

# RELATIONSHIP BETWEEN STUDENTS' METACOGNITIVE AWARENESS AND SELF EFFICACY WITH THEIR CAREER DECISION MAKING DIFFICULTIES



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July, 2023

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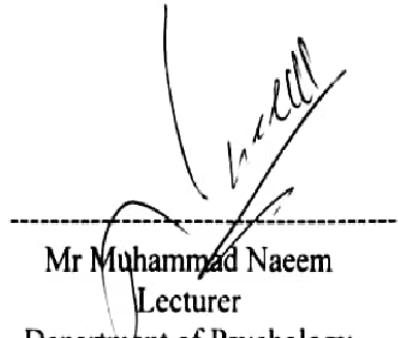
A Research Thesis submitted to the  
DEPARTMENT OF PSYCHOLOGY  
in partial fulfillment of the requirements for the degree of  
BACHELOR OF SCIENCE IN PSYCHOLOGY

Faculty of Management and Social Sciences  
Capital University of Science & Technology,  
Islamabad  
July, 2023

## CERTIFICATE OF APPROVAL

It is certified that the Research Thesis titled “Relationship between Students’ Metacognitive Awareness and Self Efficacy with Their Career Decision Making Difficulties.” carried out by Tayyaba Ali, Reg. No. BSP193016, under the supervision of Mr Muhammad Naeem, Capital University of Science & Technology, Islamabad, is fully adequate, in scope and in quality, as a Research Thesis for the degree of BS Psychology.

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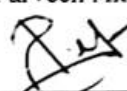
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*This research endeavor is sincerely dedicated to my family.*

## DECLARATION

It is declared that this is an original piece of my own work, except where otherwise acknowledged in text and references. This work has not been submitted in any form for another degree or diploma at any university or other institution for tertiary education and shall not be submitted by me in future for obtaining any degree from this or any other University or Institution.



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**July 2023**

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## ABSTRACT

In Pakistan, where structured career counseling programs are limited, understanding the role of personal factors in career decision-making among university students is crucial. The goal of this research was to identify an association between metacognitive awareness and self efficacy along with their influence on decision making difficulties related to career choices of university students. A sample of 306 students aged 18-25 was selected from the universities of Islamabad and Rawalpindi. A convenient sampling method was employed, and self-efficacy, metacognitive awareness, and career decision-making questionnaires were administered to collect data. The findings portrayed a significant direct link between metacognitive awareness and self efficacy ( $r = .60$ ). Moreover, both metacognitive awareness and self efficacy were found to have an influence on career decision making process and difficulties. It also reveals gender differences in metacognitive awareness positing that females ( $M = 37.5, SD = 11.3$ ) are more metacognitively aware than males ( $M = 32.6, SD = 13.3, t = -3.4, p = .001$ ). This study sheds light upon student's self efficacy and how regulated they are in their career choices that can help generate early intervention to improve those choices. The findings underscore the importance of incorporating career programs that promote metacognitive skills and self efficacy within university career counselling systems in Pakistan.

**Keywords:** *Metacognitive awareness, self-efficacy, career decision making process, career decision making difficulties*

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## CHAPTER 1 INTRODUCTION

The main purpose of education constitutes is to give enough guidance to students so that they can effectively and realistically plan their career-related choices. Recent studies have established a few internal and external factors playing an integral part in determining how well students plan their professional life during their studies. However, making career-related decisions is not easy and involves a much more complex process therefore, the students have trouble when developing a career choice. Wherein there is a crucial difference in career and vocational development and career decision making. As the former is a much broader aspect that pays less attention to internal psychological aspects that are deeply associated with how a decision-maker executes and resolves the task at hand (Harren, 1979).

There are various factors that can contribute to difficulties in career-related choices, such as the people's different decision making strategies. Investing time and effort into the career decision making process can be important for making informed decisions that lead to career fulfilment and overall life satisfaction. Taking time to thoroughly explore different career options, understand one's own strengths and interests, and carefully consider the potential long-term consequences of different career choices can help individuals make choices that are aligned with their goals and values (Hackett, 1994).

### ***Career Decision Making***

Career decision making process is always in continuation where the knowledge system converts from one form to another making it complicated and multidimensional (Argyropoulou & Kaliris, 2018). It is the process of selecting a career path or profession that aligns with a person's interests, values, skills, and goals. There are many elements

that can impact the career decision making such that, choices and preferences, economic conditions, and societal trends. It is a multifaceted and constantly changing process (Kaliris, 2018b).

Effective career decision making requires individuals to reflect on their own strengths, weaknesses, interests, and values, and use this information to explore different career options and make informed choices. It also involves setting goals, developing plans and strategies, and taking action to achieve those goals. Generally, career decision making is an important aspect of personal as well as individual and professional development, and can have a substantial impact on an individual's happiness and success (Diener & Seligman, 2004)

### ***Career Decision Making Difficulties***

Career decision difficulties refer to the challenges that individuals may face when trying to make decisions about their career or educational path. There may be obstacles in opting for a better career choice due to a lack of self-awareness or knowledge about different career options, conflicting information, or difficulty in evaluating and interpreting the information (Moraru, 2018). This study also mentioned that difficulties in career choices can stem from the absence of understanding about oneself, such as one's values, interests, and abilities. This lack of self-knowledge can make it difficult for individuals to identify which career paths may be a good fit and to make informed decisions about education and job opportunities.

Career decision making difficulties can also arise from conflicting information, or from a lack of understanding of how to process and analyze the available information. These difficulties can make it challenging for individuals to make

decisions with confidence and clarity and may lead to feelings of indecision or uncertainty about the future (Gati, 2019).

Gati (2019) discusses the various challenges and difficulties that may be encountered in selecting effective career choices, including external factors like limited job opportunities or financial constraints, and internal factors like anxiety or self-doubt. Therefore, these challenges can greatly affect the process through which people plan their career choices and the ultimate outcome of such choices.

### ***Metacognitive Awareness***

Metacognitive awareness has been identified as a person's beliefs and knowledge about the aspects that would affect their cognitive abilities (Flavell, 1985). Planning, monitoring, and regulation of cognitive processes are effectively achievable when students develop metacognitive strategies. It is a regulatory system that allows a person to control and coordinate their cognitions in order to perform well.

Metacognitive awareness makes people aware of self-concept along with directing the learning process in accordance with the upheld concept such that better planning is generated. According to Flavell (1985) the phrase "being meta" is commonly used to describe metacognitive awareness which means observing one's cognitions as someone else by taking a step back. It additionally implies being the audience of one's own cognitive performance.

As Hacker et al., (2009) described metacognitive awareness involves how people learn as well as evaluate their strengths and weaknesses in order to generate strategies to that they can meet their learning needs. He stated that it consists of two distinct yet interrelated phenomena which complement each other i.e., knowledge about cognitions and regulation of cognitions. Knowledge (awareness) about one's cognition



is being aware of the processes involved in one's learning and performance. Henceforth a person who is aware of their mental processes will effectively regulate the cognitions to manage their performance and develop strategies for improvement.

### ***Self Efficacy***

Self efficacy is having belief in our potential and ability to reach our desired goals by using our full potential (Bandura, 1993). It is a significant personal trait that can shape an individual's behavior and performance in various settings such as education, work, and personal relationships. People who have greater levels of self efficacy are more into setting ambitious goals for themselves and taking risks to achieve their aspirations. They are also more resilient in the face of obstacles and setbacks and are better able to continue despite difficulties. Developing strong self efficacy is therefore an important aspect of personal and professional development, as it can provide individuals with the confidence and motivation, they need to achieve success and fulfilment in their lives.

According to contemporary data, students in non-professional majors without corresponding job titles may struggle with self efficacy when it's time to choose a vocation. Studies have demonstrated that self efficacy is related to behaviours and actions such as commitment and aspirations (Bandura, 1992; Schwarzer, 2014; Arghode, et al., 2021). Those with a strong sense of self efficacy make career decisions rather more quickly and take efficient steps toward achieving their career goals. Conversely, lower self- efficacy can result in a delay in career development and maturation (Bandura, 1994) and can have negative impacts on individuals both socially and professionally (Chuang et al., 2020). Therefore, students with strong self efficacy grounds are more likely to take the necessary steps to find and pursue a satisfying career

According to Ahmadi et al., (2013), metacognitive skills and strategies are a reliable measure of people's thought processes and capabilities. These skills and strategies can help to improve learning and enhance performance growth. A student who is highly metacognitively aware may be able to identify their interests and passions and use this information to explore potential careers that align with their personal goals and aspirations. They may also be better able to plan and execute strategies for achieving their career goals, and to adapt to changing circumstances or unexpected challenges (Creed, 2002).

In contrast, self efficacy is confidence in ability to succeed and perform well in particular situations or complete a task at hand (Bandura, 1994). It is closely related to metacognitive awareness, as people with a strong sense of self efficacy have more confidence and motivation to embark on new challenges and pursue their career aspirations. For example, a student with high self efficacy may be more likely to take on internships or other opportunities that provide valuable experience and skills, even if they are outside their comfort zone. They may also be more resilient in the face of obstacles and setbacks and are better able to persist in the face of challenges.

Together, metacognitive awareness, abilities and self efficacy can determine a crucial role in a student's career choices. Individuals who are highly metacognitively aware and have a strong sense of self-efficacy are better equipped to make informed decisions and take decisive action in their personal and professional lives. They can explore different career options and make choices that align with their interests and values and are more likely to achieve success and fulfilment in their chosen careers.

