

**CAPITAL UNIVERSITY OF SCIENCE AND  
TECHNOLOGY, ISLAMABAD**



**The Effect of the Ambidextrous Leadership on  
the Employee Innovative Work Behavior with  
the Mediating Role of Psychological Ownership  
and the Moderating Role of Innovative Climate:  
The Case of it Industry of Pakistan**

by

**Aiman Asad**

A thesis submitted in partial fulfillment for the  
degree of Master of Science

in the

**Faculty of Management & Social Sciences**

**Department of Management Sciences**

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*I want to dedicate this achievement my parents, teachers and friends who always  
encourage and support me in every crucial time*



## CERTIFICATE OF APPROVAL

**The Effect of the Ambidextrous Leadership on the Employee Innovative Work Behavior with the Mediating Role of Psychological Ownership and the Moderating Role of Innovative Climate: The Case of it Industry of Pakistan**

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## *Acknowledgement*

In the Name of Allah, The Most Gracious, The Most Merciful. Praise be to God, the Cherisher and Sustainer of the worlds. All thanks to Almighty Allah, The Lord of all that exist, who bestowed me with His greatest blessing i.e. knowledge and Wisdom to accomplish my task successfully.

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**Aiman Asad**

## *Abstract*

In today's dynamic and complicated business environment, innovation is very critical for the organizational performance, long-term survival, and competitive advantage. Several elements influence an organization's ability to maintain a competitive edge, include innovation, which is implementation and creation of any functional also new idea in their business. The workers are forced to quit conventional ways and enhance the work processes or generate new ideas through the innovative and thinking as globalisation and organisational competition is increasing. So, the innovation is necessary for companies to change swiftly. To improve organisational innovation, the innovative work behaviour (IWB) is encouraged as a part of the employee development. This study considers ambidextrous leadership to study its impact on IWB in context of Pakistan with respect to employees working in software houses. Further this study examines the role of psychological ownership as a mediator and the organizational innovative climate acting as a moderator. The data was collected by using questionnaire from employees working in Software Houses of Rawalpindi and Islamabad Pakistan. The sample comprises of N= 219. According to the regression results, the ambidextrous leadership significantly impact innovative work behavior of employees working in software houses of Rawalpindi and Islamabad. The psychological ownership played as mediating component between the relationship of ambidextrous leadership and innovative work behavior while organizational innovative climate does not act as a moderator among the relationship. The findings lead to recommendations for further study and practical aspects, such as training in the opening and the closing leadership behaviours to promote IWB.

**Keywords: Ambidextrous Leadership, Innovative Work Behaviour, Psychological Ownership, Innovative Work Behaviour.**



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# Abbreviations

<b>AGFI</b>	Adjusted Goodness of Fit Index
<b>AL</b>	Ambidextrous Leadership
<b>CFA</b>	Confirmatory Factor Analysis
<b>CFI</b>	Comparative Fit Index
<b>GFI</b>	Goodness of Fit Index
<b>IWB</b>	Innovative Work Behavior
<b>OIC</b>	Organizational Innovative Climate
<b>PO</b>	Psychological Ownership
<b>RMSEA</b>	Root Mean Square Error of Approximation
<b>TLI</b>	Tucker-Lewis Index

# Chapter 1

## Introduction

### 1.1 Research Background

In today's dynamic and complicated business environment, innovation is very critical for the organizational performance, long-term survival, and competitive advantage. Several elements influence an organization's ability to maintain a competitive edge, include innovation, which is implementation and creation of any functional also new idea in their business. Organizations get a competitive edge through innovation, which leads to greater organizational performance (Usman, Ghani, Islam, Gul, & Mahmood, 2022). The workers are forced to quit conventional ways and enhance the work processes or generate new ideas through the innovative and thinking as globalisation and organisational competition is increasing (Anderson, De Dreu, & Nijstad, 2004). So, the innovation is necessary for companies to change swiftly. Khalil et al. (2021) defined the innovation as "new and valuable ideas, processes, and products that are actively generated and applied in an organisation". These ideas, procedures, and outcomes are consequence of the individual employee activities and their social interactions. Resultantly, research should focus not just on innovations, but also on staff behaviours that contribute to the innovations. Such practises are referred to as the innovative work behaviour (IWB). Considering these also other significant benefits of innovation, factors that promote innovative work behaviors (IWB) must be thoroughly investigated (Widmann & Mulder, 2018). The existing work has investigated a variety

of the IWB factors at individual organisational and team level. Scholars have thoroughly established the leaders may use their power by directly introducing novel ideas to the organisations and promote innovative ideas of the followers to attain goals of the organization (Palazzeschi, Bucci, & Di Fabio, 2018).

As innovation is defined as a non-routine behavior, employees avoid the traditional techniques of work also instead of investigation and adoption of new methods in workplace (Rosenberg, 2009). There is growing demand for study on the ambidexterity at employee level (Caniëls & Veld, 2019). Various research has been done in the past that focuses on different variables that contribute to innovation (Ariyani & Hidayati, 2018; Zhou & Wu, 2018; Aboramadan, Albashiti, Alharazin, & Zaidoune, 2020). A seemingly less studies area is that of the significance of the ambidextrous leadership in relationship to innovative work behavior (Li, Jia, Seufert, Wang, & Luo, 2020). Ambidexterity is one of the emerging fields of research for management (Wu, Wood, Chen, Meyer, & Liu, 2020). As emerging body of the literature describes the different theoretical perspectives, important field has come to the point that the stress on role played by the leader in development of the ambidexterity. Ambidextrous leaders exhibited the attributes as openness, accessibility, and availability. Ambidextrous leaders serve as supportive situational factors that have the potential to increase the employee's psychological ownership (Gerlach, Hundeling, & Rosing, 2020). The term "ambidextrous leader" refers to what a single leader may accomplish by engaging including both opening (concept exploration) and closing behaviors or idea exploitation. Because new idea creation is a component of innovation, the study argues that ambidextrous leader improves employee inventive behavior (Sudibjo & Prameswari, 2021), It is critical to investigate the influence of ambidextrous leadership on the employee innovative behavior since there is a general lack of research on the team leadership also how leaders might encourage ambidexterity (Zacher, Robinson, & Rosing, 2016; Kung, Uen, & Lin, 2020). According to theory of the ambidexterity for the leadership also discusses that leaders which encourage the leadership behavior of ambidexterity i.e., closing and opening are corresponding to the innovative requirements as they encourage the exploitation and exploration behaviors for the groups and individuals (Park, Pavlou, & Saraf, 2020). The literature says to



achieve the ambidextrous, the employees should know exploitative and explorative simultaneously in the same amount (Visser & Scheepers, 2021). The ambidexterity leadership at individual level is not possible in the organization which could balance both the exploitation also exploration behaviors which is needed to gain and combine synergies between the exploitation or exploration activities at higher level of the organization.

Innovative work behavior vastly depends on the workplace environment and employee's personal abilities. These factors act as an input in the value chain which creates innovative work behavior. Pakistan is lacking behind in field of Information Technology especially software development. Pakistan's IT industry total share in international market is merely 0.9 percent and total international IT industry is worth \$303.8 billion according to Pakistan Software Export Board (PSEB). That 0.9 percent share gives us a figure of \$2.8 billion of which \$1.6 billion consists of IT related services and software exports. Pakistan has almost 1500 registered IT firms and 10,000 IT graduates are entering market each year. Despite of such a huge number of manpower availability our share in international market is alarming. The role of innovation becomes more significant when it comes to IT industry and specially software houses.

The IT market of Pakistan is full of people who are qualified to service needs of the market at low costs. According to the research the innovation firms have high levels of production and growth of the economy as compared to the non-innovating companies. The innovative performance, different companies can maintain and gain their competitive advantage. The Innovative Work Behavior is essential to stability of the organization (Thurlings, Evers, & Vermeulen, 2015). According to (Tan, Van Dun, & Wilderom, 2021) which draws the attention towards problems IWB of the employees would not receive enough attention as compared to the organizational and team innovation. However, interest in innovative research and IWB is increasing as the world is globalizing, the demands are increasing and the economic changes (Bani-Melhem, Zeffane, & Albaity, 2018). Due of the complicated and nonroutine aspect of IWB, where employees depart from standard thinking and discuss new ideas, scholars feel that the leaders' assistance, so they improve the employee's innovative behaviors at workplaces is crucial (Franco &

Haase, 2017). Leaders' behavior is predictor of IWB and innovation organizational climate (Purwanto, Asbari, Hartuti, Setiana, & Fahmi, 2021). Research explored the behavior of the leadership is important factor that affects the employees' efforts for the innovative behavior (Aziz & Jahan, 2021; Ye, Liu, & Tan, 2021).

