning in context, which will emerge as a theme throughout the following sections.

The Value of Structure

It is not only important to discuss why it is important to have an organized course, but it is equally important to consider how you can create structure within that course. We have chosen the concept of instructional hierarchies (Haring, Lovitt, Eaton, & Hansen, 1978) to illustrate this structural concept.

While the foundations of instructional hierarchies are rooted in behaviorism, there are clear links of constructivism as an underlying theory of learning between both course organization and structure (Mayer, 1992). In the following paragraphs, we will discuss both the behavioral and constructivist elements in instructional hierarchies. The behavioral elements are the classic foundations of students' behaviors as described by Haring et al. (1978); the constructivist elements are showcased in how

you can structure your assignments to enhance learning and learning environments throughout the hierarchy.

The premise of an instructional hierarchy is simple: course organization should follow how students learn new information and skills, beginning with achieving accuracy of the subject matter (Ardoin & Daly, 2007; Haring et al., 1978). However, it is not so simple as to be ignored; it is important to have an understanding of the different stages in an instructional hierarchy because there have been a number of academic interventions developed to improve students' performance at different learning stages through different instructional techniques (Ardoin & Daly, 2007; Daly, Lentz, & Boyer, 1996; Lannie & Martens, 2008; Martens & Witt, 2004; Parker & Burns, 2014). As such, when you are able to identify what learning stage your student is in, you can employ instructional techniques that match your student's learning needs—thereby increasing the likelihood of your student's mastery of the learning stages. The four stages are detailed in the paragraphs below; furthermore, examples of student behaviors and suggested teacher approaches to the learning stages are shown in Table 1.

Table 1 Student behaviors and teacher approaches to learning stages

Corresponding teacher approaches and student behaviors in learning stages		
Learning stages	Example student behaviors	Suggested teacher approaches
Acquisition: Learning to demonstrate skill	Students cannot yet perform the task with complete accuracy	Teacher demonstrates active performance of the entire skill
	Student accuracy may be highly variable	Teachers provide prompts to cue or scaffold a specific response needed for the skill
Students move from acquisition to fluency when they perform skills accurately with few scaffolds		
Fluency: Demonstrating skill with automaticity	Students can perform the task with greater accuracy	Teachers provide activities that afford active responses from students
	Students perform slowly but with more reliable accuracy	Students are given ample problems to repeat skill
Students move from fluency to generalization when the skill is learned well enough to be automatic		
Generalization: Demonstrating skill on similar problems	May start trying to apply skill to new settings but do so with variable accuracy	Teachers provide assignments where the skill is used in different contexts
	May confuse skill with similar skills	Teachers provide problems designed to help discriminate skills
Students move from generalization to adaptation when the skill is used in different settings		
Adaptation: Demonstrating novel applications of skill	Like generalization, student is accurate and fluent	Teachers provide assignments where skill can be applied to novel situations
	Student applies skill to new situations without teacher prompts or scaffolds	Teacher provides scaffolds to help students find **their own ways** to adapt the skill to different situations

Retrieved from Wright (n.d.), https://www.interventioncentral.org/academic-interventions/general-academic/instructional-hierarchy-linking-stages-learning-effective-in

The first learning stage is **acquisition** where students are learning how to perform a specific skill in a class, more specifically gaining adequate accuracy of the skill. While a student in this stage is neither fully accurate nor fluent in the skill, the ultimate goal is for the student's accuracy to be improving (Daly, Martens, Hamler, Dool, & Eckert, 1999). Teachers may consider structuring their course in a way that begins with lecture or assignments that are focused on building accuracy. Some suggestions for helping students gain skill accuracy in the acquisition phase may include, but are not limited to, demonstrating the skill, modeling the skill, and prompting use of the skill (Espin & Deno, 1989). Thus, following demonstration or modeling, sprinkling brief moments in class to have your student act out, explain, or solve a quick simple problem requiring the skill is a good use of class time to provide for acquisition.

The second learning stage is **fluency.** In this stage, students are now able to complete a skill with accuracy, but using the skill requires a concentrated effort, and the student is typically slow to complete tasks. The goal of the fluency learning stage is for students to eventually produce the skill with automaticity, that is, quickly and with little effort or heavy thinking (Poncy, Skinner, & Jaspers, 2007). Some suggestions for teachers to help students reach automaticity of a skill may include, but are not limited to, creating activities that encourage active responses from students (e.g., teachers are no longer demonstrating the entire skill), giving students ample opportunities to repeatedly practice the skill (e.g., "drilling"), and generally creating assignments to facilitate overlearning and maintenance of the skill. This stage is ultimately one of practice. During a classic university lecture course, fluency development is extremely difficult unless an entire lecture period is devoted to it, but it is very valuable in a lab setting if the course has a lab attached to the course.

In the third learning stage—**generalization**—students have achieved accuracy and fluency of a skill and are beginning to apply this skill to similar, but novel, situations. During this stage, students will have difficulty applying the learned skill in different contexts. Therefore, the goal of the generalization learning stage is for the students to be able to discriminate between the skill and other similar skills. By learning to discriminate the skill, the students are then able to use the skill in different contexts. Some suggestions for teachers to help students reach generalization of a skill may include, but are not limited to, diversifying prompts such that the same skill can be used in contexts that only initially appear to be unfamiliar (e.g., when learning to count coins, a teacher could ask both, "how much money do these coins make?" **and** "is the amount of money that these coins make more or less than x?") and providing different types of problems that help discriminate between similar skills (Poncy, Duhon, Lee, & Key, 2010). As in the acquisition stage, the generalization stage is not particularly difficult to accomplish in a college classroom. For example, you might want to take a short segment of your class to have students work in pairs applying a skill set to two different problems types or contexts.

The fourth and final stage is **adaptation** where students have achieved accuracy and fluency and are able to generalize but are learning to apply, or adapt, the skill to completely new problems. The goal of the adaptation learning stage is for students to be able to identify specific elements within the skill they previously learned that could potentially be successfully adapted and used in novel situations (Burns,

Codding, Boice, & Lukito, 2010). We believe it is during this stage that teachers, especially in higher-level courses, need to heavily use (at the appropriate time in the semester) the creation of assignments and tasks. The adaptation learning stage affords immense creativity from both instructors and students alike.

Although instructional hierarchies are rooted in behaviorism, the active constructivist influence of a teacher can have a significant impact on the ability of students to advance through the learning stages by the activities teachers use to leverage that advancement. Thus, as shown in Table 1, it is important for teachers to match the type of instruction they are giving to their students based on their students' behaviors. Certainly, we are not suggesting that you create different course organizations to tailor your instruction to each individual student's needs; however, it is valuable to consider how the average student progresses through your course, so you can structure your course with appropriate assignments and activities that maximize the likelihood of **most** of your students achieving skill adaptation over a semester.

Section 2: Activities that Foster Learning

The Value of Activity as Engagement

In the section above, we explained how, from a constructivist point of view, organization and structure is important in designing your course. However, it is equally important to recognize that **activity** during learning is critical as well. That is, learning is constructed, not necessarily by having your students listen to you as an expert telling them **about** a concept, but rather providing opportunities for your students to develop the concept themselves.