It is important to note that metacognitive awareness and self-efficacy are not fixed traits, and can be developed and strengthened over time. Students who may not be naturally inclined towards metacognitive awareness or self-efficacy can learn these

skills through practice and experience. Therefore, career counselling or coaching can help students develop their metacognitive awareness and self-efficacy, and provide them with the tools and support they need to make effective career decisions. Therefore, metacognitive awareness and self-efficacy can be the important factors that affect a student's decision making process related to career goals and difficulties contributing to unsubstantial decisions when opting for a profession.

Career decision-making is an essential process for university students, as it can impact their future career opportunities (Blustein, 2013). Therefore, it is crucial to assess the career difficulties faced by university students during this stage of their lives. As noted by the research conducted by Oh & Lee (2018), university students experience various career difficulties, including career indecision, lack of career self-efficacy, and uncertainty about future career paths. This study aims to examine the relationship between self efficacy, metacognitive awareness, and career decision making difficulties among university students to bridge the identified gap.

## **Literature Review**

Decision-making involves establishing a workable solution for a particular problem with a specific course of actions (Levin et al., 2020). Zhang and Huang (2018) described some key self-characteristics i.e., strengths, weakness, perceived employability, and career maturity in achieving desirable yet appropriate career goals. Research has established that career maturity in early secondary education years of a student is positively correlated with metacognitive awareness and behavioral self-regulated learning process (Anna Hsu, 2021) and according to Flavell (1985), understanding and control of one's own thinking and cognitive processes are the two main types of metacognitions hence metacognitive levels are functionally influencing decision-making tasks (Barbara et al., 2010; Paola, & Antonietti, 2010). In lieu of this,

Abdelrahman (2020) noted there is a clear and statistically significant connection between a student's academic success and their academic motivation, both intrinsic and extrinsic. This suggests that students who are more motivated tend to have higher levels of academic achievement.

It was also suggested that senior secondary to university students' self-efficacy and metacognitive awareness is also related to their higher achievement in chemistry subject (Oyelekan, Jolayemi & Upahi, 2021) and mathematical reasoning (C. Tak, Zulnadi & K. Eu, 2022). A great number of studies have established the role of personality, ability, needs and a person's aptitude in career decision-making (Brown & Lent, 2005). Therefore, Kosine, Steger & Duncan (2009) quoted that individuals who exhibit high metacognitive awareness have higher career decidedness and that metacognitive awareness is an important part of career development (Lemeni, 2005). It is of great significance in the area of career counselling as self-appraisal of one's cognitive abilities will help and individual strategizing career pathways (Schraw & Dennison, 1994).

Meslhy et al., (2020) examined whether a metacognitive skills enhancement program could improve metacognitive awareness, problem-solving skills, and self-efficacy in students of nursing at Zagazig University. A random sample of nursing students in their fourth year of study participated in their study. The findings revealed a significant association between the students' metacognitive awareness, problem-solving skills and self-efficacy following the educational program. Furthermore, research has shown that metacognition plays a crucial role in problem-solving, with more complex problems requiring more metacognitive management (Havenga et al., 2013).

Additionally, when an individual decides the most important factors in that are his or her strengths and weaknesses. Thus, when making a career choice, a person will consider their preferences, physical and mental abilities, academic skills, and market conditions (Ayriza, Triyanto, & Setiawati, 2020). Ergo for the right career choice, students need support and have an established sense of compatibility between their personality traits, needs, and outcome expectations (Ayriza et al., 2020).

In regards to this, research has shown significant relationship between effective decision making styles and metacognitive awareness (Kumar, 1999). In addition to this, Beswik (1991) found a negative association between maladaptive decisional strategies and metacognitive knowledge ( $r = -0.45$ ). A study conducted by Batha & Carrol (2007) on students found a correlation ( $r = 0.389$ ) predicting that metacognitive training has a significant impact on aiding students' decision-making performance. Their results suggested that the decision making process can be greatly influenced and impacted by both the knowledge of cognitive abilities to make up strategies as well as regulation of those abilities in order to improve the performance in decidedness and certainty.

Additionally, Bouchkioua (2021) explored the impact of metacognitive training and intervention on students' perceived self efficacy, and the results indicated a positive and directive association between students' perceived self efficacy and their use of metacognitive strategies ( $r = 0.05$ ).

Furthermore, according to the research conducted by Lent (2008), self efficacy was found to be a significant predictor of interest. In other words, the study found that individuals who believed they had the skills to be successful in a specific and important task or area were more likely to be interested in pursuing that task or subject. This suggests that self efficacy may contribute to shaping an individual's interests and motivations whereas high self efficacy relates to approaching problems to solve them,

(Betz, 2001). Hence Dalimunthe et al., (2018) posited the great importance of having the ability to uphold better career decisions as they will directly influence a person's job satisfaction, choice of lifestyle, friends circle as well as income.

According to Mahasneh & Alwan (2018), a student's academic performance is significantly impacted by their self-efficacy, or their belief in their own abilities and skills. In other words, students who have a strong sense of self-efficacy, or who believe in their ability to succeed academically, tend to perform better in their studies. The authors suggest that improving a student's self efficacy can be an effective way to enhance their academic performance. Bandura (1991) noted self-efficacy as one's control over their environment through their capabilities, motivation, and cognitive capacities to carry out a particular course of action.

An individual's situational adaptability depends upon their self-efficacy. Higher the self-efficacy, the greater would-be people's control of the prospective situation. Whereas low self-efficacy tends to diminish the criteria to involve workable solutions for any given problem and the person with low self-efficacy easily forgo the opportunities to make better decisions (Turda, 2015)

Crisan & Turda (2015) reported a positive relationship between teenagers' vocational choices and perceived self efficacy among both genders. A study conducted in Taiwan examined the relationship between workplace fulfilment, coping mechanisms, and self efficacy among a student's sample. The researchers used structural equation modelling (SEM) analysis to examine the mediating role of coping mechanisms between self efficacy as well as workplace fulfilment. The results of the study indicated that a strong sense of self efficacy was associated with increased workplace satisfaction among the students. This suggests that self-efficacy may contribute in determining an individual's level of job fulfilment and that coping

mechanisms may serve as a mediating factor in this relationship. It leads to better skills in handling problems and formatting workable solutions (Yuhsuan & Jodie, 2014).

Bernacki, Malach, & Alevan (2015) demonstrated research on the association between self efficacy, behavior, performance, and learning. The study focused on whether self-efficacy varied across different problems, how performance was related to self efficacy, and whether self efficacy could predict future performance. The study involved 107 ninth-grade students who were using the Cognitive Tutor Algebra (CTA) software to supplement their regular algebra lessons. The students' self-efficacy was assessed using prompts within the CTA software, and their learning behaviors were assessed using a log file generated by the software. The researchers found that individuals who had improved self efficacy also had improved performance in solving math problems.

Another research investigated the link between mathematics and science knowledge self efficacy and decision self efficacy. The research found that science and math self efficacy as well as interests in them significantly predict career-related behaviours and goal intentions in those subjects. This suggests that self efficacy in math and science can influence career decisions and goals. Previous research has also demonstrated less importance of self- efficacy while making vocational choices. For example, Bounds (2013) studied the relationship among individual's self-concept and self efficacy related to career and goals in high and low achievers of African American high school. They quoted no significant association between career decision self efficacy and academic performances (high achievers or low achievers) or ethnic differences among the results.

Additionally, a study conducted by Yinghua Ye (2014), examined the direct influence of career decision making self-efficacy (CDMSE) on explicit career decisions

among Chinese graduates. The research found that CDMSE was effectively influencing career decision making, and that having more career options or career decision steps moderated the relationship between CDMSE and career choices. This suggests that undergraduates with higher levels of CDMSE are more confident and decisive in their career choices and that having a wide range of career options available can further enhance this relationship.

Like the study conducted by Yinghua Ye (2014), a study published in the *Journal of Counselling Psychology* in 1993 also found a positive relationship between vocational choices and self efficacy. Specifically, the study, which included 233 undergraduate students, found that self-efficacy in a moderate and positive manner is related to attitudes toward vocational choices as well as participants' demographics (Darrell, 1993). This suggests that self-efficacy may effectively contribute to shaping undergraduates' career decision making attitudes and skills and that age may also be a factor in this relationship. These findings are like those of the study conducted by Yinghua Ye (2014), which found that career decision making self efficacy (CDMSE) was positively associated with vocational choices.

Self efficacy is predicted to have a significant impact on how students take about their career-related goals and how well they incorporate their skills and abilities into an effective decision making in order to achieve better career choices. According to research conducted by Wang and Gelatt (2014), individuals who have secured a strong sense of self efficacy are set to pursue challenging career goals, and invest more effort in their careers.

Like the research conducted by Wang and Gelatt (2014) which found that self efficacy is a significant predictor of selecting a better career, another study determined the link between metacognitive and self efficacy beliefs and their influence on exam



anxiety and achievement in studies in a sample of Iranian students. The results of this study, conducted by Bageri et al., (2014), indicated that there was a direct influence of metacognitive beliefs on students' performance in studies and a negative association between exam anxiety and both metacognitive beliefs and self- efficacy beliefs. This suggests that students who have strong metacognitive and self efficacy beliefs may experience lower levels of test anxiety and achieve higher grades.