The psychological ownership is considered as guarantee that organisation will be accessible when it is needed to perform their job efficiently and to deal with difficult conditions. Researchers have emphasised the significance of the leadership and the psychological ownership in encouraging staff innovation (Gerlach et al., 2020). Few research, however, have focused on the link between the ambidextrous leadership and the employee innovative behavior from the psychological ownership perspective (Li et al., 2020). However, the stream of research lacks on the substantial research (Khan, Amankwah-Amoah, Lew, Puthusserry, & Czinkota, 2020; van Assen, 2020).

Scholars have paid close attention to innovation. Most prior study has looked at the innovation a result of leadership (Khairuddin, Haider, Tehseen, & Iqbal, 2021; Tarba, Jansen, Mom, Raisch, & Lawton, 2020; Kortmann, 2015). The main reason for the association between innovation and leadership is that the innovation signifies the avoidance of conformity thinking also taking of risks by inventing new ideas. Employees must exercise ownership to demonstrate creativity and innovation (Villaluz & Hechanova, 2018). Employee's ownership along with freedom of expression are only feasible when leaders encourage them (Brix, 2019). The concept of ambidextrous leadership has become particularly significant since previous literature types of transformational leadership have proven ineffective while acquiring complex pace and nature of innovation (Mom, Chang, Cholakova, & Jansen, 2019). Several studies have found that diverse leadership styles, such as the transformational, servant leadership, encourage workers to demonstrate innovative behaviors (Ariyani & Hidayati, 2018; A. Iqbal, Latif, & Ahmad, 2020). Ambidextrous leadership is one example of adjusting a leadership style to an employee's innovative behaviors. The previous research has found that the leaders who can fit in both opening or closing behavior are more impactful in increasing IWB in people and teams (H. Liu et al., 2022). As a result, to address limitation of the previous research which evaluates the function of leaders in context

of innovation, current research investigates the link between ambidextrous leadership and innovative work behavior. Furthermore, much research has looked at direct association between the different styles of leadership and IWB, although it is still unclear how the ambidextrous leadership influences IWB ([Uppathampracha & Liu, 2022](#)). Similarly, it is critical to understand the complicated process that promotes IWB within organisations. As a result, this current study goes beyond simple effects of the ambidextrous leadership with IWB by describing later how the psychological ownership and the organisational innovative climate could be potential mechanism for ambidextrous leader's behaviors which translates IWB in the Pakistan's IT industry. Based on this research, the study examines role of a different types of the leadership i.e., ambidextrous leadership to predict IWB in the Asian culture, with the psychological ownership acting as a mediator and the organisational innovative climate acting as a moderator.

## 1.2 Research Gap

Over the last years, theory and research has been seen giving enormous interest in the concept of ambidexterity ([Hafeez et al., 2019](#)). Success and the long-term development rely on the ability of the organization how they exploit their competencies while exploring new competencies as well ([Mom et al., 2019](#)). The organizations are continuously facing increasing micro and macro level changes in the environment, challenging themselves for becoming adaptive or dynamic to heterogeneous or unstable context. It is very important for organization to adapt to external opportunity and threats also to react to structural alignment and innovation ([Graaff, 2020](#)).

According to the organizational literature, the successful organizations with the dynamic environment are ambidextrous that are efficient or aligned in present time and adaptive for future change ([Caniëls, Neghina, & Schaetsaert, 2017](#)). One of the most influencing predictors for organization development and worker innovation is leadership. It has been argued in the literature that the leader must encourage both exploitation and exploration behavior within the employees, and the combined high levels of exploitation and exploration would result in the

high levels for innovation among employees (Jan, Mohamed Zainal, & Panezai, 2022). The result for the previous research contributes to in depth understanding of importance of leadership in innovation as called by the research (Grošelj, Černe, Penger, & Grah, 2020). The traditional leadership styles researched in the past were quite inflexible, and hence did not foster innovation (Faulks, Song, Waiganjo, Obrenovic, & Godinic, 2021; Hai, Van, & Thi, 2021). It has been claimed that the best leaders are both transformative and transactional. As there is no shortage of ideas that define leadership principles, there is no consensus on what constitutes effective leadership.

Furthermore, experts suggest that only one leadership style cannot successfully foster innovation (Gemedu & Lee, 2020; Berraies & El Abidine, 2019). Also, some researchers worked with innovation and supportive leadership. In past, the effects of leadership styles for innovation have been researched, including empowering leadership, transactional leadership, transformational leadership, benevolent leadership. However, few research have looked at the link between innovation and ambidextrous leadership (Cho, Shin, Billing, & Bhagat, 2019; Alblooshi, Shamsuzzaman, & Haridy, 2020).

This study considers innovative behavior in context of the ambidextrous leadership for IT sector Pakistan. Research study has found psychological ownership enhances the IWB of employees (Atatsi, Azila-Gbettor, & Mensah, 2021; Phung, Hawryszkiewicz, & Chandran, 2019; Obers, 2019). Therefore, it is proposed that psychological ownership serves a mediator between ambidextrous leaders and IWB, which limits attention in literature for this topic (Haider, Zubair, Tehseen, Iqbal, & Sohail, 2021; Usman et al., 2022). The lack in any substantial empirical studies using mediator psychological ownership and moderator organizational innovative climate which calls of filling this gap (Tang & Wei, 2021). The existing literature points out organizational climate of innovation encourages innovation in the organizations (Ye et al., 2021). The organizational innovative climate cultivates workplace where employees can implement their new ideas (Tan et al., 2021). Innovative behaviors must coordinate by multifaceted leadership style (Sudibjo & Prameswari, 2021). Hence, it is proposed that organizational innovative climate could serve as the moderating variable in this research. There has been no such

research in Pakistan which has examined the proposition for ambidexterity leadership for the innovation among the workers specifically predicting the innovative behaviors of employees (Ossenbrink, Hoppmann, & Hoffmann, 2019). Therefore, to fill these gaps in literature, this study investigates the impact of ambidextrous leadership on IWB in context of Pakistan with respect to employees working in software houses. Further this study examines the role of psychological ownership acting as a mediator and the organizational innovative climate acting as a moderator.

### 1.3 Problem Statement

When observing the international business scenario, it is evident that businesses are progressing and innovating at a pace never seen before (Onileowo, Muharam, Ramily, & Khatib, 2021). Information Technology industry is no exception (He & Ortiz, 2021). The total worth of global IT industry is \$303 billion out of which contribution of Pakistan is merely 0.9%. According to the information shared by PSEB (Pakistan Software Export Board), Pakistan contributes with only \$2.8 billion in total global sales out of which \$1.6 billion weighs IT related services and software development. A huge volume of activity takes place in Pakistan's IT industry with almost 10,000 IT graduates entering the IT industry in each year and number of IT firms in the country has rose to 1500 which is a remarkable development but still the global market share is mismatched, and the country is far behind economies like India., Singapore and Malaysia (Onileowo et al., 2021). The evident difference between both economies is the aggressive steps taken by those economies which have boosted their global market share. On the other hand, Pakistan's IT industry is directionless and requires a total revamp. For the comparison purpose if we take stats of Indian IT industry the differences are shocking, Indian IT industry has doubled the market share from \$60 billion (in 2008/ 2009) to \$120 billion in only 9 years (Onileowo et al., 2021). This development puts a huge question mark on Pakistan's performance in this regard. Current research is also directed in this direction, it is intended to identify ways to increase the creation of innovative ideas and enhance innovation among people

working in IT industry. By digging deeper into current research's population which is Software Houses, the stats tell almost same story, India's software exports cross the figure of \$60 billion in year 2016. Whereas Pakistan is lacking behind with just \$1.6 billion in software exports. For this purpose, we have proposed a model which comes under the Cognitive Evaluation Theory. This research model focuses on function of the ambidextrous leadership in the enhancement of innovative work behavior while not keeping the learning and vitality out of sight (Janssen, 2000). According to the proposed model, leadership and the right personality of the follower can lead to psychological ownership which further leads to innovative work behavior which is essential to progress especially in IT industry which is experience rapid changes. Research undertaken by (Afsar, Masood, & Umrani, 2019) stated that organizations who want to enrich their daily routine tasks with innovation and innovation must work on their workers in such a way that their procedure and practices are supplemented by innovativeness. According to Janssen (2000), if an organization wants to be complemented with innovation and timely attainment of targets it must transform innovation into an essential skill embedded in its culture and employees. These researchers (Afsar et al., 2019; Woods, Mustafa, Anderson, & Sayer, 2017; Kmiecik, 2020) have highlighted the importance for acquisition of further knowledge on antecedents of innovative work behavior and how employee level struggle in creation of new ideas can lead to innovation at departmental and organization level.