That means conceptual development, when it is personal, is real, authentic, and grounded in activities that give rise to meaningful experience—experience that provides for your students to interact with their environment in the context of a real problem to solve. Under this condition, your students are able to discover the way things work by interacting with them and developing a cognitive model of those machinations. The cognitive model allows your students to construct a theory of the interaction they experienced and generate hypotheses to more deeply comprehend the intricacies and complexities of the concept they are trying to grasp; in short, their cognitive model sets up a direction and plan for their subsequent interactions.

It is certainly possible for your students to build a cognitive model without activity and engagement; however, the model they build will not be particularly useful for real learning. That is, an activity-free model of a concept is what is called "inert knowledge"—knowledge your student may be able to recite verbally to someone else but cannot be used in real-world problem-solving (Whitehead, 1929). For example, your student may be able to list the elements integral to the concept of operant conditioning, but not comprehend the relationship between different types of consequences or the relationship of consequences to behavior or behavior-antecedent connections. Thus, activity and engagement not only make

your students' cognitive models more utilitarian, but they also make your students' cognitive models more enduring and better available for new learning.

And yet, the idea of activity and engagement is not new. Piaget discussed it in the 1930s (Piaget, 1930), Bruner in the 1960s (Bruner, 1961). It was seen in Ernst Rothkopf's work on mathemagenic behaviors in the 1960s (Rothkopf, 1970), Merle Wittrock's generative learning theory (Wittrock, 1974) in the 1970s and 1980s, and more recently in Richard Mayer's cognitive theory of multimedia learning (Mayer, 2014) and Michelene Chi's interactive-cognitive-active-passive (ICAP) framework (Chi, 2009; Chi et al., 2018; Chi & Wylie, 2014). Indeed Rothkopf, in an interview on the subject (Rothkopf & Shaughnessy, 2005), reflected that during the early 1960s when operant conditioning was used to explain learning, **evoking a student's overt behavior was essential** in maintaining and shaping the engagement between the student and the instructional matter—that is, for authentic learning to occur, "engagement was critical in educational situations" (pg. 52). Thus, for Rothkopf, students were viewed as both a processor and **active elaborator** of information. In other words, students, in order to build a cognitive model that provided the framework for new learning, had to actively **do** something during learning to make that learning useful.

Wittrock's (1974) theory of generative learning underscored the importance of engagement and activity, as well. In his theory, Wittrock explained that learning was an active process where students needed to be engaged in connecting what they were learning with what they already knew; that active engagement during learning required attending, thinking, and doing—in other words, "generating and transferring meaning for stimuli and events from one's background, attitudes, abilities, and experiences" (Wittrock, 2010, pg. 43). Thus, for Wittrock, generating new knowledge and transferring it to problems of the real world meant that knowledge building had to be constructive, effortful, generative, and intentional.

Wittrock's theory was pioneering in that it fleshed out the utility and function of activity and engagement in developing deep comprehension during learning, but it also laid the groundwork for the theories that followed it. For example, as to the utility and function of activity, Wittrock showed in a number of studies that students who were tasked with actively generating cognitive associations between words not only remembered those words better, but the words were remembered for longer periods of time and were more easily transferred to solve new word problems (Goulet, 1970; Goulet & Wittrock, 1971; Wittrock & Carter, 1975). Wittrock also documented the value of generative learning both in and out of traditional classrooms—for example, with high school students in an economics class comprised of 15 hours of instruction (Kourilsky & Wittrock, 1992) and classes in the development of basic reading skills for Army service personnel on military bases (Wittrock, 1989).

As for the groundwork Wittrock laid for others, Mayer's (2014) select-organize-integrate (SOI) model was a part that foundation. Mayer's (2014) model explained that a student must actively first **select** the most relevant incoming information out of a cacophony of new information that may make little to no sense to the student, especially if he or she has had no previous exposure to the subject matter; next, the

student must **organize** in mind the appropriately selected information into a coherent cognitive representation by building conceptual connections between the relevant elements of the information based on its internal structure so that the student understands the information without distorting or changing it; finally, the student needs to **integrate** that newly constructed cognitive representation with the relevant knowledge structures he or she already has. Thus, like Wittrock, Mayer's SOI model underscored that, for students to learn during instruction, they must be active and constructive **mentally** beyond the mere memorization of, say, the types of vocabulary definitions, lists, charts, and diagrams that might exist on a whiteboard or PowerPoint slides or merely listening passively to the orations of their teacher, a podcast, or a video clip. In short, they must be **thinking**—**actively.**

There are a number of investigations that have documented the constructive nature of engagement during instruction that leads to active thinking. For example, Fiorella, Stull, Shelbi, and Mayer (2019) had 196 college students learn about the human kidney by watching a video narrated by a teacher. The teacher explained with diagrams shown part by part or the teacher dynamically drew while explaining. While the dynamically drawn diagrams produced better learning, what's most important is that the students learned substantially more when they wrote personal explanations of what they viewed, rather than creating a drawing of what they watched, or rewatching the video. In another example, Fiorella and Kuhlman (2019) had college students study a scientific text about the human respiratory system and then either explain to a fictitious student what they learned while creating their own drawings of what they learned, or just explain, or create a drawing only, or just restudy what they read. Not only did explaining while drawing produce better and more enduring learning, but the researchers found that the students' oral explanations were substantially more elaborative. Elaboration revealed much deeper understanding.

Finally, the importance and value of engagement in student learning has also come from the work of Michelene Chi. Chi and her colleagues (Chi et al., 2018) explained there are essentially four different levels of engagement—**i**nteractive engagement, **c**onstructive engagement, **a**ctive engagement, and **p**assive engagement. Each level of engagement leads to different kinds of actual learning behaviors, with learning outcomes different for each. That is, students' overt learning behaviors create knowledge-change processes that can be observed in the ability of the students to store new information in memory, activate prior knowledge, link the new information with the knowledge they already have, and make substantive and effective inferences based on those linkages. **Interactive, constructive,** and **active** engagement is superior to passive engagement because passive engagement reveals that students are really not doing much behaviorally. Instead, they may, or may not, be paying close attention, other than simply looking at instructional materials—e.g., listening to a lecture or reading slides from a PowerPoint, but not really **thinking** about the content being shared with them. The other three types of engagement require students to be **doing** something during learning. Passive engagement leads to learning that is shallow and more often than not isolated and unintegrated—and, at the end of the day, rather nonutilitarian except for somewhat low-level routine tasks.

The point is that Chi's four types of engagement flow in a hierarchical arrangement of progressive levels of cognitive activity during learning, where **I** is more engaging then **C**, **C** is more engaging than **A**, and **A** is more engaging then **P**. In short, **I** > **C** > **A** > **P**. As Chi explained, interactive engagement may be the holy grail of learning when you are teaching because it generates the most substantive and deepest knowledge building activity of all. Indeed, you can see this type of interactive engagement when two students work together collaboratively. That is, when students work in pairs, each learner must generate inferences from their own knowledge in conjunction with the knowledge of their partner **while** they are learning. In effect, this generative exchange creates a space for the two students to infer from their own knowledge, infer from their partner's knowledge, and then activate what they already know, link the combinations, and then store it in memory.