In a study conducted by Firdaus (2020), the association between students facing difficulties while planning their career and their level of self efficacy was described among senior high school individuals in Indonesia. The findings indicated that there was a strong negative association between self efficacy and career decision making difficulties, meaning that students who had lower levels of self efficacy were apt to experience and face difficulties in making career decisions. This suggests that self efficacy may be a vital factor in helping individuals effectively navigate the career decision making difficulties and make confident and decisive career choices.

In addition to the studies mentioned above that have found a link between self- efficacy and vocational interests, there is also strong evidence to infer that metacognitive awareness and self efficacy may interact with one another in career-related choices (Ozek & Ferraris, 2018). For example, research conducted by Hayat & Shateri (2019) found that self efficacy had a direct, positive, and statistically significant effect on "metacognitive learning strategies" among Turkish university students. This suggests that students with more secure beliefs about their self efficacy use metacognitive learning styles when making any decision, potentially leading to more successful outcomes. These findings are consistent with the previous research discussed, which has found that self-efficacy may be an important factor in shaping an individual's career decisions and goals.

According to Gurefe & Bakalim (2018), there is a weak association between metacognitive awareness and self efficacy. Additionally, a few studies have found that there may not be a significant relationship between the two (Khodaei et al., 2022). However, it is possible that these inconsistencies may be due to cultural differences (Maxon, 2022). These findings suggest that there may be some complexity in the link between metacognitive awareness and self efficacy, and that cultural factors may play a role in shaping this relationship.

## **Theoretical Framework**

### ***The Model of Career Decision Making (Vincent Harren, 1979)***

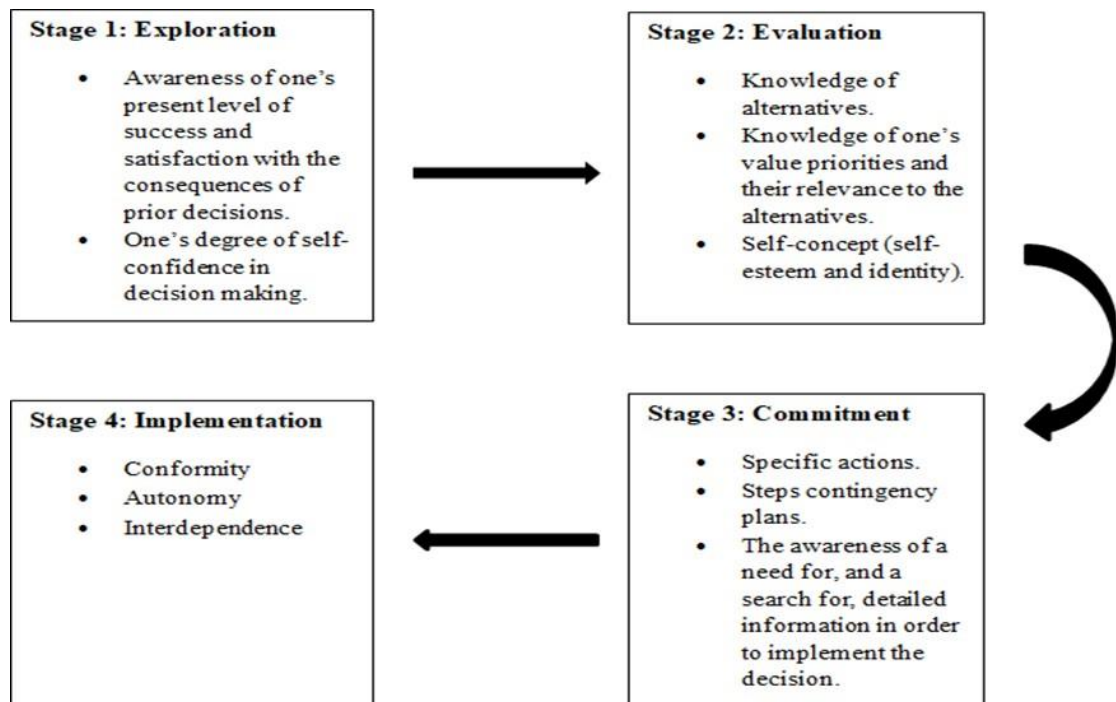
The Career Decision Making Model is a comprehensive model that was developed specifically for typical college students. This theory explores how individuals make career decisions through the lens of information processing and decision theory. It delves into the psychological processes behind decision making, as well as the key developmental and personality factors that influence these choices (Harren, 1979).

According to the model, the career and vocational decision making begins with the identification of a problem or need, which leads to the gathering of information and the evaluation of potential alternatives. The decision maker then considers the consequences of each alternative, Evaluating the potential advantages and disadvantages before deciding a final choice. In addition to the psychological process of decision making, the model also identifies important developmental and

personality characteristics that can influence the decision-making process. These include gender role attitudes, cognitive styles, and locus of control in terms of metacognitive knowledge.

It stated that individuals go through a series of stages as they explore, evaluate, and make career decision. The initial step in the process of deciding on a career path is exploration. During this stage, individuals gather knowledge about themselves and the realm of employment and professional endeavors and begin to develop a sense of their own interests, values, and goals. This step is important, as it provides individuals with the information, they need to make informed career choices. The second step in the process of deciding on a career path is evaluation. During this stage, individuals use the information they have gathered to evaluate different career options and make comparisons. They may consider factors such as salary, job satisfaction, and potential for growth, and employ this information to reduce the number of options under consideration. The third step in the process of deciding on a career path is decision making.

During this stage, people make a final decision about their career path and take action to pursue their chosen career. This may involve applying for jobs, completing education or training programs, or taking other steps to prepare for their chosen career. The final step in the process of deciding on a career path is implementation. During this stage, individuals take action to implement their career decision and begin to work in their chosen field. This stage is important, as it allows individuals to put their career plans into action and gain experience in their chosen field.



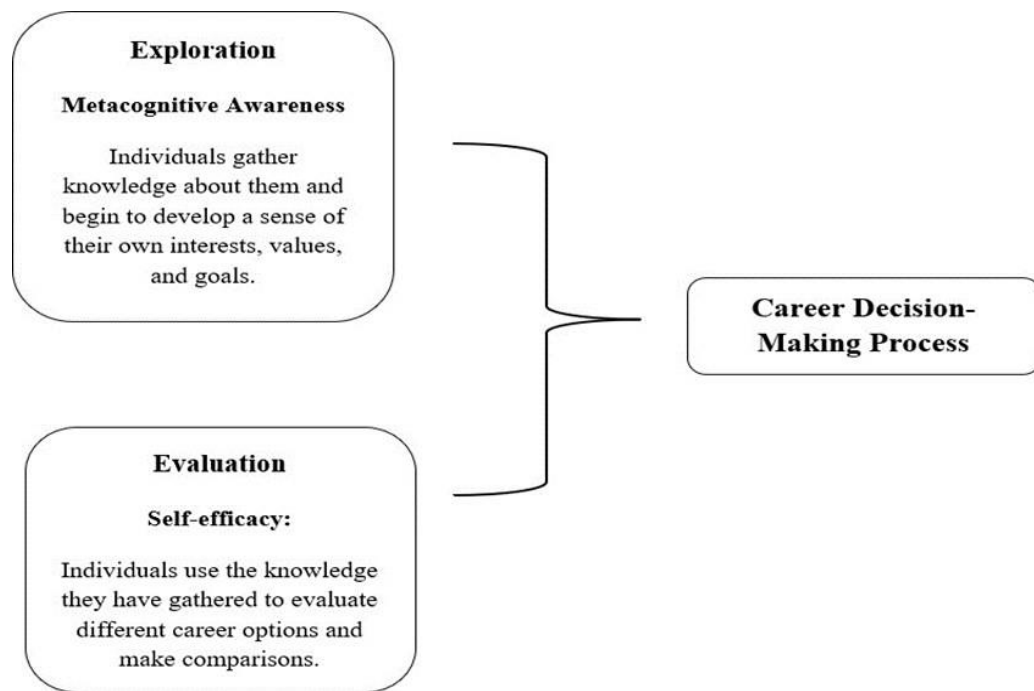
As this theory proposes that individuals go through a series of stages as they explore, evaluate, and make career decisions, it also explicitly emphasizes that individuals who make well-informed and thoughtful decisions are usually further along in the decision making process than those who are less effective.

This is often because they possess characteristics such as strong self-confidence, a clearly defined and cohesive sense of self, and a logical approach to decision making rather than relying on intuition or being reliant on others. These characteristics can help individuals to make more effective decisions and according to Stroiney (2005), Self-confidence is often correlated with a strong sense of self-worth, while a lack of self-confidence is often associated with low self-esteem. This suggests that self-efficacy may predict self-esteem rather than the other way around therefore two important personal characteristics that can influence an individual's success in navigating these steps are metacognitive awareness and self efficacy (Stroiney, 2005).

Metacognitive awareness can be particularly useful during the exploration step of career decision making. As during this step, individuals gather knowledge about

them and begin to develop a sense of their own interests, values, and goals. Individuals who are highly metacognitively aware are better able to reflect on their own strengths, weaknesses, interests, and values, and use this information to explore different career options. They are also more inclined to try new things, and opportunities, and to consider a wider range of career options.