## 1.4 Research Questions

The research question of the study is:

- Does ambidextrous leadership impact IWB of the employees working in Pakistan's IT sector?
- Does ambidextrous leadership impact the psychological ownership of employees working in the Pakistan's IT sector?
- Does psychological ownership impact the IWB of employees working in the Pakistan's IT sector?

- Does psychological ownership play a mediating role among the relation of ambidextrous leadership and IWB of the employees working in Pakistan's IT sector?
- Does organizational innovative climate play a moderating role among relationship of the ambidextrous leadership and the IWB of the employees working in Pakistan's IT sector?

## 1.5 Research Objectives

The research objectives of this research are as under:

- To find the effect of ambidextrous leadership on the IWB of employees working in the Pakistan's IT sector.
- To determine the effect of ambidextrous leadership on the psychological ownership of employees working in the Pakistan's IT sector.
- To study the effect of psychological ownership with IWB of employees working in the Pakistan's IT sector.
- To examine mediating role of the psychological ownership among relationship of ambidextrous leadership and the IWB of employees working in Pakistan's IT sector.
- To investigate the moderating role of any organizational innovative climate among relationship of the ambidextrous leadership and the IWB of employees working in Pakistan's IT sector.

## 1.6 Cognitive Evaluation Theory

According to research on the theory cognitive evaluation or CET states that it's the psychological ownership or intrinsic motivation which allows the individuals so they feel autonomous, feedback or competency in the job, that will affect Innovative Work Behavior. The CET theory describes the employee's evaluation and

external factors that act in certain ways. Correspondingly, in milieu of innovative behavior, the employees evaluate external context so they can find support towards Innovative Work Behavior. The employees when they find the supportive ambiance, they feel more motivation to show the Innovative Work Behavior. The ambidextrous leaders provide supportive context through the motivation of employees so they can share their point on innovation. The ambidextrous leadership shows attributes which include availability, openness, and accessibility. Ambidextrous leadership serves as supportive factor of situation which has potential to enhance the psychological ownership of employees. This literature has also found the psychological ownership has positive relation with the IWB (Afsar & Umrani, 2019). So, psychological ownership has important mediating role which has relationship between the ambidextrous leadership with IWB, that receives limited attention in research literature.

According to the research by (Javed, 2020) calls for research to study the role of psychological ownership with IWB and ambidextrous leadership. The more recent research uses the CET lens to examine mediating role of the psychological leadership and relation with the Innovative Work Behavior and ambidextrous leadership. In summary, the research will contribute to the literature of Innovative Work Behavior (1) providing insightful understanding on ambidextrous leadership to increase the psychological ownership, (2) exploring mediating role of psychological ownership or its relation between Innovative Work Behavior and the leadership, (3) explored moderating role of organizational innovative climate and its relationship with ambidextrous leadership, psychological ownership and IWB and (4) the research uses theoretical CET to investigate direct and indirect impact of IWB with ambidextrous leadership.

## 1.7 Significance of the Study

This study tries to explain relation between occurrence of ambidextrous leadership at workplace and its effect on innovative work behavior which is said to be a crucial business element in current scenario where everything is changing at rapid pace. This relation is easy to understand if we take cognitive evaluation theory



(CET) in account. CET states that any positive or negative occurrence at workplace can cause an uplift or downfall in the work attitude of the individual. This study is theoretically significant as it develops a relation between ambidextrous leadership and innovative work behavior. Secondly, it also takes in account the role of moderator, which is climate of innovation, in strengthening the linkage among ambidextrous leadership and IWB. Moreover, it also addresses role of the psychological ownership as a mediator.

The significance of this study is evident from the complex and dynamic environment that innovative work behavior is not just an option but a compulsion ([Usman et al., 2022](#)). The role of innovation becomes more significant when it comes to IT industry and specially software houses. The target population of this study is software houses of twin cities i.e., Rawalpindi and Islamabad. Findings of this study provide guidelines to manager to promote ambidextrous leadership in the organization which in return will foster innovative tendencies in workers making them to exhibit innovative work behaviors.

# Chapter 2

## Literature Review

### 2.1 Introduction

Previous chapter provides overview of the ambidexterity, with an emphasis on the rise of the innovative behavior. As a result, this chapter examines the theoretical knowledge of the ambidextrous leadership elements toward employee innovative behavior. It gives a detailed assessment of these occurrences and so assesses the contributions of previous studies on the ambidexterity adoption ([Laser, 2022](#)). Employees' innovative behaviors are emphasised. Based on this, the different underlying factors for the ambidexterity adoption is investigated, with a particular emphasis on the innovation demands and the innovative atmosphere. The evaluation of the literature gives criteria based on previous research findings that describe dimensions of innovation requirements derived from the leadership style and utilised to investigate the psychological needs and their relationship to innovation, which is considered as a contributing factor for leadership style.

### 2.2 Theoretical Framework

The cognitive evaluation theory or CET is used in research to label the above gaps in literature and to add up to the current literature in following three ways. First, the direct relationship between the ambidextrous leadership and IWB, is

explored in this research, in an innovative work context and with a different example (Kafetzopoulos, 2021). Current literature is lacking in analysing the role of ambidextrous (two-handed) relationship in an innovative work environment. Second, several studies have stressed that there is a need for investigating the explanatory processes basically related to ambidextrous leadership along with the complex procedures that drive IWB. Hence, this research will respond to these requirements for explaining this relation by examining the psychological ownership as the mediator between the ambidextrous leadership with IWB and moderating role of organizational innovative climate among the relationship of study variables. Third, it is important point to note that there are a lot of research on innovative behaviors which have been conducted in Western countries. Recently Usman et al. (2022) suggested to examine the relationship of ambidextrous relationship in an innovative work environment by merging psychological ownership as a mediator and as suggested by (Alghamdi, 2018) taking organizational innovative climate as moderator.

Leader closing as well as opening behaviors at a great extent can lead to exploitation and exploration behaviors among employees to a greater extent. In situations, in which either exploration or exploitation or both behaviors of workers are low, the leader's opening, as well as closing behaviors, would also be low, which in turn lessens the innovative performance of workers.

## 2.3 Ambidextrous Leadership

The ambidexterity describes the benefits of the conflicting aspects (flexibility vs the orientation, consideration, and the manipulation) or comparability of skill in the two traits (self-control and elasticity). In accordance with the ambidexterity theory, the organizations can get improvement in their context, structure, and leadership through ambidextrousness. Rosing, Frese, and Bausch (2011) suggested different behaviors of the leadership are interconnected to the innovation in behaviors of the low-level employees - to the mid-level degree employees and found disparity in similar type of leaderships or innovation in the behaviors of employees. According to literature the innovative process of the employees cannot

progress without the help of complex leadership and may possibly face difficult and opposing challenges. Therefore, ambidexterity theory for the leadership for the innovation, that comprehends conflicts or pressures in the process of innovation, came to light (Mohiya & Sulphey, 2021). The ambidexterity term has used by management to demonstrate the competence of organizations that how they can create and retain a stability in the exploration also exploitation activities.

According to literature, “ambidextrous leadership is described as leaders’ ability to stimulate both explorative and exploitative behaviors in followers or employees by increasing or reducing imbalance in their behavior and flexibly shifting between those behaviors” (Mascareño, Rietzschel, & Wisse, 2021). Thus, the ambidextrous leadership should be effective to keep the exploitation and exploration both among the employees’ behaviors and explaining behaviors through themselves. The ambidextrous leadership has 2 groups of behaviors: “the opening leadership and the closing leadership.