On the other hand, simply being generative alone—as occurs when in constructive engagement only—misses the value of the inferential transaction that takes place when two minds collaboratively learn together. When learning is simply active without the interactive or constructive component, your students may activate what they already know; they may even link that new information to their prior knowledge and then store it in memory. However, there is no dynamic and transactional inferential thinking taking place. Thus, in order to reach the level of integrative engagement, your students must be generating inferences of what they are trying to learn while co-generating and mingling those inferences with another student. In either case, whether it is constructive or interactive engagement, the inferences your students generate can be metaphorically conceived of as the "glue" that builds their cognitive model—a model that is of potential utility for them in solving the real-world problems that will come to them beyond the classroom. When your students are passive during instruction, they may be directing their attention to the new information you are teaching, but they do not link that new information to what they already know—nor do they do the heavy cognitive lifting of making inferences—again, the kind of inferences that create enriched and elaborative models of knowledge.

Activities in Class

One question that might arise as you consider Chi's ICAP model is the type of actual activities you can engage in when you teach. The levels of engagement, along with their example activities, knowledge-change processes, expected changes in knowledge, and their expected cognitive and learning outcomes, can be seen in Table 2.

What is valuable to consider in these examples is that your students are talking—either in mind to themselves or to another student. We contend that talking is a good thing during class time, as long as it is targeted, regulated, and timed. That means making space for your students to consider what you might have just presented, either by taking interpretive notes about what they were just exposed to, writing down questions or generating hypotheses in these notes, or discussing with a neighbor how what they just heard makes sense to them or applies to their personal

Table 2 ICAP framework example activities, knowledge processes, and outcomes

Category characteristics	*Passive* **receiving**	*Active* **manipulating**	*Constructive* **generating**	*Interactive* **dialoguing**
Example activities	Listening to explanations; watching a video	Taking verbatim notes; highlighting sentences	Self-explaining; comparing and contrasting	Discussing with a peer; drawing a diagram with a partner
Knowledge-change processes	Isolated "storing" processes in which information is stored episodically in encapsulated form without embedding it in a relevant schema, no integration	"Integrating" processes in which the selected and emphasized information activates prior knowledge and schema, and new information can be assimilated into the activated schema	"Inferring" processes include integrating new information with prior knowledge; inferring new knowledge; connecting, comparing, and contrasting different pieces of new information to infer new knowledge; analogizing, generalizing, reflecting on conditions of a procedure, explaining why something works	"Co-inferring" processes involve both partners taking turns mutually creating. This mutuality further benefits from opportunities and processes to incorporate feedback and to entertain new ideas, alternative perspectives, new directions, etc.
Expected changes in knowledge	New knowledge is stored but stored in an encapsulated way	Existing schema is more complete, coherent, salient, and strengthened	New inferences create new knowledge beyond what was encoded; thus existing schema may become more enriched; procedures may be elaborated with meaning, rationale, and justifications; and mental models may be accommodated; and schema may be linked with other schemas	New knowledge and perspectives can emerge from co-creating knowledge that neither partner knew

(continued)

Table 2 (continued)

Category characteristics	*Passive* **receiving**	*Active* **manipulating**	*Constructive* **generating**	*Interactive* **dialoguing**
Expected cognitive outcomes	Recall: knowledge can be recalled verbatim in identical context (e.g., reuse the same procedure or explanation for identical problems or concepts)	Apply: knowledge can be applied to similar but nonidentical contexts (i.e., similar problems or concepts that need to be explained)	Transfer: knowledge of procedures can be applied to a novel context or distant problem; knowledge of concepts permits interpretation and explanations of new concepts	Co-create: knowledge and perspectives can allow partners to invent new products, interpretations, procedures, and ideas
Learning outcomes	Minimal understanding	Shallow understanding	Deep understanding, potential for transfer	Deepest understanding, potential to innovate novel ideas

From Chi and Wylie (2014; pg.22)

lives. Activity like this is possible in a higher education classroom if your students are primed for it on the first day of class as an integral component of your class structure and thereupon reminded of the structure at the beginning of your class for the first couple of weeks. It also means that you punctuate your class time with these segments—albeit brief—and take moments to stop presenting so your students can write their notes and take a moment to cognitively catch up. Catching up means giving time to think; and thinking means being able to generate the inferences that potentially lead to the rich cognitive models your students will use to apply their new knowledge outside of your classroom.

Earlier we noted that, as far back as the 1960s, Rothkopf viewed students as both a processor and **active elaborator** of information, and while the work of Wittrock (1974, 1989, 2010), Mayer (2014), and Chi (Chi et al., 2018) fleshed out this view extensively, others have done so as well, approaching the concept by using the term **elaboration**. Indeed, the idea that information is better understood, processed, and retrieved if students have an opportunity to elaborate on that information has been fairly well established (Anderson & Reder, 1979; Reder, 1980); and in education there are many ways in which this condition can be fulfilled. For example, students can elaborate on information by answering questions about a text (see the instructional hierarchy learning stages fluency and generalization from this chapter; see also Anderson & Biddle, 1975), by formulating and critically examining hypotheses about a given problem (see the instructional hierarchy learning stage adaptation; see Chi's constructive and integrative engagement), by taking notes (Peper & Mayer, 1978, 1986), and by creating mind maps and other spatial displays (c.f. Eppler, 2006). These are all forms of elaboration that are discussed in this chapter. However, we believe that it is valuable to have an understanding of the benefits of providing

your students opportunities to engage in elaboration: Engaging in elaboration not only provides the redundancy in memory needed to support your students' encoding and eventual retrieval of the information you are teaching them (see Chi's active engagement; Reder, 1980), but it also stimulates the generation of inferences we discussed above.

Activity Inside of Class

One way to support student's elaborative engagement is through notetaking. Opportunities for students to take notes during a lecture should be ample; in fact, the vast majority of college students report taking notes during lectures (Morehead, Dunlosky, Rawson, Blasiman, & Hollis, 2019). Notetaking is beneficial because previous research has demonstrated that students who take notes recall more key concepts from lectures; furthermore, the students who take notes recall more conceptually relevant content in comparison to students who take no notes at all (Peper & Mayer, 1978, 1986).

In general, there has been a consensus over several decades that taking notes is effective during lectures. However, much of notetaking research was conducted before students had access to technology to take notes (Barnett, Di Vesta, & Rogozinski, 1981; Kiewra et al., 1991; Peper & Mayer, 1978, 1986). In fact, given the increase of technology use in the classroom, taking notes by hand is now considered more of a traditional form of taking notes (Lin & Bigenho, 2011).

From students' perspective, using laptops to take notes is reported as being overall beneficial (Skolnick & Puzo, 2008). However, from teachers' perspective, the use of laptops in the classroom is generally regarded as a distraction and in fact results in increased students' off-task behavior (Kay & Lauricella, 2011; Skolnick & Puzo, 2008). Specifically, Kraushaar and Novak (2010) revealed that students who use a laptop during class are off task (defined as having non-course-related applications open during class) 42% of the time, which in turn leads to lower performance in the course (Glass & Kang, 2019; Sana, Weston, & Cepeda, 2013). Therefore, one seemingly obvious reason that teachers may believe notetaking by hand is preferable to laptop notetaking is because there are fewer distractions at hand for the student to easily engage with.