Self-efficacy, on the other hand, can be useful during the evaluation and in the process of choosing a career, including the decisions that need to be made and the steps involved in making those decisions. During these steps, individuals use the knowledge they have gathered to evaluate different career options and make comparisons. They may consider factors such as salary, job satisfaction, and potential for growth, and use this information to narrow down their choices. Those with a strong sense of self-confidence are more apt to have the confidence and motivation to take on new challenges and pursue their career aspirations. They are also more confident in the face of obstacles and are better able to persist in the face of challenges. This can provide them with an important advantage when making career decisions. Overall, metacognitive awareness and self efficacy can contribute to an individual's success in managing the steps involved in choosing a career path. By developing these personal characteristics, individuals can increase their chances of finding a career that aligns well with their interests, values, and goals, and achieve success and fulfilment in their chosen careers (Harren, 1979)



*The Model of Career Decision-Making (1979)*

## **Rationale**

The current paper aims to explore the link between career decision making process and difficulties with metacognitive awareness, and self efficacy among students in Pakistan. Previous literature has shown that self efficacy, or confidence in abilities, can be an essential factor in career decision making (Saleem et al., 2017). Professional career counselling has been found to help develop self-efficacy and goal stability among students, which may in turn enhance their academic achievement (Saleem et al., 2017). In addition, metacognitive awareness, or the ability to think about one's own thinking processes, has been found to be correlated with student performance (Rahman et al., 2010). This suggests that metacognitive skills may be important for making successful career choices.

However, the link between metacognitive awareness, self efficacy, and career decision making difficulties is complex, and more research is needed to fully

understand these complex dynamics. For example, a study by Wajid & Jami (2020) found that research self efficacy was most closely tied to an individual's metacognitive skills and use of these skills in reading strategies to comprehend information, while anxiety about research and an individual's attitude towards research played a mediating role in this relationship.

Similarly, a study by Uzma & Erum (2013) found that individuals who struggle with making career decisions often have lower self-esteem and a weaker sense of control over their environment, with female students scoring higher on environmental mastery. These findings suggest that interventions that promote metacognitive awareness and self-efficacy may be particularly helpful for students facing career decision making difficulties.

Other research has also explored the role of gender and educational institution in career decision making process. A study conducted by Javed & Tariq (2016) inferred that student at a government-run academic institutions reported more difficulty making career decisions compared to those at private institutions. Additionally, females had more effective career decision making than males. In contrast, research by Nawaz et al., (2011) found no difference in the relationship between peer and parental attachment bonds and career decision making self efficacy for female and male students. These findings suggest that a range of factors, including gender and educational context, may influence career decision making difficulties and self efficacy.

Therefore, the current study aims to contribute to our understanding of metacognitive awareness, self efficacy, and career decision making process and difficulties among university students in Pakistan. By identifying the factors that influence their outcomes, and the ways in which they are related to one another as well as reporting whether demographics contribute to any substantial role here, this research

has the potential to inform the development of interventions and programs that can support students' career development and improve career outcomes.

### **Objectives**

1. To determine whether there exists a relationship between students' self efficacy and metacognitive awareness.
2. To determine the predictive nature of metacognitive awareness and self efficacy on career decision making and related difficulties.
3. To determine the role of demographics in students' career decision making and to study mean difference between gender in the scores of metacognitive awareness, self efficacy and career decision making difficulties.

### **Hypotheses**

1. H1: "There will be a significant relationship/association between metacognitive awareness and self efficacy."
2. H2: "There will be a significant relationship between metacognitive awareness, self efficacy, and career decision making among universities students."
3. H3: "Career decision making difficulties facets ("readiness", "lack of information" and "inconsistent information") will have a significant negative relationship with metacognitive awareness and self efficacy."
4. H4: "There will be a significant difference in the mean scores of metacognitive awareness, self-efficacy, and career decision-making difficulties between males and females."
5. H5: "Metacognitive awareness and self-efficacy will be the predictors of career decision making difficulties in university students."



## **.CHAPTER 2 METHODS**

### **Research design**

This thesis paper employed a correlational research design to determine the association between the constructs of interest. This study also incorporated a survey design, as the questionnaires used to assess the link between the constructs are self-reported and typically used as surveys (Bhandari, 2022).

### **Ethical considerations**

The participants in this study were informed about the objectives and goals of the research and given a consent form outlining the variables being studied and that the focus of the study was to investigate the research question or hypothesis being tested. Participation in the research was voluntary and participants were not pressured in any way to participate. To protect the participants' identities, their data was not shared with any third parties except for the supervisor and researcher conducting the study, and no identifying information such as names, phone numbers, home addresses, or pictures was collected. The participants were also informed that they have the choice to opt-out at any point during the research without any consequences and that the information collected during the study will only be utilized for research purposes. Additionally, permission from the ethical review committee at CUST was obtained before conducting the research..

### **Sample**

The G Power software version 3.1.9.4 was used to calculate the necessary sample size, considering the expected effect size and level of significance (Faul et al., 2009). Based on the calculations, a sample size of 306 university students was collected for this study with 156 (51%) males and 150 (49%) females.

***Inclusion criteria***

1. Participants must be enrolled as full-time students in different local universities in Islamabad and Rawalpindi.
2. Participants must be within a specific age range (e.g., 18-25 years old).
3. Participants must provide informed consent to participate in the study.
4. Participants must be able to communicate effectively in the language used for data collection and analysis.
5. Participants must be willing to attend the required research session.

***Exclusion criteria***

1. Participants who are part-time or distance education students.
2. Participants who are not currently enrolled in any local universities in Islamabad and Rawalpindi.
3. Participants who are outside the specified age range.
4. Participants who have previously participated in a similar study with overlapping research objectives.
5. Participants who have any physical or mental disabilities that may impede their ability to understand the research objectives or provide accurate responses.

**Sampling technique**

Convenient sampling techniques were utilized to acquire the data.

**Measures*****Career Decision Making Difficulties Questionnaire (CDDQ)***

In this study, the revised version of the Career Decision-Making Difficulties Questionnaire (CDDQ), developed by Gati and Osipow (1996), was employed to

evaluate individuals' capacity to make well-informed and thoughtful choices regarding their professional direction. The CDDQ consists of 34 items that are rated on a 9-point Likert scale. It is organized into three main categories: "lack of readiness", "lack of information", and "inconsistent information". The CDDQ demonstrates good test-retest reliability (ranging from .67 to .80) and favorable internal consistency (Cronbach alpha values ranging from .68 to .84 for the 10 scale scores and .87 to .96 for the total score).

### ***Metacognitive Awareness Inventory***

MAI is a scale comprising 52-item scale that was designed to evaluate individuals' metacognitive processes and the efficiency of learning in individuals. It was developed by Schraw and Dennison (1994) and has a Cronbach alpha of .90. The MAI consists of two levels: knowledge and regulation. The knowledge level is segmented into three subcategories: declarative, procedural, and conational knowledge. The regulation level consists of subcategories such as planning, comprehensive monitoring, information management strategies, evaluation, and debugging strategies. To score the MAI, individuals must answer each item with either "true" or "false," each true answer is allocated with 1 point, and each false answer is allocated 0 point.

### ***General Self Efficacy Scale***

To measure self-efficacy in this study, the researcher used the General Self-Efficacy (GSE) scale. The GSE scale, developed by Jerusalem and Schwarzer (1981), consists of 10 items that assess individuals' optimistic self-beliefs for tackling various challenges in life. It is completed using a 4-point Likert scale, where a score of 1 is given for "Not at all true," 2 for "Hardly true," 3 for "Moderately true," and 4 for "Exactly true." The internal consistency of the GSE scale, as measured by Cronbach alpha, falls within the range of .70 to .90. The GSE scale has been found to have a

positive association with emotions, optimism, and work satisfaction, as well as a negative association with burnout, stress, depression anxiety, and health complaints. To calculate the score on the GSE, the total points for all items are summed. The total score ranges from 10 to 40 and higher scores are associated with stronger belief in one's abilities.

### **Procedure**

The data for this research was collected using three questionnaires: the Career Decision Difficulties Questionnaire (CDDQ), the Metacognitive Awareness Inventory (MAI), and the General Self-Efficacy Scale (GES). The data was collected from students at the universities of Islamabad and Rawalpindi however no face-to-face interaction was possible due to unwillingness of university's admin department. Prior to completing the study, the participants were informed about the purpose and goals of the study and were provided with a consent form to sign indicating their willingness to participate from their respective departmental heads. Once they had agreed to participate, participants were given a demographic information sheet and the questionnaires to complete. The demographic sheet asked for information about their age, gender, city, and educational level, The data was analyzed using SPSS software.

## CHAPTER 3 RESULTS

*Table 1**Sociodemographic Characteristics of the Participants*

Sample Characteristics	<i>f</i>	%
Gender		
Female	156	51
Male	150	49
Residential City		
Rawalpindi	170	55.5
Islamabad	136	44.4
Education		
Intermediate	37	12.1
Undergraduate	229	74.8
Postgraduate	38	12.4
Age		
18	36	11.8
19	37	12.1
20	27	8.8
21	55	18.0
22	72	23.5
23	29	9.5
24	29	9.5
25	21	6.9

The table provides the counts and percentages of male and female participants in the sample. Out of the 306 participants, 156 (51.0%) are male, and 150 (49.0%) are female. Each Age category is listed, for example, 36 participants (11.8%) are 18 years old, 37 participants (12.1%) are 19 years old, and so on. The Current Education Level categories include Intermediate, Undergraduate, and Master. The table provides the

count and percentage of participants in each category. For instance, 37 participants (12.1%) have an Intermediate education level, 229 participants (74.8%) are pursuing an Undergraduate degree, and 38 participants (12.4%) are enrolled in a Master's program. The table provides the count and percentage of participants from each city. For example, 170 participants (55.5%) are from Islamabad, while 136 participants (44.4%) are from Rawalpindi.