Rosing et al. (2011) proposed that opening leadership fosters the employees to search for the solutions outside the safe and reliable ground”. Those types of behaviors in which thinking and acting self-sufficiently are acknowledged might create an open environment, particularly for those situations when subordinates are required to discover and create innovative and novel ideas. However, showing only opening and closing behaviors is not the main concept of ambidextrous leadership. Instead of that an ambidextrous leader must have capability of shifting flexibly between those behaviors and blend them. There is a chance of an uncertainty in innovation procedure, and it is also lacking in methodical models that forecast when to look at the innovative and ideas also how to utilize them.

Hence, the opening and closing both the leaderships are important for leaders who are going to embark on innovation. These types of leadership are not only compatible but also competitive. The leader behavior should lead the employees so they search for their opportunities and expand their knowledge in order to improve the employees’ innovative behavior and the team and organizational innovative performance (Jia, Hu, & Shuwen, 2021), and the closing leader behavior towards the subordinates so that they would be able to exploit knowledge and opportunities

in order to achieve a task and fulfill the demand of the organization standards and requirements.

## 2.4 Innovative Work Behavior

IWB is defined as “the sum of all physical or cognitive work activities employees carry out solitarily or in a social setting in order to generate, promote and realize ideas that are new and applicable to their specific work context” (Messmann, Mulder, & Gruber, 2010) p.69. The innovative behavior of employees is determined when they have gone beyond their scope of requirement and responsibilities for the basic work (Bin Saeed, Afsar, Shahjeha, & Imad Shah, 2019). In contrast to ordinary job performance, the innovative work behavior entails the realisation, inception, and commercialization of novel, helpful, and the creative ideas and their solutions. This dynamic character of the work activities in innovative work behaviors is recognised to entail difficult non-standard and the non-routine tasks. Hansen and Pihl-Thingvad (2019) define innovative work behavior as purposeful inventions, promotions, and implementations of the new ideas in work positions, among the work groups, organisations to get the rewards of the performance. Thus, the innovative work behavior may be defined as many characteristics as possible of an individual’s capacity to present, produce, and implement new products, new ideas, new procedures, and new processes that benefit jobs, groups, or organisations (Prabowo et al., 2018). According to Faraz et al. (2018), innovative work behavior involves four dimensions: “concept discovery, idea development, idea struggles, and idea execution”.

In contrast, Hansen and Pihl-Thingvad (2019) define the innovative work behavior as having only three stages: idea development, concept promotion, and idea implementation. Employees apply their innovation in first stage to explore practises in comparable companies or to generate the new concepts. Employees will support the execution of idea after it has been established by assembling the coalition of sponsor behind it. This stage is known as promotion concept. Employees must be associated with the implementation of ideas to be inventive in the last step, which is transforming ideas into processes that could be employed in the organisation

(Bruce, Hall, Buysse, & Krafty, 2018; Janssen, 2000). In summary, the innovative work behavior is multifaceted construct that encompasses all the behaviors in the employees contribute to De Jong and Den Hartog's innovative processes.

## 2.5 Organizational Climate for Innovation

Concept of organizational climate is defined as the “subordinates’ insights of the organizational strategies, actions and practices and following outlines of the communications and behaviors which improve and help the innovation and bring newness in the business (Olsson, B. Paredes, Johansson, Olander Roese, & Ritzén, 2019). Theory defines the innovation as a well-defined overview and implication in a position, team and organization of the various process, ideas, product, events, which are applicable in significant implementation and designing for assisting the performance role in the group, the organization or within the society (Song, Wang, & Ma, 2020). As per theory there are four main themes in psychological abstracts namely task orientation, vision, participative safety, and the support for the process of innovative behavior which are regarded as the climate structure of workgroup (includes the department, team, or the organization) for process of innovation (Pomirleanu, Gustafson, & Townsend, 2022). As supported by theory that OIC encourage change and innovation by asserting the elements of innovation management and creating the adequate climate for the employees to build and share suggestions and ideas. The phenomenon of innovation is referred as the significant contributor of organizational success and develops environment for organizational level innovativeness. The process is important for the organizations who are seeking to innovate and encourage innovation. The management ensures that OIC nurture, encourage and enhance the innovation among employees (Andersson, Moen, & Brett, 2020). The employees who are creative and innovative are more likely to practices the innovation with perception of support from the organization. Moreover, the organizations can build the OIC perceived as a positive phenomenon by the individuals in organizations which results in high level of motivation, engagement, commitment and improve performance of overall organization.

## 2.6 Psychological Ownership

The concept of psychological ownership is referred as the feeling of possession over the target which is the concept, object, organization, or the person which is either supported or not supported by the formal ownership (Zhang, Liu, Zhang, Xu, & Cheung, 2021). The individuals invest in their target for ownership and develop perception they belong to that target. These individuals have a stake in performance of that objective which reflects their own identity (Morewedge, 2021). The perception of psychological ownership is referred as feelings of the ownership of individuals towards their organizations which enable sense of responsibility, pride, and obligation for devoting the efforts which lead towards high level of performance and innovative behaviors. As per the self-enhancement theory (Kortmann, 2015), with high level psychological ownership the individuals view their organisation as important part of their own self, and they are motivated for exhibiting the innovative behaviors for maintaining self-concept as a need-satisfying and worthy individuals than those individuals who have low level of psychological ownership (Ye et al., 2021). Therefore, the innovative climate of organizations is linked to develop psychological ownership among individuals and employees.

## 2.7 Hypotheses Development

### 2.7.1 Ambidextrous Leadership and Innovative Work Behavior

For development of organization also its fortitude in such environment which is dynamic, the ambidextrous leadership and the innovative work behavior are important aspects. The organizations who have pioneering ability can cope up with changes in an environment more rapidly and execute competently as compared to noninnovative organizations which works in chaotic environments (Usman et al., 2022). Ambidextrous and the innovation of work behavior are very important factors which help organization to endure and develop in changing environment. The organization which have innovative capability could react to the changing

environment by performing effectively then the organization which do not have innovative behaviors which are working in the chaotic environments. According to the definitions of innovative behavior is defined as “the intentional creation, introduction, and application of new ideas within a work role, group, or organization, in order to benefit role performance, the group, or the organization” (Gerlach et al., 2020). The researchers have noted that innovative behavior is about executing and creating innovative ideas are connected to different resulting stages like the exploitative and explorative innovations. These two stages having different focus points are opposite from each other. According to literature ambidextrous leadership and innovative behavior of the employees have positive relation with each other. Theory has given realistic support which shows the positive relation of the ambidextrous leadership with the employee’s innovation (Hafeez et al., 2019). The combination of the closing and opening leadership would better enhance the innovative work behavior of the employees when there is a need to cope with unpredictability and uncertainty for innovation during the process of innovation, somewhat the combination of the little closing or opening leadership relations, or both. The closing leadership stresses on the accomplishment of goals and quality of the performance of the task, this motivates the employees to generate ideas which is the result of the inspiration of the leaders’ experiences and the different thinking of the advantageous programs, services, and products (Zacher et al., 2016).

Experimentation, pushing beyond timelines, fundamental assumptions, think outside the box, and the imagination that is strongly related with the experimental activities are all required for the innovation in any organization. As defined by (March, 1991), implementation of the concept necessitates sufficiency, presenting an aim, and keeping to routine to conduct various actions such as the executions related to the exploitative practices. When the project staff make novel strategies to overcome difficulties, take risks, cause disagreement, and disregard normal operating. In this situation, the leadership is very critical in generating the new ideas, promoting and supporting new ideas, to convince others of necessity of unique ideas in completing the innovation procedures (Li et al., 2020). Leader’s active aid in being innovative may improve employee’s innovation, which may favourably link



to the innovation and development of the new ideas. In this regard, the ambidextrous leadership alludes the capacity of an accumulation for both the opening and the closing leadership techniques, as well as temporary flexibility to flip between the two types.