And yet, it is important to note that even the most recent research on the benefits of notetaking by hand versus laptop notetaking should be interpreted cautiously. That is, there are contrasting conclusions in the literature regarding which form of notetaking is most beneficial for your students. For example, while the studies mentioned above found a benefit of notetaking by hand, research by Bui, Myerson, and Hale (2013) suggested that students who take notes on laptops outperform students who take notes by hand. Furthermore, various studies have found that students who take notes on a computer usually generate more words and ideas than students who take notes by hand. Still, whether this demonstrates that taking notes on a laptop is better than notetaking by hand is presently strongly debated (Bui et al., 2013; Mueller & Oppenheimer, 2014).

In our opinion, it makes sense that a consensus has eluded the field between by-hand and laptop notetaking. In a recent integrative review detailing the cognitive costs and benefits of taking notes (see Jansen, Lakens, & IJsselsteijn, 2017 for full review), Jansen et al. (2017) suggested that it is difficult, if not impossible, to directly compare the results of notetaking studies in order to make a definitive decision about which one is best for a classroom policy because (1) some of the studies detailing the benefits of notetaking by hand were conducted before laptops were common in classrooms; (2) studies used different lecture formats (e.g., audio, video, text); (3) lecture formats varied in difficulty and length; (4) testing across studies was not uniform (e.g., free recall, recognition, short answer, multiple choice, tapping procedural or conceptual knowledge constructs, course exam, writing an essay); and (5) different sample sizes were used.

It can be easily argued that an increase in off-task behavior, such as opening non-course-related applications, would be completely curtailed if laptops were prohibited in your classroom; however, we believe that banning laptops from a university classroom would be counterproductive. For example, students with certain learning challenges may be unable to take notes without a computer and may not want to be singled out for having to do so. Thus, in light of our position, there are several instructional techniques you can use without having to create a technology-free classroom. First, you can design a seating arrangement where your students who prefer to take laptop notes can sit in the front corners of your classroom. As a result, other students, who may be particularly distracted by screens, can choose seats out of view of laptop screens. Second, on the first day of class, during a time where the syllabus is typically being explained, you may give additional instruction and resources on how to take notes for your course. This suggestion is based on recent research by Morehead et al. (2019) who demonstrated that the majority of college students were actually not even aware that there were other notetaking techniques available to them (e.g., Cornell notes). Indeed, the researchers found that students welcomed the opportunity to have more instruction on how to take notes. Third and finally, while you may allow laptops in your classroom, it is also quite effective to intermittently direct your students to close their laptops when you are discussing key or complex topics.

In sum, while it may be unsatisfying that the notetaking research fails to lead to a specific set of recommendations, notetaking in general is still fairly well supported. It is just that the jury is out as to whether notes should be taken by hand or by laptop and whether laptop use should be directed only for the specific use of classroom learning.

Activity Inside or Outside of Class

On the other hand, we do believe that, in order for learning to occur, it is essential that your students be given the opportunity for agency, creativity, and growth and be active during learning. Indeed, as the underlying thread of this chapter, we know that meaningful learning occurs by students **actively** integrating new concepts into prior

knowledge structures. Therefore, you may consider assigning activities that afford your students active consolidation and reflection on the new knowledge they are attempting to learn—**during** class (Dhindsa & Anderson, 2011; Twardy, 2004). As a result of being assigned such activities, your students are given the opportunity to bring their personal experience, perspective, and creativity into your classroom, which is an essential component of reflecting on, and learning, new material (Plummer, 2001).

The question then becomes: What types of activities can you provide that involve your students' personal experience/perspective, reflection, and integration of old and new knowledge? Commonly, spatial visualizations have been used effectively in this endeavor (Larkin & Simon, 1987; Tufte, 1983).

Spatial visualizations, such as mind maps and concept maps, may be particularly useful because they are often constructed in some type of organizational or hierarchical concept structure. Having this type of visual structure showcases the relationships between concepts and ideas (Eppler, 2006). Since the concepts are clearly connected to each other structurally and visually, these spatial visualization formats actually become physical artifacts of students' developing knowledge structures (Nousiainen, 2012). Furthermore, the different types of spatial visualization formats enhance learning because information is presented in more than one modality—textually and visually (Schwartz, 1988).

Although the underlying learning mechanisms are similar between different forms of spatial visualization formats, there are differences in their application. Specifically, the spatial visualization formats we are referring to here are mind maps (Buzan, 2006) and concept maps (Davies, 2011). While there are many other formats (for argument maps see Davies, 2011; for conceptual diagrams see Eppler, 2006), for brevity we will only be discussing the two. Please refer to Table 3 for an adapted table from Eppler (2006) highlighting the difference between these two spatial visualization formats.

Concept maps were initially developed by Novak (1998) with the main goal of enhancing meaningful learning by having students list and connect various concepts in a relational nature. Indeed, affording students the opportunity to make relational connections between relevant concepts is, from the perspective of teachers, possibly the greatest advantage that concept maps offer (Davies, 2011). As we discussed previously, this is exactly how meaningful learning takes place—linking new concepts to existing knowledge structures—and there is a plethora of evidence that demonstrates the benefits of using concept maps in education settings for this purpose (Amundsen, Weston, & McAlpine, 2008; Kinchin, 2000; Sanchiz et al., 2019). Still, it is important to note that concept maps are not without their disadvantages. They require some expertise to learn and constructing them can be challenging and overwhelming (Kinchin, 2000).

Mind maps, by comparison, were initially developed by Buzan (2006), with the goal of creating a method of notetaking that is brief and interesting (Buzan & Buzan, 2006). According to Buzan (2006), mind mapping is a strategy to think about and organize information visually by creating nonlinear relationships between ideas and colors. Similar to concept maps, several studies have demonstrated the effectiveness

Table 3 Comparison of two spatial visualization formats: concept maps and mind maps

	Concept map	Mind map
Example visualization	 **(Retrieved from West, Pomeroy, Park, Gerstenberger, & Sandoval, 2000)**	 **(Retrieved from https://sites.psu.edu/kzg128/2012/12/07/mind-maps/)**
Definition	Top-down diagram that shows relationship between concepts, cross-connections between concepts, and examples	Image-centered, multicolored, radial diagram that represents semantic or other connections between portion of hierarchically learned material
Function	Shows systematic relationships among sub-concepts that relate to one main concept	Shows sub-topics of a domain in a creative and seamless manner
Suggested application guidelines	Use it as a learner support tool for students to summarize key course topics or clarify the elements/examples of an abstract topic	Use it for brainstorming and rapid notetaking or to structure the main contents of a course/topic hierarchically
Advantages	Emphasizes relationships and connections among object	Encourages creativity and self-expression
	Provides systematic overview	Provides concise hierarchic overview
	Ability to assess quality of concept map through evaluative rules	Easy to extend and add additional content
Disadvantages	Not easily applied by novices; requires training	Represents mostly hierarchic relationships
	Tend to be idiosyncratic	Tend to be idiosyncratic, hard for others to read
	Time-consuming to create evaluative rules	Picture can become too large and overly complex

From Eppler (2006; pp.203, 206)

of mind maps in educational settings (Biktimirov & Nilson, 2006; Eriksson & Hauer, 2004; Farrand, Hussain, & Hennessy, 2002). From teachers' perspectives, possibly the greatest advantage of mind maps is the creative potential they afford their students (Davies, 2011). But again, there are also disadvantages: They are idiosyncratic to each student and can potentially become overly complex.