**Table 2**  
*Descriptive Statistics of Scales used in the Study*

<i>Scales</i>	<i>M</i>	<i>Median</i>	<i>Mode</i>	<i>SD</i>	<i>Skewness</i>	<i>Kurtosis</i>
MAI	33.6	33.0	33	12.6	-.32	-1.0
GSE	26.3	27.0	28	7.5	-.05	-.07
CDDQ	4.9	5.0	2.3	1.8	-.38	-.60

*Note:* MAI= Metacognitive Awareness Inventory, GSE= General Self Efficacy Scale, CDDQ= Career Decision Making Questionnaire, M= Mean, SD= Standard Deviation

Table 2 displays the results of the normality test conducted on three scales: the Metacognitive Awareness Inventory (MAI), General Self Efficacy Scale (GSE), and Career Decision Making Questionnaire (CDDQ). The table provides information on the mean (M), median, mode, standard deviation (SD), skewness, and kurtosis of the scales.

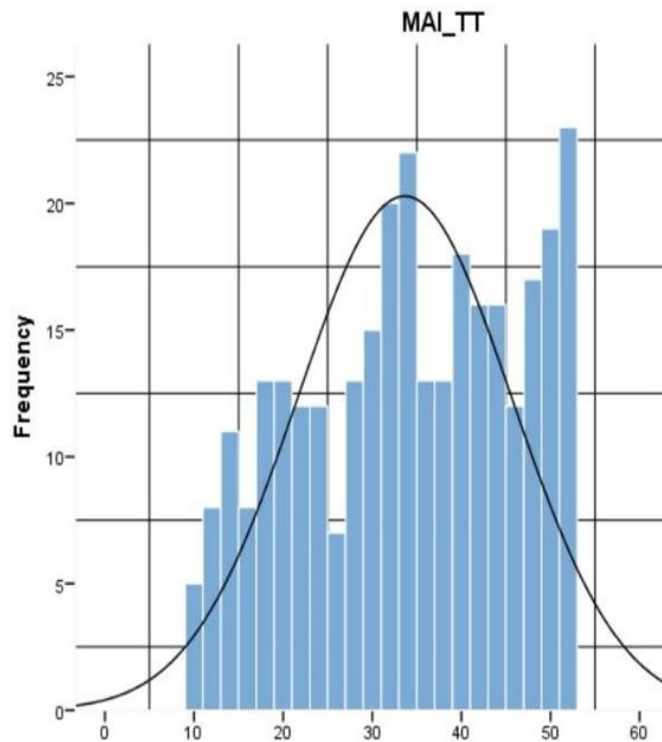
For the MAI scale, the mean score was 33.6, with a median of 33.0. The standard deviation was 12.6. The skewness value was -0.32, indicating a slight deviation towards the left. The kurtosis value was -1.0, suggesting a relatively flat distribution.

The GSE scale had a mean score of 26.3, with a median of 27.0. The mode is not provided in the table. The standard deviation was 7.5. The skewness value was -

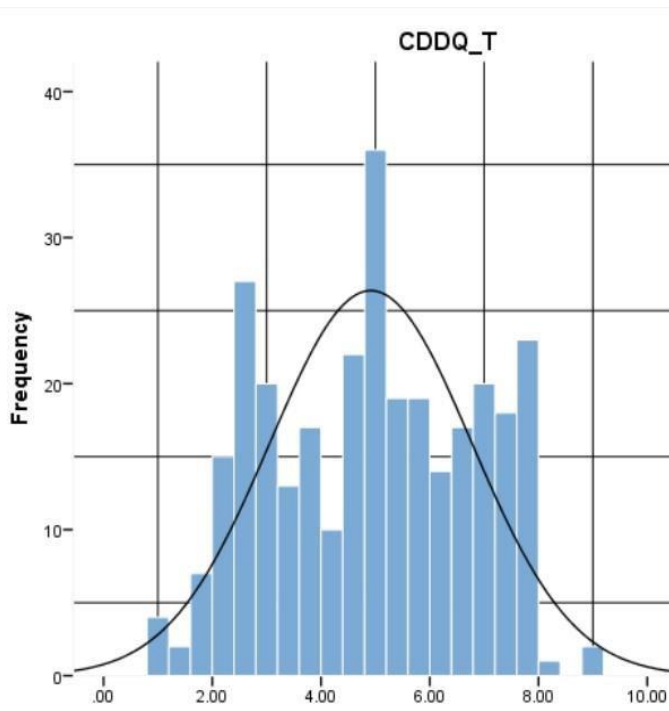
0.05, indicating a nearly symmetrical distribution. The kurtosis value was -0.07, suggesting a distribution that is close to a normal distribution.

For the CDDQ scale, the mean score was 4.9, with a median of 5.0. The mode is not provided in the table. The standard deviation was 1.8. The skewness value was -0.38, indicating a slight deviation towards the left. The kurtosis value was -0.60, suggesting a distribution that is relatively close to a normal distribution. These results suggest that the MAI, GSE, and CDDQ scales exhibit relatively normal distributions, as indicated by the skewness and kurtosis values..

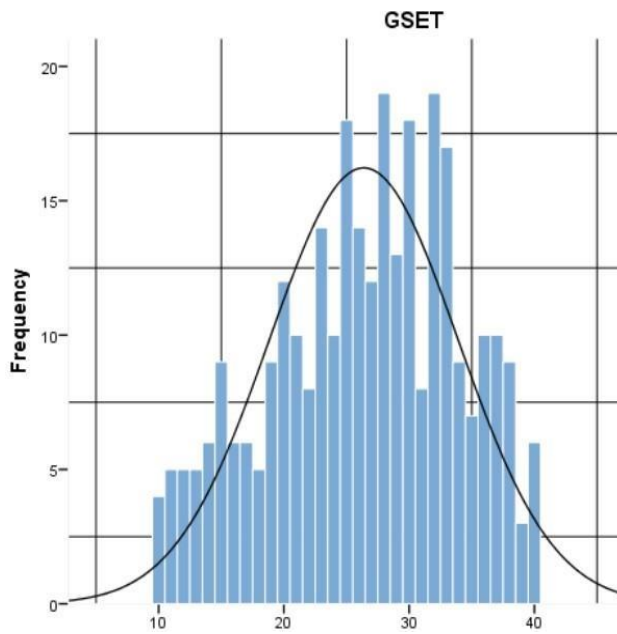
**Figure 1 Normality Test for Metacognitive Awareness**



**Figure 2 Normality Test for Career Decision Making Difficulties**



**Figure 3 Normality Test for Self-Efficacy**





**Table 3**  
**Psychometric Properties for MAI, GSE and CDDQ Scales**

Variables	N	M	SD	Range		Cronbach's $\alpha$
				Potential	Actual	
MAI	52	33.6	12.6	0-52	10-52	.97
GSE	10	26.3	7.5	5-40	10-40	.90
CDDQ	34	4.9	1.8	1.0-10	1.0-9.0	.96

*Note:* MAI= Metacognitive Awareness Inventory, GSE= General Self Efficacy Scale, CDDQ= Career Decision Making Questionnaire, M= Mean, SD= Standard Deviation.

The table 3 provides information on the variables, including the number of items, mean (M), standard deviation (SD), range, and Cronbach's  $\alpha$  reliability coefficient.

For MAI, the mean score is 35.0, indicating the average response on the scale. The standard deviation is 12.6, representing the variability of responses around the mean. The range of scores is from 10 to 52. Additionally, the Cronbach's  $\alpha$  coefficient for the MAI scale is .97, suggesting high internal consistency reliability.

The mean score for GSE is 27.6, reflecting the average response on the scale. The standard deviation is 7.5, indicating the dispersion of scores around the mean. The range of scores is not provided in the table. The Cronbach's  $\alpha$  coefficient for the GSE scale is .90, indicating good internal consistency reliability.

The CDDQ mean score is 4.9, representing the average response on the scale. The standard deviation is 1.8, indicating the variability of scores around the mean. The range of scores is not provided in the table. The Cronbach's  $\alpha$  coefficient for the CDDQ scale is .96, suggesting high internal consistency reliability.

MAI, GSE, and CDDQ scales demonstrate good internal consistency, providing reliable measurements of metacognitive awareness, self efficacy, and career decision making, respectively..

**Table 4**

***Correlation among Metacognitive Awareness, Self Efficacy, Career Decision Making Difficulties and its subscales***

Variables	1	2	3	4	5
MAI	-				
GSE	.60**	-			
CDDQ	-.39**	-.47**	-		
CDDQ Readiness	-.26**	-.15**	.89**	-	
CDDQ Lack of Information	-.45**	-.33**	.78**	.71**	-
CDDQ Inconsistent Information	-.42**	-.34**	.80**	.67**	.90**

*Note.* MAI = Metacognitive Awareness Inventory, GSE = General Self-Efficacy Scale and CDDQ =Career Decision Making Difficulties, M = Mean and SD = Standard Deviation

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

The table 4 provides the mean score for GSE which is 26.6, with a standard deviation of 7.5. The correlation between the GSE and the MAI is statistically significant at the  $p < .01$  with a positive correlation of .60. This indicates a moderate positive relationship between general self efficacy and metacognitive awareness.