Therefore, the following hypothesis is proposed by the study:

***H1. The ambidextrous leadership is positively and significantly related to the innovative work behavior.***

## 2.7.2 Ambidextrous Leadership and Psychological Ownership

The ambidextrous leadership can be defined as the ability to explore and to exploit simultaneously and the ability to switch between the two. Ambidextrous leaders exhibit three types of behavior, (Rosing et al., 2011): 1) opening in the leadership, (2) closing the leadership behavior, and (3) the temporal flexibility of leadership. It implies the ambidextrous leadership demonstrates behavioral variability in variety of situations. The temporal flexibility, for example, means the leader should vary between opening and the closing behaviors. Psychological ownership is additional role behavior that is used to bring about good and constructive changes (Stier, Berman, & Bettencourt, 2021) as well as questioning the existing quo (Choi, 2020; Stier et al., 2021). Taking leadership, or voice behaviors, according to the research by (Morrison & Phelps, 1999), is the type of behavior intended at contributing to innovation process. Similarly, the research defined change-oriented behavior as the voice behaviors which are utilitarian in character to bring about change in any organisation. Even though innovation is critical component for organisational survival in today's dynamic business climate (Shrestha & Varma, 2021), role of workers in bringing about constructive change is critical. However, the leadership has identified as the most critical antecedent of the innovative behaviors (Choi, 2020; Stier et al., 2021), which is referred to as the psychological ownership in study. Although the psychological ownership is the discretionary behavior emphasised that it may be encouraged inside the business through supportive leadership and a creative atmosphere. As a result, it

is possible to claim that the leadership support for the psychological ownership is required requirement. According to the ambidextrous leadership theory, leadership's temporal changing behavior allows employees to discover and exploit at the same time. Transactional leaders believe in the reward and punishment system to achieve their objectives (Kara, Uysal, Sirgy, & Lee, 2013). According to research, individual's thinking leads to sentiments, which lead to a path of action. The psychological ownership is risk-taking behavior that challenges the current situation to provide productive and beneficial ideas and proposals for improving products, processes, or work techniques. According to the research by (Z. Iqbal, Ghazanfar, Hameed, Mujtaba, & Swati, 2022), the ambidextrous leadership is likely to significantly promote psychological ownership. Despite this, nothing is known about the link between the ambidextrous leadership and psychological ownership. Furthermore, research found a link between transactional leadership and innovative work behavior and their psychological ownership. So, the hypothesis can be derived as:

***H2: Ambidextrous leadership is positively and significantly associated to psychological ownership.***

### **2.7.3 Psychological Ownership and Innovative Work Behavior**

Many studies have found that the psychological ownership has certain benefits for organisations. Employees will need to put extra effort to become innovative to be successful if the organisational goal's value is aligned with their values. IWB the most common productive work behaviors of workers that can be linked to psychological ownership (F. Liu, Chow, Zhang, & Huang, 2019). To comprehend and foresee the innovative work behavior, which many researchers refer to as the extra-role behavior, it is necessary to first grasp authority of the employee's worth inside the organisation (Rau, Werner, & Schell, 2019). Despite several research looking at the association between the psychological ownership and innovative work behavior, subject of how the psychological ownership led to the increased innovation has not been adequately addressed in literature (Ucar, Alpkın, & Elci, 2021). Researchers characterise in behavior using role-identity theory. the identity

theory, it focuses on role identities like a mother, professor, or blood donor, and the social identity theory which focuses on the identities derived from the group memberships. This relationship between self-identification and behavioral goals is theoretically founded on the identity theory, that conceptualises self as more than just separate psychological body, but also as a social product. As a result, identity theory advocates for a visible context for presence of the self-identity as interpreter for innovative work behavior. The Psychological Ownership and the Person-Organization Fit is a social identification standpoint, point at which workers think they fit into an organisation in which they work, the employees should be strongly associated to the innovativeness (Leyer, Hirzel, & Moormann, 2021). Results of study that investigated relationship between the psychological ownership and the innovative behavior found that the psychological ownership has a significantly positive relation to the innovative employee behavior. Similarly, (Tien, Hiep, Dai, Duc, & Hong, 2020) investigated the link between the encouragement and the innovative behavior, and the moderating influence of psychological ownership, using a sample of 316 employees in the manufacturing businesses. Findings suggested that; the empowerment is positively associated to innovative conduct but there is no evidence of the moderating consequence of the psychological possession on association between the empowerment and in behavior was detected. Based on theoretical foundation and preceding literature, hypothesis is constructed as follows:

***H3. Psychological ownership has a positive and significant relation to the Innovative work behavior.***

#### **2.7.4 The mediating Role of Psychological Ownership**

According to research, which was quoted by (Waheed, Miao, Waheed, Ahmad, & Majeed, 2019), ambidextrous leadership can inspire innovative work behavior. According to Cheng, as quoted by (Afsar et al., 2019), transactional leadership is favourably associated to innovation. The latter relates to creative workplace behaviors. The implementation of an idea is a vital stage of IWB, also it is difficult to use creative ideas without first gaining societal approval and support (Afsar

et al., 2019). As a result, leaders with an ambidextrous leadership style inspire their staff to engage in innovative work behavior. According to research, employees are unable to fully utilise their innovative potential since current traditional organizational processes might produce sentiments of powerlessness. As a result, this sense of powerlessness will contribute to operational inefficiency and stifle employee inventiveness. As a result, Edmondson, who is also cited by (Bin Saeed et al., 2019), advises leaders to try to energise the dimensions of psychological empowerment and create a sense of free will among their followers when translating the organization's vision and mission into daily routine tasks and work context.

***H4: Psychological ownership is mediating the relationship between the ambidextrous leadership and the innovative work behavior.***

### **2.7.5 The Moderating Role of the Organizational Climate for Innovation**

Employee views of organisational rules, procedures, and the practices, as well as the consequent outlines of the communications and the behaviors which promote and enhance innovation within the organisation, are characterised as organisational environment for the innovation (Waheed et al., 2019). According to literature innovation is defined as thoughtful overview the application within position, group, the organisation of notions, their procedures, product, or the events that are new to relevant units of the acquisition which are intended to significant benefiting role performance, group, organisation, or the society. The climate for workgroup which includes teams, departments, or organisation for the innovation, corresponding to the West's theory for group innovation, consists of the four foremost conceptual themes: the vision, support for innovation, participative safety, task orientation. The concept of vision is valuable outcome that indicates higher-order aim and driving forces at work. It represents the point to which the group members having common goals and are committed to achieving those goals (Berberoglu, 2018).

Participative safety is defined as engagement in the decision-making that is encouraged and supported while taking place in a setting that is seen as interpersonal nonthreatening and safe. A common interest with the perfection of standard of

the task performance in connection to mutual goal or results is referred to task orientation (Qammar & Abidin, 2020). When the members of the workgroup have common commitment to high value and the performance, they will be motivated to examine and analyse not just existing practises but also innovative information or ideas in a constructive, reducing groupthink. Expectation, admiration, and actual assistance for initiatives for bringing innovative and improved methods to do job in workplace is referred to as the support for improvement. Employees think challenges to produce and execute innovative ideas are more to be allowed when an organisation or the workgroup is regarded to be -supportive in innovation – if they do not result in good results (Alghamdi, 2018). The employees, as adaptive creatures, adjust their attitude, behavior, and belief to the corporate environment, according to social information processing approach. They frequently utilise signs and the signals to socially build and examine the work environment, as well as to comprehend proper behaviors. The top management in organisation has authority in terms of rewarding, punishing, and in making final decisions, organisational members acquire the most significant behavioral expectation and standard via giving hints or commands (Jia et al., 2021). Top manager gives knowledge and the common indications about whether behavior is right, to be rewarded, or penalised, so encouraging employees, including the managers of different departments and subordinates. According to research the primary manager in organisation is responsible for shaping the work environment, working as “climate engineer” (Haider et al., 2021).

According to social information processing approach, social cues, particularly the management practises and the leadership of the high-status supervisors, greatly impact workers' impressions of work environment. The common view informs employees about what kind of mindsets and requirements are suitable in their work environment, as well as in what way individuals are supposed to have to connect to that setting and establish proper behavior (Purwanto et al., 2021). Because employees are subjected to comparable leadership behaviors as well as policies, procedures, and standards, the leadership qualities of a manager shape the common impression of the workgroup's circumstantial qualities. In conclusion, the top manager who blends into the opening and closing leadership establishes

also retains an organisational climate conducive to innovation (Li et al., 2020). Members in such an organisational atmosphere see innovative actions, such as perceiving unique designs and implementing those ideas in accordance with the vision and values of excellence, as beneficial and supportive. As a result, the following hypothesis are made in this study:

***H5. Organizational innovative climate is moderating the relationship between the ambidextrous leadership and the innovative work behavior in a way when innovative climate is high ambidextrous leadership will significantly enhance innovative work behavior of employees and vice versa.***

## 2.8 Summary of the Hypothesis

**H<sub>1</sub>.** Ambidextrous leadership has positive and a significant relationship with the IWB.

**H<sub>2</sub>.** Ambidextrous leadership has positive and a significant relationship with psychological ownership.

**H<sub>3</sub>.** Psychological ownership has positive and a significant relationship with the IWB.

**H<sub>4</sub>.** Psychological ownership is mediating the relationship between the ambidextrous leadership and the innovative work behavior.