Finally, note that mind mapping and concept mapping are functionally distinct (Davies, 2011; Eppler, 2006). Concept maps visualize structured, relational connections between concepts; mind maps visualize spontaneous, creative, and associative connections between ideas. Therefore, mind maps are used to show **associative** connections between concepts; concept maps are used to show **relational** connections between concepts **and** sub-concepts (Davies, 2011). Still, both spatial visualizations not only align with our underlying approach to learning in that they provide an actively constructed visual form to support reflection, associations between ideas, and relations between concepts (Kinchin, Streatfield, & Hay, 2010), but they are also perceived positively by teachers and students. Keles (2012) discovered that teachers found using mind maps with their students to be enjoyable, believing that mind maps increased their students' motivation of the topic they were trying to teach. Likewise, students perceived positively the use of spatial visualizations—in all its various formats—as an effective activity from which to learn (Goodnough & Woods, 2002). In short, employing these different spatial visualizations is valuable— before class to introduce concepts from assigned readings, as a summary of what was discussed during class and in lecture presentations, and in taking notes (see Table 3 suggested applications).

Section 3: The Way to Lecture

Throughout this chapter, we have assumed that lecturing comprises much of what goes on in most higher education classrooms, and there is evidence that this assumption is true. Consider the work of Stains et al. (2018). They observed 2,008 STEM classes within 709 courses across 25 universities—24 doctorate-granting and 1 primarily undergraduate institution. What they found was remarkable: 55% of those observations were traditional lecture formats in which teachers spent 80% or more of those lectures speaking. While roughly a quarter (27%) of those observations consisted of some sort of student-centered activity during class (e.g., some group activity or handheld clickers to answer questions), only 18% of the classes saw a heavily student-centered approach to instruction. Moreover, during each measured 2-minute interval of class time, (a) instructors lectured approximately 75% of the time, and (b) students primarily listened to their instructor lecture 81% percent of the time and asked questions only 10%. Therefore, as demonstrated by Stains et al. (2018), lecturing still consumes the lion's share of most college classrooms.

And yet, while we do not suggest that you spend most of your class time lecturing, if you do, it is essential to know that lecturing is not a one-dimensional activity.

When most teachers lecture, they tend to do so by **describing** the concepts, principles, axioms, techniques, and other categories of information that comprise the curriculum of their course. Indeed, describing—or, perhaps more commonly,

reading off a PowerPoint slide and giving or asking for examples—is what is typically seen in most college classrooms (Schmidt et al., 2010; Stains et al., 2018; Wieman, 2017). However, describing **per se** is a relatively flat, uninteresting, and nonengaging method of presenting information to your students. Instead, lecturing is most effective when it is inspiring, emotionally stirring, and relatable—the type of lecturing that has the capacity to get your students to **think *while*** they are learning.

And yet, it is also important to note that when a student takes their seat in your classroom, they have to make a cognitive shift from the conditions and situations of their everyday lives. They may have rushed to your class from a previous one; they may have been thinking of their friends and the social conditions (positive or negative) that infuse their lives; or they may be worried about their finances, social engagements, or family dynamics at home. Today, it is not uncommon for students to work part or full time to meet, or at least help with, their college expenses (Lipka, 2007; Snyder, de Brey, & Dillow, 2019). Thus, they may be concerned about making it to work on time, wondering about their upcoming work schedule, or thinking about their workplace performance relative to the expectations of their boss. The point is that all of these concerns are formidable hurdles to clear in order to pull your students into the subject matter you are intending for them to learn while they are seated in front of you at the top of the hour.

So, what is important to think about when lecturing in your classroom? We believe that there are three major areas that can effectively pull your students into the subject matter of your course: directing and sustaining their attention, using personal examples, and invoking their emotional commitment.

Directing and Sustaining Attention

One of the simplest ways to direct and sustain attention in your students is to awaken their situational interest and sense of value when you lecture. Situational interest refers to features of your lecture that highlight **real** human activity or meaningful themes of life (Ainley, Hidi, & Berndorff, 2002; Hidi, 1990), as well as an emotional response your students experience directly (Hidi & Harackiewicz, 2000). Value refers to whether your students share the merit you find in the subject matter you teach—in practical terms, whether your goals invoke in them a sense of importance to their own identity, utility in the achievement of their own goals, and activities they find interesting and/or enjoyable (Wigfield & Eccles, 2000). Students, when their interest is activated, show closer and more sustained attention, learn more, and experience enjoyment to a greater degree than students whose interest is low (Ainley et al., 2002).

Using Personal Examples

Personal examples are valuable to use in your lectures, as well. Personal examples increase your students' interest and sense of ownership in the material you present; they activate the previous knowledge your students already have in order to build the

cognitive models necessary for them to acquire still new knowledge (Abrahamson, 2005). Both the personal examples of your own experience and the examples of your students enhance their desire to actively think while you are lecturing, as well as fostering a positive interpersonal relationship between both of you (Abrahamson, 2005).

There is little doubt that students already report using self-generated examples as a learning technique while they are studying (Gurung, Widert, & Jeske, 2010). However, it is also important to point out that they organically come up with their own examples for a reason: Student-generated examples make concept learning more successful (Rawson & Dunlosky, 2016); those concepts lead to more comprehensible and more enduring knowledge structures over time (Barnett & Cici, 2002); and student-generated examples lead to better problem-solving. Indeed, Hamilton (1989) observed that learners who generated two personal examples for each definition of a psychological concept performed better on problem-solving questions than did learners who generated no personal examples at all. The point is that when you infuse personal examples into your lectures—examples that are either yours or those of your students—your students not only make better connections to what they already know, and learn more because of it, but the examples both of you generate also serve to enhance your relationship with each other.

Activating Positive Student Emotions

Finally, we suggested above that lecturing is most effective when it is inspiring, emotionally stirring, and relatable. Thus, beyond the recognition that stimulating situational interest and using personal examples is effective in enhancing student learning, activating emotions in your students is valuable, as well. Activating emotion during lecture leads to what Cavanaugh (2016) calls "emotional contagion"—the idea that if teachers foster positive emotions in their students, both toward the material and themselves, then their students may show more engagement with the course and the material and show higher overall course achievement. Cavanaugh reasoned that, since the systems of the brain involved in learning and emotion are not separate but neurologically linked, it makes sense that positive emotional arousal should lead to enhanced learning.