The correlations between the GSE and CDDQ, as well as between the MAI and CDDQ, are also provided. The association between the GSE and CDDQ is statistically significant at the  $p < .01$ , with a negative correlation of -.39. This suggests that higher

levels of general self efficacy are associated with low career decision making difficulties level

Similarly, the correlation between the MAI and CDDQ is statistically significant at the  $p < .01$ , with a negative correlation of  $-.47$ . This indicates that high metacognitive awareness levels are associated and linked with low career decision making difficulties levels.

It also represents the mean score for GSE which is 26.3, with a standard deviation of 7.5. The correlation between the GSE and the MAI is statistically significant at the  $p < .01$ , with a positive correlation of  $.60$ . This indicates a moderate positive relationship between general self-efficacy and metacognitive awareness.

The CDDQ subcategories include “CDDQ Readiness”, “CDDQ Lack of Information”, and “CDDQ Inconsistent Information”. The correlation between the GSE and the “CDDQ Readiness” subcategory of CDDQ is statistically significant at the  $p < .01$ , with a negative correlation of  $-.26$ . This suggests that higher levels of general self efficacy are associated with lower levels of career decision making difficulties related to lack of “CDDQ readiness”.

Similarly, the correlation between the GSE and the “CDDQ Lack of Information” subcategory of CDDQ is statistically significant at the  $p < .01$  level, with a negative correlation of  $-.45$ . This indicates that higher levels of general self efficacy are associated with lower levels of career decision making difficulties related to “CDDQ lack of information”.

Correlation between the MAI and the “CDDQ Readiness” subcategory of CDDQ is statistically significant at the  $p < .01$  level, with a negative correlation of  $-.15$ .

This suggests that higher levels of metacognitive awareness are associated with lower levels of career decision making difficulties related to lack of “CDDQ readiness”.

Similarly, the correlation between the MAI and the “CDDQ Lack of Information” subcategory of CDDQ is statistically significant at the  $p < .01$  level, with a negative correlation of  $-.33$ .

This indicates that higher levels of metacognitive awareness is associated with low career decision making difficulties level related to “CDDQ lack of information.

**Table 5**

*Comparison of study variables with Gender*

Measures	Males		Females		t(306)	p	95% CI		Cohen's d
	M	SD	M	SD			LL	UL	
MAI	32.6	13.3	37.5	11.3	-3.4	.001	-7.6	-2.1	.39
GSE	4.9	2.0	4.8	1.6	.26	.79	-.36	.47	.11
CDDQ	27.2	8.4	28.0	6.4	-.92	.35	-2.4	.89	.03

*Note.* MAI = Metacognitive Awareness Inventory, GSE = General Self Efficacy Scale, CDDQ = Career Decision-Making Difficulties Questionnaire, CL= Class Interval, LL= Lower limit, UL= Upperlimit.

The table 5 gives the comparison of scores between males and females on three measures: MAI, GSE, and CDDQ.

For the MAI, the M for males is 32.6 with a SD of 13.3, while for females, the M is 37.5 with a SD of 11.3. The  $t = -3.4$  with a  $p$ -value of  $.001$ , suggesting a significant difference between gender on the MAI. The 95% confidence interval that the true difference in mean M is likely between  $-7.6$  and  $-2.1$ . The effect size  $= .39$ , indicating a small to medium effect.

For the GSE, M for males is 4.9 with a SD of 2.0, and for females, M is 4.8 with a SD of 1.6. The  $t = .26$  with a p-value of .79, suggesting no significant difference between gender on the GSE. The effect size is .11, suggesting a small effect.

For the CDDQ, M for males is 27.2 with a SD of 8.4, and for females, M is 28.0 with a SD of 6.4. The  $t = -.92$  with a p-value of .35, suggesting no significant difference between gender on the CDDQ. The effect size indicates a negligible effect.

**Table 6**

*Regression of Association between study variables and demographics*

Variables	B	$\beta$	SE B	t	p	R <sup>2</sup>	$\Delta R^2$
Constant	8.0			13.2	.000	.25	.24
Gender	.14	.04	.18	.78	.71		
Education Level	.06	.01	.17	.36	.43		
MAI	-.02	-.18	.09	-2.8	.005		
GSE	-.09	-.37	.01	-5.8	.000		

*Note.* MAI = Metacognitive Awareness Inventory, GSE = General Self-Efficacy Scale, CDDQ = Career Decision-Making Difficulties Questionnaire.  
 $\Delta R^2$  = Adjusted R<sup>2</sup>.

The table 6 indicates R-squared = 0.25, which means that 25% of the variance in the CDDQ scores can be explained by the predictor variables such as MAI, GSE, gender and education level. Adjusted R-squared = 0.240, suggest that the model provides a good fit to the data. The standard error of the estimate is .18, suggesting the average distance between the observed CDDQ scores and the predicted scores.

Results reveal that the MAI has a significant negative relationship with the CDDQ scores ( $\beta = -0.180$ ,  $p = 0.005$ ). This posit that higher scores on the MAI are linked with lower scores on the CDDQ, indicating fewer career decision-making difficulties. Similarly, GSE also shows a significant negative relationship with the

CDDQ scores ( $\beta = -0.370$ ,  $p < 0.001$ ), indicating that higher scores on the GSE are linked with fewer difficulties in career decision-making. However, the education level and gender do not have significant relationships with the CDDQ.

In summary, the results suggest that high metacognitive awareness and self efficacy levels are linked with fewer difficulties in career decision making, as measured by the CDDQ scores. However, the education level and gender variables do not significantly predict difficulties in career decision making.

## CHAPTER 4 DISCUSSION

The focus of this research was to identify and explore the association between students' self efficacy, metacognitive awareness, and difficulties in career decision making. The obtained results yielded significant and meaningful insights into the research objectives.

Three measures were used in the study. Metacognitive Awareness Inventory (MAI) (Gati & Osipow, 1996) with an alpha reliability of .97; General Self Efficacy Scale (GSE) (Jerusalem & Schwarzer, 1981), alpha reliability of this scale is .90 and Career Decision-Making Difficulties Questionnaire Scale (CDDQ) (Schraw & Dennison, 1994). The reliability of this scale is .96, The scale demonstrated a high level of reliability, indicating strong internal consistency.

One of the hypotheses and objectives of this research was to establish an association between metacognitive awareness (MAI) and self efficacy (GSE). The results presented in Table 4 provide support for hypothesis 1, indicating a significant, direct and positive correlation between metacognitive awareness and self-efficacy. This implies that individuals with greater metacognitive awareness also tend to have high self efficacy and belief about one potential. This finding aligns with Bandura's social cognitive theory, which suggests that self-efficacy beliefs are influenced by an individual's awareness of their cognitive processes (Bandura, 1997).

Previous research has highlighted the importance of metacognitive strategies in promoting self-efficacy and academic achievement (Schunk & Pajares, 2005). Furthermore, studies have shown that metacognitive interventions can enhance self-efficacy beliefs among students (Karademas et al., 2017). Therefore, this study's

positive relationship between metacognitive awareness and self efficacy reinforces the importance of nurturing metacognitive skills to foster students' self efficacy beliefs.

To provide further support for these hypotheses, Tschannen-Moran & Hoy (2001) conducted a study that demonstrated a positive correlation between metacognitive awareness and academic self efficacy among teachers. This finding suggests that individuals with higher levels of metacognitive awareness are more likely to believe in their ability to succeed academically. This supports the idea that metacognitive awareness is associated with increased self-efficacy across different domains.

Regarding the second and third hypotheses of this study, which states that metacognitive awareness (MAI) and self efficacy (GSE) are significantly related to career decision making difficulties (CDD), the findings from Table 4 confirm this hypothesis. The results indicate that both MAI and GSE are negatively correlated with career decision-making difficulties. These negative correlations imply that higher levels of metacognitive awareness and self efficacy are associated with lower levels of difficulties in career decision making.

These findings align with previous research emphasizing the importance of metacognitive skills and self-efficacy beliefs in the context of career decision making (Creed et al., 2011; Lent et al., 2002). Students who possess strong self-efficacy and are aware of their cognitive processes are more likely to approach career decision making with confidence, clarity, and effective decision-making strategies. Therefore, interventions aimed at enhancing metacognitive awareness and self-efficacy may contribute to better career decision-making outcomes for students.



Furthermore, Resnick et al. (1970) found a negative correlation between self-esteem and difficulty in making career decisions. Similarly, Norida et al., (2011) indicated in a more recent study that self-esteem is negatively associated with self efficacy in career decision making. Additionally, Lent et al., (2002) emphasized the importance and significance of belief in abilities and potential in the vocational decision making process. Their research revealed that individuals with higher self-efficacy tend to possess more adaptive career thoughts and engage in proactive career decision-making behaviors. This underscores the role of self-efficacy in facilitating effective career decision making.

These hypotheses also aimed to explore the relationship between metacognitive awareness and self efficacy in the process of career decision making and the difficulties student face during that process along with its facets. The negative correlations observed between metacognitive awareness (MAI) and self efficacy (GSE), with career decision making difficulties (CDDQ) in Table 4 suggest that higher and greater levels of metacognitive awareness and self efficacy are associated with lower levels of career decision making difficulties in university students.