**H<sub>5</sub>.** Organizational innovative climate is moderating the relationship between the ambidextrous leadership and the innovative work behavior in a way when innovative climate is high ambidextrous leadership will significantly enhance innovative work behavior of employees and vice versa.

## 2.9 Conceptual Framework

Purpose of the study is to investigate effect of the ambidextrous leadership on employee innovative behavior along with mediating role of the psychological ownership and moderating role of the innovative climate in the case of IT sector of

Pakistan. Independent variable of research is the ambidextrous leadership, and dependent variable of the research is the innovative work behavior. Having psychological ownership as a mediator and organizational innovative climate as a moderator.

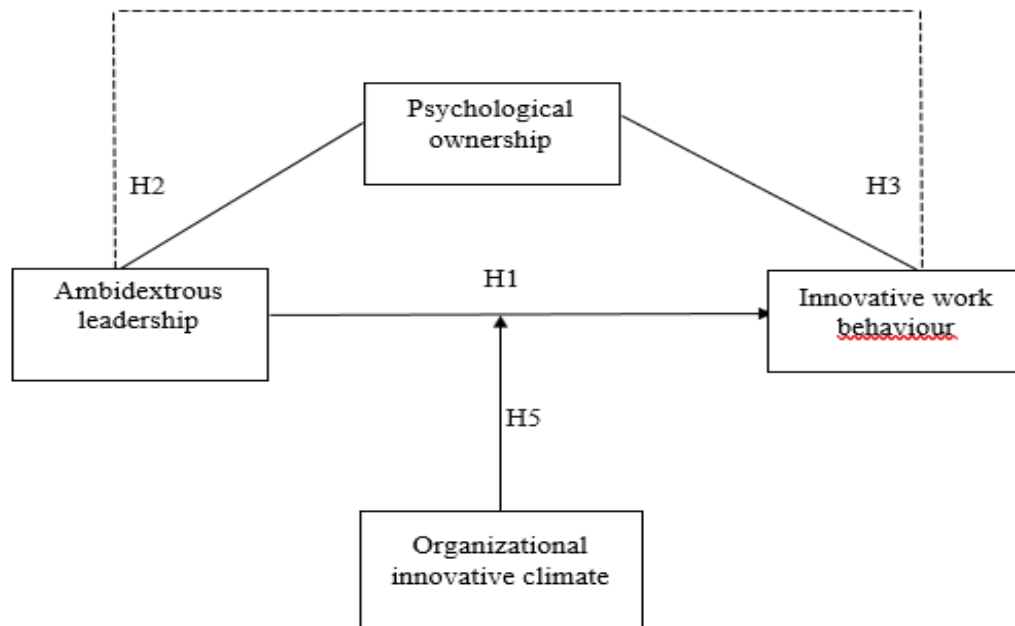


FIGURE 2.1: Research Model

# Chapter 3

## Research Methodology

### 3.1 Introduction

The section of the thesis would address methodological approach taken to complete this quest. The major components of this section include description of population, sample size, instruments used for measurement, data analysis procedure and statistical tools adopted.

### 3.2 Research Paradigm

Numerous studies of social sciences recommend varieties of research procedures or methodologies for examination of relationship of variables. According to [Kaushik and Walsh \(2019\)](#), the methodologies used should revolve around the research questions asked, as this is a key factor of an excellent research. Study consistently highlights the importance of research design selection regarding three major considerations of research: (1) relationship qualities between research and theory, (ii) epistemological direction of research, also (iii) information relevant to social world. In this regard researchers have categories for each research paradigm, including positivist, interpretivist, and critical research. The paradigms are also divided into the post positivism or realism, interpretivism, critical theory and constructivism. Acknowledging significance of the research paradigms, ([Park et al., 2020](#)) emphasizes that no one approach to research technique can be deemed an ideal research



paradigm. According to Žukauskas et al. (2018), it is significantly preferable to identify a strategy appropriate for the issue or phenomena under investigation in social research. Most likely, the choice of any paradigm is owing to the diversity of subjects of interest or simply the chosen approaches accessible in the given time due to the research instruments, (Park et al., 2020). The feasibility of selecting any research paradigm is heavily dependent on what must be completed in terms of research objectives and what type of data is necessary for the research.

In addition, coherence between research objectives, research technique, research questions, and the researcher's own philosophy is an essential component in determining the reason for conducting any research. Thus, philosophical opinions may be said to describe nature of subject under consideration, aspects that could be learned from current subject, and how the knowledge could be obtained through research endeavours. Taking them all into consideration, the research takes position on positivist paradigms and employs logical theory construction or deductive reasoning. As a result, we utilise the (Dźwigoł, Dźwigoł-Barosz, et al., 2018) definition of positivism to best explain this research, which is as follows: "Positivism is an approach to social research that seeks to apply the natural science model of research to investigations of social phenomena and explanations of the social world". The research, which is basing on positivist method, seeking to understand how ambidextrous leadership is linked in innovative work behavior, with purpose of scientifically analysing psychological ownership mediates the relationship and how organizational innovative culture moderate the relationship of study. Positivism will allow the researcher to study the behavioral responses in detail (Bombala, 2021). While specifying "what" or "how" from all mediating and independent factors identified by the study, conclusion is to provide a link and association between predictors of their behavior.

### 3.3 Research Approach

This study, as previously noted, utilises the positivist approach and the deductive reasoning and deductive theory construction. The process of developing a theoretical argument that is then utilised to generate concrete empirical proof is known

as deductive theory creation. The process of accepting or rejecting hypotheses or research propositions that accompany the development of theory through the research framework is demonstrated through deductive theory formation. According to (Sekaran & Bougie, 2016), concepts are logically or theoretically projected to occur, be seen, and tested to discover whether the research premise, pattern, or generalisation is likely to occur in real world.

The deductive theory is research method which aids in the development of the hypotheses from the theories and then to obtained data to evaluate the hypotheses. Which includes creation of the theoretical foundation to test, generating a specific number of hypotheses that are a reflection of relationship between various components, formulating a research strategy to examine the framework, putting the hypotheses to the test with the data gathered, and finally, purifying the framework and any underlying theories (Hair, Page, & Brunsveld, 2019) Deductive theory construction, also known as the theory-then-research approach strategy, has as its imperative benefit that is the method which tests these hypotheses also to depend on the objective measure of data to support the results (E. Bell, Bryman, & Harley, 2022).

Construction of a deductive theory involves two processes, according to (Welch, Piekkari, Plakoyiannaki, & Paavilainen-Mäntymäki, 2020). Choosing an area of interest or preference is the first step. In this way, innovation is a phenomenon, particularly when it comes to leadership style. As a result, the broad concept of ambidextrous leadership serves as the foundation for this research topic of interest. The general notion is then drilled down to provide a theoretical framework. Given this enthusiasm, there is a strong argument for understanding why ambidextrous leadership is used to foster innovation among employees and whether it affects the psychological ownership of employees through this research.

The second stage of deductive theory construction describe range of the theories which best characterise phenomenon to describe the research topic (Aguzzoli, Gardner, & Newburry, 2021). To some extent, they must use innovation. Some of the empirical elaboration is revealed to be simple, restricted on the scope, and even inconsequential if these ideas from other domains are not integrated. The focus of this research is therefore on returning to early theories, psychology, and

understanding how people behave and what motivates them to innovate. A theory that explains innovation is then added, considering the nature of research that takes place in the setting where leadership style plays a big part in the adoption process.

Additionally, according to (E. Bell et al., 2022), people regularly alter their usual patterns of behavior because of learning new information about the activities they are engaging in or the society to which they belong. Because human behavior is constantly changing, this research's theoretical foundation is based on (Aguzzoli et al., 2021) two facets of reasoning: (i) investigating phenomenon and (ii) drawing conclusions about those phenomena employing an acceptable research technique, as detailed in the next section. Furthermore, (Hair et al., 2019) emphasises that most scientists seek explanations for why the phenomenon occur by the analysis of connection between event's expected the antecedent and predicted outcomes of the event. Human climate factors are therefore assumed to be the cause of any explanation of attitudinal change from one leadership style to another in this study. This study aims to learn more about the phenomenon of innovation, specifically the explanation of various leadership styles, that is also noticed as the "inter-subjectively certifiable" with theory offered, as conclusion on the deductive reasoning of construction and the theoretical orientation.