While there is a trail of research going back to the 1980s suggesting that Cavanaugh may, in practice, be correct (c.f. Bower, 1981; Bower, Gilligan, & Monteiro, 1981; Isen, Daubman, & Nowicki, 1987), Pekrun and Stephens (2010a) caution that emotional influences should be carefully crafted in educational courses because their antecedents in an ecologically valid setting still have not been thoroughly well examined. Nevertheless, we suggest that evoking positive emotional arousal among your student during lecture, if incurred judiciously, is probably productive. Thus, we agree with Cavanaugh (2016) since we believe that there is sufficient evidence to support it. For example, students experiencing more positive emotions also engaged more with their classroom material, and more engagement with the material led to higher achievement (Buff, Reusser, Rakoczy, & Pauli, 2011); students' positive emotions increased their intrinsic motivation by stimulating their

curiosity to explore new information, leading to better academic performance (Pekrun & Stephen, 2010b; Um, Plass, Hayward, & Homer, 2012); stimulating positive emotions in students induced the students to show greater creativity and flexibility when attempting to solve problems, as well as more efficiency in decisions they were asked to make (Isen, 2000); positive emotions helped students pay better attention to classroom content (Park & Lim, 2007); and, finally, students when learning in a negative mood performed worse than students in a positive mood on a set of logical inference problems (Jung, Wranke, Hamburger, & Knauff, 2014). The take-home message is this: Incurring your students to be activated emotionally in positive ways when you teach can lead to better learning and more productive thinking and contribute to higher achievement.

Section 4: Concluding Remarks

The theme of this chapter is based upon the premise that, in order for students to learn in higher education classrooms, they must be engaged. And yet, in order to be engaged, it is essential to understand what is meant by engagement—that the concept has a rich history of theories and models that support it and lead to methods that foster it. The most important core to those methods centers around activity—not necessarily physical activity per se, although physical activity is important vis-à-vis the notion of embodiment, but activity that leads your students to think—while they are learning. We inventoried ways in which you can incur that active thinking but added that thinking, without the activation of emotion in your students, may not be enough to leverage the higher education classroom to its potential for meaningful student learning.

Cross-References

- ▶ Assessment of Learning in Psychology
- ▶ Basic Principles and Procedures for Effective Teaching in Psychology
- ▶ First Principles of Instruction Revisited
- ▶ Formative Assessment and Feedback Strategies
- ▶ Inquiry-Based Learning in Psychology
- ▶ Problem-Based Learning and Case-Based Learning
- ▶ Small Group Learning

References

Abrahamson, C. E. (2005). Motivating students through personal connections: Storytelling as a pedagogy in introductory psychology. *Best practices for teaching introduction to psychology* (pp. 245–258). Mahwah, NJ: Lawrence Erlbaum Associates.

Ainley, M., Hidi, S., & Berndorff, D. (2002). Interest, learning, and the psychological processes that mediate their relationship. *Journal of Educational Psychology, 94*(3), 545.

Amundsen, C., Weston, C., & McAlpine, L. (2008). Concept mapping to support university academics' analysis of course content. *Studies in Higher Education, 33*(6), 633–652.

Anderson, J. R., & Reder, L. M. (1979). An elaborative processing explanation of depth of processing. In L. S. Cermak & F. I. M. Craik (Eds.), *Levels of processing in human memory (Erlbam, 1979)* (pp. 385-404).

Anderson, R. C., & Biddle, W. B. (1975). On asking people questions about what they are reading. In *Psychology of learning and motivation* (Vol. 9, pp. 89–132). Waltham, MA: Academic Press.

Ardoin, S. P., & Daly, E. J. (2007). Introduction to the special series: Close encounters of the instructional kind—How the instructional hierarchy is shaping instructional research 30 years later. *Journal of Behavioral Education, 16*(1), 1–6.

Barnett, J. E., Di Vesta, F. J., & Rogozinski, J. T. (1981). What is learned in note taking? *Journal of Educational Psychology, 73*(2), 181.

Barnett, S. M., & Ceci, S. J. (2002). When and where do we apply what we learn? A taxonomy for far transfer. *Psychological Bulletin, 128*, 612–637.

Biktimirov, E. N., & Nilson, L. B. (2006). Show them the money: Using mind mapping in the introductory finance course. *Journal of Financial Education, 32,* 72–86.

Blaich, C., Wise, K., Pascarella, E. T., & Roksa, J. (2016). Instructional clarity and organization: It's not new or fancy, but it matters. *Change: The Magazine of Higher Learning, 48*(4), 6–13.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36*(2), 129.

Bower, G. H., Gilligan, S. G., & Monteiro, K. P. (1981). Selectivity of learning caused by affective states. *Journal of Experimental Psychology: General, 110*(4), 451.

Braxton, J. M., Bray, N. J., & Berger, J. B. (2000). Faculty teaching skills and their influence on the college student departure process. *Journal of College Student Development, 41*(2), 215.

Bray, G. B., Pascarella, E. T., & Pierson, C. T. (2004). Postsecondary education and some dimensions of literacy development: An exploration of longitudinal evidence. *Reading Research Quarterly, 39*(3), 306–330.

Bretzing, B. H., & Kulhavy, R. W. (1981). Note-taking and passage style. *Journal of Educational Psychology, 73*(2), 242.

Bruner, J. S. (1961). The act of discovery. *Harvard Educational Review, 31*, 21–32.

Buff, A., Reusser, K., Rakoczy, K., & Pauli, C. (2011). Activating positive affective experiences in the classroom: "Nice to have" or something more? *Learning and Instruction, 21*(3), 452–466.

Bui, D. C., Myerson, J., & Hale, S. (2013). Note-taking with computers: Exploring alternative strategies for improved recall. *Journal of Educational Psychology, 105*(2), 299.

Burns, M. K., Codding, R. S., Boice, C. H., & Lukito, G. (2010). Meta-analysis of acquisition and fluency math interventions with instructional and frustration level skills: Evidence for a skill-by-treatment interaction. *School Psychology Review, 39*(1), 69.

Buzan, T. (2006). *The ultimate book of mind maps: Unlock your creativity, boost your memory, change your life*. London, UK: HarperCollins.

Buzan, T., & Buzan, B. (2006). *The mind map book***.** Pearson Education.

Cavanagh, S. R. (2016). *The spark of learning: Energizing the college classroom with the science of emotion*. Morgantown, WA: West Virginia University Press.

Chi, M. T. (2009). Active-constructive-interactive: A conceptual framework for differentiating learning activities. *Topics in Cognitive Science, 1*(1), 73–105.

Chi, M. T., Adams, J., Bogusch, E. B., Bruchok, C., Kang, S., Lancaster, M., et al. (2018). Translating the ICAP theory of cognitive engagement into practice. *Cognitive Science, 42*(6), 1777–1832.

Chi, M. T., & Wylie, R. (2014). The ICAP framework: Linking cognitive engagement to active learning outcomes. *Educational Psychologist, 49*(4), 219–243.

Daly, E. J., III, Lentz, F. E., Jr., & Boyer, J. (1996). The instructional hierarchy: A conceptual model for understanding the effective components of reading interventions. *School Psychology Quarterly, 11*(4), 369.