These findings align with previous research highlighting the significance of metacognitive skills and self efficacy beliefs in the context of career decision making (Creed et al., 2011; Lent et al., 2002). Students who possess a strong sense of self efficacy and are aware of their cognitive processes are more likely to approach career decision-making with confidence and clarity, thereby experiencing fewer difficulties such as inconsistent information and lack of information in the process. These facets are closely related to metacognitive abilities.

The findings presented in Table 5 indicate a negative correlation between metacognitive awareness (MAI) and self-efficacy (GSE) with various facets of career

decision-making difficulties (CDDQ), such as lack of readiness, lack of information, and inconsistent information. This observation is supported by the research conducted by Brown and Lent (2016), which revealed that individuals with higher levels of metacognitive awareness were less likely to encounter difficulties related to a lack of readiness and lack of information when making career decisions. Similarly, Gati et al. (2011) demonstrated that higher self-efficacy was associated with lower levels of difficulties pertaining to inconsistent information in career decision-making.

Regarding gender differences, the fourth hypothesis explored potential variations between males and females in self-efficacy, metacognitive awareness, and career decision making difficulties. The fourth hypothesis stated that "there will be a significant difference in the mean scores of metacognitive awareness, self efficacy, and career decision making difficulties between males and females." The findings from Table 5 partially support this hypothesis, indicating a significant difference in metacognitive awareness between males and females. Females demonstrated higher levels of metacognitive awareness compared to males. This finding aligns with previous research that has reported gender differences in metacognitive abilities, suggesting that females may exhibit greater metacognitive awareness (Veenman et al., 2006).

The mean scores of self efficacy (GSE) and career decision making difficulties (CDDQ) did not exhibit significant gender differences. These results align with previous studies, such as Lent et al. (1994), which also found no significant gender disparities in self-efficacy beliefs. However, it is important to acknowledge that gender differences in career decision-making difficulties can be influenced by various factors, including cultural and social expectations, career stereotypes, and individual differences in decision-making styles (Furnham et al., 2002; Leong et al., 2008).

This finding is consistent with other studies that have found inconsistent gender differences in self efficacy beliefs and career decision making difficulties (Betz & Fitzgerald, 1987; Lent et al., 1994). Gati et al. (1994) developed difficulties taxonomy in career decision making (CDM) and explored gender differences in these difficulties. Their study revealed no significant gender differences in the overall level of career decision-making difficulties. Therefore, this study provides support for the notion that gender may not play a significant role in career decision making difficulties.

To strengthen the evidence for the observed gender differences, Vassar et al. (2019) conducted a study and discovered that female college students demonstrated elevated levels of metacognitive awareness when compared to their male counterparts. This distinction in gender could potentially be attributed to factors such as variations in cognitive strategies, tendencies for self-reflection, and attention to detail. Furthermore, Creed et al. (2002) conducted a study involving Australian high school students and found no notable gender differences in terms of career decision-making difficulties. This finding supports the notion that gender may not play a significant role in this aspect.

The hypothesis stating that metacognitive awareness and self efficacy significantly predict career decision making among Pakistani university students was supported by the findings presented in Table 6. The results indicated that both metacognitive awareness (MAI) and self efficacy (GSE) were identified as important predictors of career decision-making difficulties (CDDQ) in this population. This posited that higher and greater levels of MAI and GSE are associated with more effective career decision-making processes. The significance of metacognitive awareness and self-efficacy as predictors of career decision making has been acknowledged in prior studies.

For instance, Lent et al. (1994) proposed the Social Cognitive Career Theory (SCCT), which suggests that self efficacy plays a central role vocational development and decision making. According to this theory, individuals with great levels of self efficacy are more likely to engage in career exploration, gather relevant information, and make informed decisions. This finding aligns with the result presented in Table 5, highlighting the significant role of self efficacy as a predictor of career decision making.

Moreover, the role of metacognitive processes in career decision making has also been highlighted in the literature. Metacognition refers to the awareness and regulation of one's cognitive processes, including monitoring and controlling one's thinking (Veenman et al., 2006). Karademas et al. (2017) conducted a study on metacognitive intervention and found that enhancing metacognitive skills led to increased self-efficacy and improved performance in various domains, including mathematics and informed decision making. This suggests that fostering metacognitive awareness can positively influence self-efficacy and, consequently, enhance career decision-making abilities.

Additionally, in research conducted by Creed et al. (2011), the influence of metacognitive processes on career decision making was examined. The study revealed that individuals possessing higher levels of metacognitive skills were inclined towards active exploration of career options, contemplating multiple alternatives, and engaging in self-reflection. These metacognitive processes contribute to more effective decision making strategies and a great reduction in the in difficulties faced by students' decision making related to their career choices.

In overall summary, the findings from Table 6 support hypothesis by indicating that metacognitive awareness and self efficacy significantly predict career decision making process and difficulties among universities students. The literature supports the

notion that higher levels of metacognitive awareness and self efficacy are associated with more effective career decision-making processes, including active exploration, consideration of alternatives, and self-reflection. Enhancing metacognitive skills and self-efficacy beliefs can therefore be valuable interventions to support students in making informed and confident career decisions.

### **Conclusion**

In conclusion, the results of this research give substantial support and evidence for the proposed hypotheses and contribute to our understanding of the relationships between metacognitive awareness, self efficacy, and difficulties in career decision making among Pakistani university students. The positive relationship between metacognitive awareness and self efficacy highlights the importance of developing metacognitive skills to enhance individuals' belief in their own abilities in the context of career decision making so that they can reduce their decision making difficulties effectively.

It is noted, through literature as well, that readiness, lack of information and inconsistent information has a negative association with students' self efficacy and metacognitive awareness. This clearly portrays evidence for working on these constructs in order to provide students with better understanding of their career planning.

Moreover, the significant influence of metacognitive awareness and self efficacy on career and vocational decision making underscores the value of promoting these factors among university students. By enhancing metacognitive skills and self efficacy beliefs, university students can engage in more effective decision-making processes, including active exploration, consideration of alternatives, and self-

reflection. These findings emphasize the importance of incorporating interventions that target metacognitive skills and self efficacy beliefs in university career counseling and development programs.

Additionally, the absence of significant gender differences in metacognitive awareness and self-efficacy among university students suggests that these factors play a similar role for both male and female students in their career decision making processes and difficulties. This finding indicates that facilities aimed at promoting metacognitive skills and self efficacy can benefit all university students, regardless of their gender.

Overall, the results of this paper highlight the significance of addressing metacognitive skills and self-efficacy beliefs in university settings to support students' career decision-making processes. By fostering metacognitive awareness and enhancing self-efficacy, universities can empower their students to make informed and confident career choices. It is recommended that universities integrate interventions and resources that focus on developing metacognitive skills and self-efficacy beliefs into their career counselling services and academic programs. This holistic approach can contribute to the personal and professional development of university students and prepare them for successful career transitions.

### **Limitations**

The current study focus on personal factors and demographics as predictors of career decision-making overlook important environmental factors such as parental influence, peer pressure, and the nature of courses, which may act as confounding variables. Secondly, the sample of university students used in this study restricts the generalizability of the findings to other populations, warranting the inclusion of more

diverse participants in future research. The sample restriction was due to many universities showing unwillingness to let their students participate.

Additionally, reliance on self-report measures for data collection introduces the potential for response biases, which could be addressed by incorporating additional objective measures or observational methods..

### **Recommendations/ Implications**

. This study will suggest employing a more varied population of students to make the findings generalizable. Incorporating objective measures or observational methods can address response biases. The findings of this study correlate well with the hypotheses therefore the study contributes to establishing the importance for career counsellors to invest in their own awareness of metacognition and self-efficacy, as this will enable them to better assist their students in developing their own career-related knowledge.

By understanding these concepts, career counsellors can more effectively guide their students in exploring and planning for their future careers. Additionally, teachers can also aid their students to opt for better career decisions by helping them to develop their self-efficacy and metacognitive awareness. By fostering these skills, teachers can encourage their students to be more confident and self-aware as they explore and plan for their future careers. Further research should be conducted for more varied learning instructions and effective career counselling for students in Pakistan.

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## APPENDICES

### Support letter

#### TO WHOM IT MAY CONCERN

Capital University of Science and Technology (CUST) is a federally chartered university. The university is authorized by the Federal Government to award degrees at Bachelor's, Master's and Doctorate level for a wide variety of programs.

Ms. Tayyaba Ali, registration number **BSP193016** is a bona fide student in BSPsychology program at this University from September 2019 till July, 2023. In partial fulfillment of the degree, he/ she is conducting research on "Relationship between Students' Metacognitive Awareness and Self-Efficacy with their Career Decision-Making Difficulties". She is required to collect data from (e.g., students, managers, supervisors etc.) of your organization. In collecting this data, your cooperation and help is required.

I hope that you will allow him/ her to collect data/ information from your organization/ institute. Your cooperation in this regard is highly appreciated. Please feel free to contact undersigned, if you have any query in this regard.