### 3.4 Research Design

Purpose of research is to examine impact of ambidextrous leadership on IWB which is mediated by the psychological ownership, by incorporating organizational innovative climate as moderator. This study is the hypotheses testing. The amount of interference in the study was minimal since the results of the research are dependent on the extent to which the ambidextrous leadership affects innovative work behavior (Bloomfield & Fisher, 2019). This means that the researcher must rely on the information given by the respondents and could not be altered due to any kind of bias, inclination, or a preconceived notion. This is a quantitative field research. Data is collected the from employees working at the software house based in the Rawalpindi and Islamabad. Unit of sampling for analysis is individuals

working in different software houses of Pakistan. Nature of the research work is cross-sectional in which data would be checked in one time lag in two months to decrease common method bias.

### 3.4.1 Exploratory Research

Exploratory research's goal is to investigate a condition or problem to offer insights and understanding, as the name suggests. Exploratory research, according to Swedberg (2020), is carried out when there is limited understanding about the current. Therefore, before a model is constructed for this research, substantial preliminary work must be done to become familiar with the innovative phenomena and understand the occurrence. Fundamentally, the goal of this study is to better understand the behavior of employees, which is its focus.

Secondary data, expert surveys, focus groups, pilot surveys, unstructured observation, and expert surveys are all included in exploratory research (Casula, Rangarajan, & Shields, 2021). Through theory formulation and hypothesis testing, exploratory research assisted in this study's comprehension of the phenomena of interest for the progress of knowledge. In general, it is assumed that a phenomenological philosophy is appropriate to seek the grasp how employees accept and adjust to the use of innovation. As a result, exploratory research must be included in the preliminary survey process (E. Bell et al., 2022). The study uses the positivist, and exploratory approach to design principal research instrument, admitting the lack of objectivity associated with other ideologies.

## 3.5 Research Methods

According to the literature, there are three types of data collection methods, quantitative, qualitative, and mixed methods. Identifying which of the research methods is feasible and most suitable for specific research depends on various factors like research questions, research topic, and research objectives. Research studies differ from each other, and each research study has specific objectives that should be addressed appropriately. Thus, it is essential to utilize proper methods

to accomplish research objectives (E. Bell et al., 2022). Literature has revealed that most of the previous studies concentrated on utilizing either a qualitative research approach or a quantitative research approach. At present, research studies regarding business management need novel techniques to address problem of research and examine data to understand social happenings.

Quantitative design explains different factors like sample size, sampling technique, processes to collect data, data type and plan to analyse data. In this research study, a quantitative research method is utilized to examine relationship between the research variables i.e., ambidextrous leadership, innovative work behavior, psychological ownership, and organizational innovative climate. The research is utilized to examine impact of the ambidextrous leadership on the IWB with the mediating role of psychological ownership and the moderating role of the organizational innovative climate. Kan et al. (2019) stated that quantitative research is feasible to investigate and measure the relationship between research variables. According to (Leavy, 2018), the quantitative research method does not influence the results of study as responses collected from participants are coded, classified, and summarized to numbers essential for the statistical analysis. In the survey studies, the reliability of data is high. Moreover, the research aims to depict relationship between research variables, Ishtiaq (2019) stated that the most feasible approach to determine the relationships between research variables is correlational as well as predictive quantitative research.

This study highlight that qualitative strategy is mostly utilize in gathering and analysing textual data like observations, interview, the conversational analysis, the surveys, and the focus group discussions. Smith (2018) opined that this type of research method is mostly utilized to test the problems regarding interviewees' work by collecting their views, perceptions, opinions, and attitudes. According to (Jercog et al., 2021), qualitative research involves the life experiences and opinions of interviewees.

Mixed research design incorporates both qualitative as well as quantitative research methods to gather and examine data (Ragab & Arisha, 2018). O. Nyumba, Wilson, Derrick, and Mukherjee (2018) explains the mixed research method as

a technique that combines probability sampling with purposeful sampling, open-ended research questions with closed-ended research questions, and narrative with multivariable analysis. Qualitative research aims at descriptions and exploration, and quantitative research aims at explanation and description (Mohajan, 2018). Researchers have highlighted that mixed-method design aims at obtaining a detailed understanding of the research model and identifies the limitation of the signal research approach (Aspers & Corte, 2019).

Thus, the quantitative research method is most feasible for the study based on objectives of study as well as on the research questions as the quantitative research approach allow the researcher to investigate the unexpected aspect of the phenomenon, to be confident about findings and results, provide novel ways to address the problem through the conventional mode of data collection and encourage the creation of new research methods (E. Bell et al., 2022). Quantitative research aims at obtaining wide knowledge about the social world. The researcher utilizes quantitative research methods to analyse situations that may influence individuals (Tan et al., 2021). The quantitative research approach generates objective data which can be communicated appropriately via statistics and figures (Hair et al., 2019). Moreover, this research method is more objective, acceptable, scientific, and focused.

### 3.6 Sampling Design

Sampling is an essential technique to ensuring that sample is the representative of population and that validity of data collected is increased. It is a method that bases findings about the entire population on a small sample size from a specified population (J. Bell & Waters, 2018). The sampling procedure must be carried out according to a clear specification of how decisions about the population, sampling unit, sampling frame, sampling technology, and the size of sample should be made. According to (Hair et al., 2019), sampling is done to reduce costs, time, and human resources. As a result of reduced exhaustion and fewer data collection errors, to study the sample instead of the full population produces accurate conclusions, particularly when the elements entail a big number. The population's attributes

or traits are typically distributed regularly. The sample must be chosen so that the distribution of the relevant variables in the sample exhibits the same pattern of normal distribution as in the population. The findings of the study are more generally applicable when the sample is more representative of the population (J. Bell & Waters, 2018).

The two types of sampling, according to (Casula et al., 2021): probability sampling and non-probability sampling. Non-probability sampling, in contrast to the probability sampling, which is used when the sample's representativeness is critical for greater generalisation, does not provide the representatives known or predefined chances of being picked as the subjects. Each of the sampling methods has a unique strategy, and while non-probability sampling was used in the qualitative research, as was previously described, this study chooses probability sampling for the quantitative research. Probability sampling is crucial for the quantitative step since the study framework and its hypotheses must be tested using extremely precise target population estimates.

(Hair et al., 2019) defines probability sampling into four broad categories: (i) stratified sampling, (ii) simple random sampling, (iii) cluster sampling, and (iv) systematic sampling. This study uses stratified sampling, one of these probability sampling techniques, because it focuses primarily on social media users. In his definition of stratified sampling, (J. Bell & Waters, 2018) states: the probability sampling methods which divides population into a strata or subpopulations using a two-step approach. The elements are chosen randomly from each stratum.

(Hair et al., 2019) adds to the discourse that these four factors—homogeneity, heterogeneity, relatedness, and cost—were used to choose these variables. A stratum's constituent parts should be as homogeneous as feasible, whereas the constituent parts of other the layers should be as varied as feasible. Furthermore, the stratification factors must be firmly linked to the relevant qualities. The efficiency in reducing the erroneous sample variation increases as these conditions are more closely met. The ideal number of strata is no more than six because anything more than this would reduce the accuracy of the sampling. Following the stratified sampling, basic random sampling was used to sample the stratified variables that had been identified. Simple random sampling is described as a method in

which there is a known and equal likelihood that each member of the population will be chosen. Every component is chosen independently from each other, and a sampling frame is used to draw the sample (Casula et al., 2021). When a population's components have certain traits or knowledge but are difficult to find and reach, simple random sampling is performed. This enables the research to draw statistical conclusions about the sample that was selected. The chosen respondents might be a representative sample of all social media users, and this method also allows for generalisation.