Daly, E. J., III, Martens, B. K., Hamler, K. R., Dool, E. J., & Eckert, T. L. (1999). A brief experimental analysis for identifying instructional components needed to improve oral reading fluency. *Journal of Applied Behavior Analysis, 32*(1), 83–94.

Davies, M. (2011). Concept mapping, mind mapping and argument mapping: What are the differences and do they matter? *Higher Education, 62*(3), 279–301.
Dhindsa, H. S., & Anderson, O. R. (2011). Constructivist-visual mind map teaching approach and the quality of students' cognitive structures. *Journal of Science Education and Technology, 20* (2), 186–200.
Dochy, F. J., & Alexander, P. A. (1995). Mapping prior knowledge: A framework for discussion among researchers. *European Journal of Psychology of Education, 10*(3), 225–242.
Eppler, M. J. (2006). A comparison between concept maps, mind maps, conceptual diagrams, and visual metaphors as complementary tools for knowledge construction and sharing. *Information Visualization, 5*(3), 202–210.
Eriksson, L. T., & Hauer, A. M. (2004). Mind map marketing: A creative approach in developing marketing skills. *Journal of Marketing Education, 26*(2), 174–187.
Espin, C. A., & Deno, S. L. (1989). The effects of modeling and prompting feedback strategies on sight word reading of students labeled learning disabled. *Education and Treatment of Children, 12*(3), 219–231.
Farrand, P., Hussain, F., & Hennessy, E. (2002). The efficacy of the 'mind map' study technique. *Medical Education, 36*(5), 426–431.
Feldman, K. A. (1989). The association between student ratings of specific instructional dimensions and student achievement: Refining and extending the synthesis of data from multisection validity studies. *Research in Higher Education, 30*(6), 583–645.
Fiorella, L., & Kuhlmann, S. (2019). Creating drawings enhances learning by teaching. *Journal of Educational Psychology, 112*(4), 811–822.
Fiorella, L., Stull, A. T., Kuhlmann, S., & Mayer, R. E. (2019). Instructor presence in video lectures: The role of dynamic drawings, eye contact, and instructor visibility. *Journal of Educational Psychology, 111*(7), 1162.
Glass, A. L., & Kang, M. (2019). Dividing attention in the classroom reduces exam performance. *Educational Psychology, 39*(3), 395–408.
Glynn, S. M., & Di Vesta, F. J. (1977). Outline and hierarchical organization as aids for study and retrieval. *Journal of Educational Psychology, 69*(2), 89.
Goodnough, K., & Woods, R. (2002). *Student and teacher perceptions of mind mapping: A middle school case study.*
Goulet, L. R. (1970). Training, transfer, and the development of complex behavior. *Human Development, 13*(4), 213–240.
Goulet, L. R., & Wittrock, M. C. (1971). Transfer of training models and developmental processes. In *Biennial meeting of the society for research in child development*. Minneapolis, MN.
Gurung, R. A. R., Weidert, J., & Jeske, A. (2010). Focusing on how students study. *Journal of the Scholarship of Teaching and Learning, 10*, 28–35.
Hamilton, R. (1989). The effects of learner-generated elaborations on concept learning from prose. *The Journal of Experimental Education, 57*(3), 205–217.
Haring, N. G., Lovitt, T. C., Eaton, M. D., & Hansen, C. L. (1978). *The fourth R: Research in the classroom***.** Columbus, OH: Charles E. Merrill Publishing Company.
Hidi, S. (1990). Interest and its contribution as a mental resource for learning. *Review of Educational Research, 60*(4), 549–571.
Hidi, S., & Harackiewicz, J. M. (2000). Motivating the academically unmotivated: A critical issue for the 21st century. *Review of Educational Research, 70*(2), 151–179.
Isen, A. M. (2000). Positive affect and decision making. In M. Lewis & J. Haviland (Eds.), *Handbook of emotions* (pp. 720), Guilford, NY: The Guilford Press.
Isen, A. M., Daubman, K. A., & Nowicki, G. P. (1987). Positive affect facilitates creative problem solving. *Journal of Personality and Social Psychology, 52*(6), 1122.
Jansen, R. S., Lakens, D., & IJsselsteijn, W. A. (2017). An integrative review of the cognitive costs and benefits of note-taking. *Educational Research Review, 22*, 223–233.
Jung, N., Wranke, C., Hamburger, K., & Knauff, M. (2014). How emotions affect logical reasoning: Evidence from experiments with mood-manipulated participants, spider phobics, and people with exam anxiety. *Frontiers in Psychology, 5*, 570.

Kay, R. H., & Lauricella, S. (2011). Unstructured vs. structured use of laptops in higher education. *Journal of Information Technology Education, 10*(1), 33–42.
Keles, Ö. (2012). Elementary teachers' views on mind mapping. *International Journal of Education, 4*(1), 93.
Kiewra, K. A., DuBois, N. F., Christian, D., McShane, A., Meyerhoffer, M., & Roskelley, D. (1991). Note-taking functions and techniques. *Journal of Educational Psychology, 83*(2), 240.
Kinchin, I. M. (2000). Concept mapping in biology. *Journal of Biological Education, 34*(2), 6168.
Kinchin, I. M., Streatfield, D., & Hay, D. B. (2010). Using concept mapping to enhance the research interview. *International Journal of Qualitative Methods, 9*(1), 52–68.
Kourilsky, M., & Wittrock, M. C. (1992). Generative teaching: An enhancement strategy for the learning of economics in cooperative groups. *American Educational Research Journal, 29*(4), 861–876.
Kraushaar, J. M., & Novak, D. C. (2010). Examining the affects of student multitasking with laptops during the lecture. *Journal of Information Systems Education, 21*(2), 11.
Lannie, A. L., & Martens, B. K. (2008). Targeting performance dimensions in sequence according to the instructional hierarchy: Effects on children's math work within a selfmonitoring program. *Journal of Behavioral Education, 17*(4), 356.
Larkin, J. H., & Simon, H. A. (1987). Why a diagram is (sometimes) worth ten thousand words. *Cognitive Science, 11*(1), 65–100.
Lin, L., & Bigenho, C. (2011). Note-taking and memory in different media environments. *Computers in the Schools, 28*(3), 200–216.
Lipka, S. (2007). More students seek campus jobs as work-study positions dwindle. *The Chronicle of Higher Education, 53*(21), A40.
Martens, B. K., & Witt, J. C. (2004). Competence, persistence, and success: The positive psychology of behavioral skill instruction. *Psychology in the Schools, 41*(1), 19–30.
Mayer, R. E. (1992). *Thinking, problem solving, cognition*. WH Freeman/Times Books/Henry Holt & Co.
Mayer, R. E. (2014). Multimedia instruction. In *Handbook of research on educational communications and technology* (pp. 385–399). New York, NY: Springer.
Morehead, K., Dunlosky, J., Rawson, K. A., Blasiman, R., & Hollis, R. B. (2019). Note-taking habits of 21st century college students: Implications for student learning, memory, and achievement. *Memory, 27*(6), 807–819.
Mueller, P. A., & Oppenheimer, D. M. (2014). The pen is mightier than the keyboard: Advantages of longhand over laptop note taking. *Psychological Science, 25*(6), 1159–1168.
Neumann, A. (2014). Staking a claim on learning: What we should know about learning in higher education and why. *The Review of Higher Education, 37*(2), 249–267.
Nousiainen, M. (2012). Making concept maps useful for physics teacher education: Analysis of epistemic content of links. *Journal of Baltic Science Education, 11*(1), 29–42.
Novak, J. D. (1998). *Learning, creating and using knowledge: Concept maps as facilitative tools in schools and corporations*. Mahwah, NJ: Lawrence Erlbaum Associates.
Park, S., & Lim, J. (2007). Promoting positive emotion in multimedia learning using visual illustrations. *Journal of Educational Multimedia and Hypermedia, 16*(2), 141–162.
Parker, D. C., & Burns, M. K. (2014). Using the instructional level as a criterion to target reading interventions. *Reading & Writing Quarterly, 30*(1), 79–94.
Pascarella, E. T., Salisbury, M. H., & Blaich, C. (2011). Exposure to effective instruction and college student persistence: A multi-institutional replication and extension. *Journal of College Student Development, 52*(1), 4–19.
Pascarella, E. T., Seifert, T. A., & Whitt, E. J. (2008). Effective instruction and college student persistence: Some new evidence. *New Directions for Teaching and Learning, 2008*(115), 55–70.
Pekrun, R., & Stephens, E. J. (2010a). Achievement emotions in higher education. In *Higher education: Handbook of theory and research* (pp. 257–306). Dordrecht, The Netherlands: Springer.