Best Wishes,

**Dr. Sabahat Haqqani**

Head, Department of  
Psychology Ph no. 111-555-  
666 Ext: 178  
[sabahat.haqqani@cust.edu.pk](mailto:sabahat.haqqani@cust.edu.pk)

## **Informed Consent**

**Purpose:**

I am a student of BS psychology at Capital University of Science & Technology. This study is a Thesis Program as a requirement of the BS Psychology Degree. The topic of this study is “Relationship between Students’ Metacognitive Awareness and Self-Efficacy with their Career Decision-Making Difficulties.” The purpose is to examine the role of metacognitive awareness and self-efficacy in students' career decision-making and what difficulties they feel when planning career-related choices.

**Procedure:**

Therefore, if you agree to participate in this study, you will have to fill three questionnaires provided which will take approximately 10-15 minutes to complete.

**Information for the Participant**

Regarding this, I assure you that the confidentiality of participants will be maintained, the results of questionnaires will only be shared with the supervisor of this research. If you feel uncomfortable during administration, you have the right to leave. However, I request you to support my purpose and participate in this research.

**Statement of consent:**

I have carefully read all the conditions given above and agree to give my consent accordingly.

Signature of participant: \_\_\_\_\_ Date: \_\_\_\_\_

**Contact and questions:**

If you have any questions regarding the study or the results, you may contact [bsp193016@cust.pk](mailto:bsp193016@cust.pk)

**Demographic Sheet****Age** \_\_\_\_\_**Gender** Female  Male**City you live in** Rawalpindi  Islamabad**Which semester/class are you in?** \_\_\_\_\_**What is your current level of education you have?** Intermediate/A-level  Undergraduate  Masters  PhD**Do you want to be informed about your results?**

Yes/No

Mention your email if you would like to be informed about the results: \_\_\_\_\_

### Questionnaire 1

Check True or False for each statement below.

Statements	True	False
1. I ask myself periodically if I am meeting my goals.		
2. I consider several alternatives to a problem before I answer.		
3. I try to use strategies that have worked in the past.		
4. I pace myself while learning in order to have enough time.		
5. I understand my intellectual strengths and weaknesses.		
6. I think about what I really need to learn before I begin a task.		
7. I know how well I did once I finish a test.		
8. I set specific goals before I begin a task.		
9. I slow down when I encounter important information.		
10. I know what kind of information is most important to learn.		
11. I ask myself if I have considered all options when solving a problem.		
12. I am good at organizing information.		
13. I consciously focus my attention on important information.		
14. I have a specific purpose for each strategy I use.		
15. I learn best when I know something about the topic.		
16. I know what the teacher expects me to learn.		
17. I am good at remembering information.		
18. I use different learning strategies depending on the situation.		
19. I ask myself if there was an easier way to do things after I finish a task.		
20. I have control over how well I learn.		
21. I periodically review to help me understand important relationships.		
22. I ask myself questions about the material before I begin.		

23. I think of several ways to solve a problem and choose the best one.		
24. I summarize what I've learned after I finish.		
25. I ask others for help when I don't understand something.		
26. I can motivate myself to learn when I need to.		
27. I am aware of what strategies I use when I study.		
28. I find myself analyzing the usefulness of strategies while I study.		
29. I use my intellectual strengths to compensate for my weaknesses.		
30. I focus on the meaning and significance of new information.		
31. I create my own examples to make information more meaningful.		
32. I am a good judge of how well I understand something.		
33. I find myself using helpful learning strategies automatically.		
34. I find myself pausing regularly to check my comprehension.		
35. I know when each strategy I use will be most effective.		
36. I ask myself how well I accomplish my goals once I'm finished.		
37. I draw pictures or diagrams to help me understand while learning.		
38. I ask myself if I have considered all options after I solve a problem.		
39. I try to translate new information into my own words.		
40. I change strategies when I fail to understand.		
41. I use the organizational structure of the text to help me learn.		
42. I read instructions carefully before I begin a task.		
43. I ask myself if what I'm reading is related to what I already know.		
44. I re-evaluate my assumptions when I get confused.		
45. I organize my time to best accomplish my goals.		
46. I learn more when I am interested in the topic.		
47. I try to break studying down into smaller steps.		

48. I focus on overall meaning rather than specifics.		
49. I ask myself questions about how well I am doing while I am learning something new.		
50. I ask myself if I learned as much as I could have once, I finish a task.		
51. I stop and go back over new information that is not clear.		
52. I stop and reread when I get confused.		

## Questionnaire 2

Have you considered what field you would like to major in or what occupation you would like to choose?

Yes / No

If so, to what extent are you confident of your choice?

Not confident at all    1        2        3        4        5        6        7        8

9 Very confident

Please rate the degree to which each statement applies to you on the following scale. Circle 1 if the statement does not describe you and 9 if it describes you well. Of course, you may also circle any of the intermediate levels. Please do not skip any question.

**1.        I know that I have to choose a career, but I don't have the motivation to make the decision now ("I don't feel like it").**

Does not describe me    1 2 3 4 5 6 7 8 9    Describes me well

**2.        Work is not the most important thing in one's life and therefore the issue of choosing a career doesn't worry me much.**

Does not describe me    1 2 3 4 5 6 7 8 9    Describes me well

**3.        I believe that I do not have to choose a career now because time will lead me to the "right" career choice.**

Does not describe me 1 2 3 4 5 6 7 8 9        Describes me well

**4.        It is usually difficult for me to make decisions.**

Does not describe me 1 2 3 4 5 6 7 8 9        Describes me well



**5. I usually feel that I need confirmation and support for my decisions from a professional person or somebody else I trust.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**6. I am usually afraid of failure.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**7. I like to do things my own way.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**8. I expect that entering the career I choose will also solve my personal problems.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**9. I believe there is only one career that suits me.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**10. I expect that through the career I choose I will fulfill all my aspirations.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**11. I believe that a career choice is a one-time choice and a life-long commitment.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**12. I always do what I am told to do, even if it goes against my own will.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**13. I find it difficult to make a career decision because I do not know what steps I have to take.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**14. I find it difficult to make a career decision because I do not know what factors to take into consideration.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**15. I find it difficult to make a career decision because I don't know how to combine the information, I have about myself with the information I have about the different careers.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**16. I find it difficult to make a career decision because I still do not know which occupations interest me.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**17. I find it difficult to make a career decision because I am not sure about my career preferences yet (for example, what kind of a relationship I want with people, which working environment I prefer).**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**18. I find it difficult to make a career decision because I do not have enough information about my competencies (for example, numerical ability, verbal skills) and/or about my personality traits (for example, persistence, initiative, patience).**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**19. I find it difficult to make a career decision because I do not know what my abilities and/or personality traits will be like in the future.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**20. I find it difficult to make a career decision because I do not have enough information about the variety of occupations or training programs that exist.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**21. I find it difficult to make a career decision because I do not have enough information about the characteristics of the occupations and/or training programs that interest me (for example, the market demand, typical income, possibilities of advancement, or a training program's perquisites).**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**22. I find it difficult to make a career decision because I don't know what careers will look like in the future.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**23. I find it difficult to make a career decision because I do not know how to obtain additional information about myself (for example, about my abilities or my personality traits).**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**24. I find it difficult to make a career decision because I do not know how to obtain accurate and updated information about the existing occupations and training programs, or about their characteristics.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**25. I find it difficult to make a career decision because I constantly change my career preferences (for example, sometimes I want to be self-employed and sometimes I want to be an employee).**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**26. I find it difficult to make a career decision because I have contradictory data about my abilities and/or personality traits (for example, I believe I am patient with other people but others say I am impatient).**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**27. I find it difficult to make a career decision because I have contradictory data about the existence or the characteristics of a particular occupation or training program.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**28. I find it difficult to make a career decision because I'm equally attracted by a number of careers and it is difficult for me to choose among them.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**29. I find it difficult to make a career decision because I do not like any of the occupation or training programs to which I can be admitted.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**30. I find it difficult to make a career decision because the occupation I am interested in involves a certain characteristic that bothers me (for example, I am interested in medicine, but I do not want to study for so many years).**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**31. I find it difficult to make a career decision because my preferences cannot be**

combined in one career, and I do not want to give any of them up (e.g., I'd like to work as a free-lancer, but I also wish to have a steady income).

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**32. I find it difficult to make a career decision because my skills and abilities do not match those required by the occupation, I am interested in.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**33. I find it difficult to make a career decision because people who are important to me (such as parents or friends) do not agree with the career options I am considering and/or the career characteristics I desire.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**34. I find it difficult to make a career decision because there are contradictions between the recommendations made by different people who are important to me about the career that suits me or about what career characteristics should guide my decisions.**

Does not describe me 1 2 3 4 5 6 7 8 9 Describes me well

**Finally, how would you rate the degree of your difficulty in making a career decision?**

Low 1 2 3 4 5 6 7 8 9 High

### Questionnaire 3

Indicate a response to the statements provided below

Statement	Not at all true	Hardly true	Moderate true	Exactly true
I can always manage to solve difficult problems if I try hard enough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If someone opposes me, I can find the means and ways to get what I want.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It is easy for me to stick to my aims and accomplish my goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am confident that I could deal efficiently with unexpected events.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thanks to my resourcefulness, I know how to handle unforeseen situations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can solve most problems if I invest the necessary effort.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can remain calm when facing difficulties because I can rely on my coping abilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
When I am confronted with a problem, I can usually find several solutions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If I am in trouble, I can usually think of a solution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can usually handle whatever comes my way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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### *Career Decision Making Difficulties Questionnaire*

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Sincerely,

 Itamar Gati 27/20/2022  
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