Pekrun, R., & Stephens, E. J. (2010b). Achievement emotions: A control-value approach. *Social and Personality Psychology Compass, 4*(4), 238–255.

Peper, R. J., & Mayer, R. E. (1978). Note taking as a generative activity. *Journal of Educational Psychology, 70*(4), 514.

Peper, R. J., & Mayer, R. E. (1986). Generative effects of note-taking during science lectures. *Journal of Educational Psychology, 78*(1), 3.

Piaget, J. (1930). *The child's conception of causality*. London, UK: Kegan Paul.

Plummer, K. (2001). *The call of life stories in ethnographic research. Handbook of Ethnography* (pp. 395–406).

Poncy, B. C., Duhon, G. J., Lee, S. B., & Key, A. (2010). Evaluation of techniques to promote generalization with basic math fact skills. *Journal of Behavioral Education, 19*(1), 76–92.

Poncy, B. C., Skinner, C. H., & Jaspers, K. E. (2007). Evaluating and comparing interventions designed to enhance math fact accuracy and fluency: Cover, copy, and compare versus taped problems. *Journal of Behavioral Education, 16*(1), 27–37.

Rawson, K. A., & Dunlosky, J. (2016). How effective is example generation for learning declarative concepts? *Educational Psychology Review, 28*(3), 649–672.

Reder, L. M. (1980). The role of elaboration in the comprehension and retention of prose: A critical review. *Review of Educational Research, 50*(1), 5–53.

Roksa, J., Trolian, T. L., Blaich, C., & Wise, K. (2017). Facilitating academic performance in college: Understanding the role of clear and organized instruction. *Higher Education, 74*(2), 283–300.

Rothkopf, E., & Shaughnessy, M. F. (2005). An interview with Ernst Rothkopf: Reflections on Educational Psychology. *North American Journal of Psychology, 7*(1), 51.

Rothkopf, E. Z. (1970). The concept of mathemagenic activities. *Review of Educational Research, 40*(3), 325–336.

Sana, F., Weston, T., & Cepeda, N. J. (2013). Laptop multitasking hinders classroom learning for both users and nearby peers. *Computers & Education, 62*, 24–31.

Sanchiz, M., Lemarié, J., Chevalier, A., Cegarra, J., Paubel, P. V., Salmerón, L., & Amadieu, F. (2019). Investigating multimedia effects on concept map building: Impact on map quality, information processing and learning outcome. *Education and Information Technologies, 24*(6), 3645–3667.

Schmidt, H. G., Cohen-Schotanus, J., Van Der Molen, H. T., Splinter, T. A., Bulte, J., Holdrinet, R., & Van Rossum, H. J. (2010). Learning more by being taught less: A "time-for-self-study" theory explaining curricular effects on graduation rate and study duration. *Higher Education, 60*(3), 287–300.

Schwartz, N. H. (1988). *Cognitive processing characteristics of maps: Implications for instruction*. Educational & Psychological Research.

Skolnik, R., & Puzo, M. (2008). Utilization of laptop computers in the school of business classroom. *Academy of Educational Leadership Journal, 12*(2), 1.

Snyder, T. D., de Brey, C., & Dillow, S. A. (2019). *Digest of education statistics 2017, NCES 2018-070*. National Center for Education Statistics.

Stains, M., Harshman, J., Barker, M. K., Chasteen, S. V., Cole, R., DeChenne-Peters, S. E., et al. (2018). Anatomy of STEM teaching in North American universities. *Science, 359*(6383), 1468–1470.

Tufte, E. R. (1983). *The visual display of quantitative information* (Vol. 2). Cheshire, CT: Graphics press.

Twardy, C. (2004). Argument maps improve critical thinking. *Teaching Philosophy, 27*(2), 95–116.

Um, E., Plass, J. L., Hayward, E. O., & Homer, B. D. (2012). Emotional design in multimedia learning. *Journal of Educational Psychology, 104*(2), 485.

Wang, J. S., Pascarella, E. T., Nelson Laird, T. F., & Ribera, A. K. (2015). How clear and organized classroom instruction and deep approaches to learning affect growth in critical thinking and need for cognition. *Studies in Higher Education, 40*(10), 1786–1807.

West, D. C., Pomeroy, J. R., Park, J. K., Gerstenberger, E. A., & Sandoval, J. (2000). Critical thinking in graduate medical education: A role for concept mapping assessment? *JAMA, 284*(9), 1105–1110.

Whitehead, A. N. (1929). *The aims of education*. New York, NY: Macmillan.

Wieman, C. (2017). *Improving how universities teach science*. Cambridge, MA: Harvard University Press.

Wigfield, A., & Eccles, J. S. (2000). Expectancy–value theory of achievement motivation. *Contemporary Educational Psychology, 25*(1), 68–81.

Wittrock, M. (2010). Learning as a generative process. *Educational Psychologist, 45*(1), 40–45.

Wittrock, M. C. (1974). Learning as a generative process. *Educational Psychologist, 11*(2), 8795.

Wittrock, M. C. (1989). Generative processes of comprehension. *Educational Psychologist, 24*(4), 345–376.

Wittrock, M. C., & Carter, J. F. (1975). *Generative processing of organized information*. Unpublished manuscript**.**

Wright, J. (n.d.). *The instructional hierarchy: Linking stages of learning to effective instructional techniques*. Retrieved from https://www.interventioncentral.org/academic-interventions/general-academic/instructional-hierarchy-linking-stages-learning-effective-in

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