### 3.6.1 Sample Size

When the relevant aspects are considered, the question of the proper sample size arises since the theoretical framework in research has several interesting variables. To determine the sample's representativeness for generalizability, sampling design and sample size are crucial. Because a too-large sampling size could cause a Type II error, the sampling decision should be considering both sampling size and the sampling design. When results are accepted when they should be rejected, this is a Type II error. Furthermore, a large sample size might cause a weak association to become significantly correlated, leading one to believe that the significant relationship was discovered for the entire population. The necessary sampling size depends on several variables, including the planned data analysis methods (Hair et al., 2019). One of data analysis methodologies offered for study is the factor analysis, that is sensitive to the sample size also less reliable when generated from the small samples (Tan et al., 2021). Nonetheless, basic principles are proposed regardless of the data analysis method, which is one of the conditions for selecting an adequate sample size.

From a different perspective, (Mohajan, 2018) propose that minimum sample size should be 100 consider models with five or lesser constructs, each with a more than three item scale and higher item communalities as 0.6 or higher; 150 while considering models with seven or lesser constructs and the modest communalities 0.5; 300 while considering models with seven or lesser constructs and low communalities (0.45), and multiple under identified constructs; and 500 when considering



models of seven or lesser constructs or low communalities (Hair et al., 2019). The general agreement is that 100 is a reasonable minimum size. The table formed by (Krejcie & Morgan, 1970) is used to estimate a simplified sample size. The table provides standardised scientific advice for the sample size selection. If population is more than one million, the sample size should be 384. In this research the unit of analysis are employees working in software houses of Islamabad and Rawalpindi. As reported by (Castillo et al., 2013) the individuals and organization having homogenous attributes form group which is named as population of the study. The software houses strengthen economy of Pakistan, bringing overseas investors also industry is supported to the worldwide acknowledgment for Pakistan as the emerging country.

## 3.7 Research Instrument

For this research, a structured questionnaire is used as the main tool to collect data in the second stage of field research for this research. This research applied the encouragement technique to increase the response rate by giving rewards in terms of a lucky draw for the ten lucky respondents (Mohajan, 2018). It is also aimed to reduce the failure of respondents to answer some items in the questionnaire by giving out clear instructions concerning how the questions should be answered. In addition, the design of the questionnaire is attractive to encourage the respondents to complete the questionnaire. The questionnaire consists of three parts where Section A is demographic information, Section B is based on questions related to study variables. The instruments of study variables were selected from previous research and detail is mentioned below:

### 3.7.1 Ambidextrous Leadership

The level of the Ambidextrous Leadership has been measured by using the 14-item scale adapted from the (Rosing et al., 2011). Much research used this scale to measure the ambidextrous leadership in organization (Gerlach et al., 2020; Alghamdi, 2018; Li et al., 2020; Mohiya & Sulphrey, 2021). A scale was developed to observe

the ambidextrous leadership behavior. Sample items include “My manager allows different ways of accomplishing a task”, “My manager encourages experimentation with different ideas”, and “My manager motivates me to take risks”.

### 3.7.2 Innovative Work Behavior

The level of the innovative work behavior has been measured by using the 5-item scale adapted from the (Dwyer, Edwards, Mistilis, Roman, & Scott, 2009). Many other researchers used this scale to measure the innovative work behavior in organization (Datzberger et al., 2022; Dabars & Dwyer, 2022; H. Liu et al., 2022). A scale was developed to observe the innovative work behavior. Sample items include “At work, I come up with innovative and creative notions”, “At work, I try to propose my own creative ideas and convince others”, and “At work, I seek new service techniques, methods, or techniques”.

### 3.7.3 Psychological Ownership

The level of the physiological ownership has been measured by using the 7-item scale adapted from the (Van Dyne & Pierce, 2004). Many other researchers used this scale to measure the physiological ownership in organization (Bordarie & Grouille, 2022; Wang, 2022; Alhadar & Hidayanti, 2021). A scale was developed to observe the physiological ownership. The sample items are “This is my organization”, “I sense that this organization is our company”, and “I feel a very high degree of personal ownership for this organization”.

### 3.7.4 Organizational Innovative Climate

The level of the innovative climate has been measured by using the 15-item scale adapted from (Jaiswal & Dhar, 2015). Many other researchers used this scale to measure the organizational innovative climate in organization (Maitlo et al., 2022; Adiebah & Pradana, 2022; Korcu & Kaya, 2022; Tønnessen, Dhir, & Flåten, 2021). The sample items include “Creativity is encouraged”, “Our ability to function

creatively is respected by the supervisor”, and “Around here, people are allowed to try to solve the same problems in different ways”.

### 3.8 Time Horizon

The cross-sectional study is considered feasible for the present research as this study is carried out at a specific point in time. Moreover, it would allow researchers to collect information from variety of the respondents in short period.

### 3.9 Construct Reliability and Validity

When variables are difficult to detect, proper measurement for the theoretical constructs and hypotheses is frequently primary concern in different fields of the study. These measures utilised to determine instrument’s validity and reliability are expounded on in next section. se of the instruments is required to produce accurate findings further explain the instrument which are used in the study, to measure variables that are designed to measure them accurately, so improving scientific quality for research ([Mohajan, 2018](#)).

In general, for precision and efficiency in measuring a construct, both the construct’s validity and reliability must be satisfied. The reliability of the measuring instrument can be determined by how the consistently it measures certain notion, whereas the validity of the instrument is determined by how it measures the specific concept. The internal reliability or consistency of the research measures demonstrate the homogeneity of the items in the measurement sets. Item should constitute single set also capable for assessing same notions independently, so survey respondents give the same meaning to the items ([J. Bell & Waters, 2018](#)). Correlations among different measurements or items that comprise scales, relative to variances of items, serve as the foundation for rating reliability scales.

Proportion of the variation ascribed to score of the latent component is known as the scale reliability. The internal reliability or consistency, which determines homogeneity of the items include in measuring scale, is typically used to quantify latent

components. Internal consistency refers to degree for which tests and methods measure same attributes, abilities, or the quality by assessing the inter-item correlations. Higher the inter-item correlations indicates that scale item have significant links to latent concept and most likely measuring the same thing (Mohajan, 2018). It has been presented as most appropriate method for evaluating reliability in the marketing research (J. Bell & Waters, 2018). (Mohajan, 2018) suggested a reliability value of 0.70 as appropriate, however lower standards are occasionally utilised in literature. If coefficient alpha is less than 0.70, then the scale must be reviewed further for different sources of errors, such as insufficient item samplings, administration mistakes, situational variables, sample characteristics, the item quantity, and the theoretical problems in creating the measuring scale. Other approaches for assessing reliability include the “composite reliability and variance extracted”. The reliability concerns precision of measuring instruments which are employed in study, the validity concerns if the certain construct is major source of the item covariation (Moses & Yamat, 2021). The way measuring the items, or indicators measure things which are designed for measuring is referred to validity (Villaluz & Hechanova, 2018). To assess the usefulness of measurements, many types of validity tests are utilised. This study looks at two essential validities: construct validity and content validity. The examination of degree which measures its specified variable is known as the content validity. The construct validity is the foundation of content validity. It concerns with the sample-population representatives; for example, test item and knowledge, the abilities should be representative of the wider domains of skills and knowledge. The bias which is introduced by the unrepresentative instruments would result in questionable results (Villaluz & Hechanova, 2018). As a result, other from professional judgement, there is no straightforward technique to assess content veracity. So, content validity of the study is confirmed by a review of literature and expert opinion (Sürücü & MASLAKÇI, 2020).

### 3.10 Data Analysis

The most difficult component of the study process is deciding on a good statistical analysis approach among various choices. Generally, the univariate analysis

of data studies just a single variable at one time; however, the bivariate analysis of data investigates relationship between the two variables (Casula et al., 2021). This current study employs culmination of statistical analyses. This survey analysis of data is meticulously organised to encompass all of tools and procedures discussed above. AMOS 24 and SPSS 23 is statistical programme utilised to conduct this analysis. The sub-sections that follow give a detailed description of these approaches and procedures.

### 3.11 Sample Characteristics

Questionnaires were distributed among the software houses of Rawalpindi and Islamabad to collect the data. Research has received complete and useable 219 responses out of a total of 300 questionnaires with a 73% response rate.

### 3.12 Demographic Analysis

Diversity exists in each organization and mostly diversity leads towards innovation. Also, software houses required innovation and creativity to complete the projects efficiently and effectively. The following descriptive analysis depicts the diversity of organizations based on gender, age, qualification, and experience, etc.

TABLE 3.1: Gender

	Frequency	Percent
Male	96	43.8
Female	123	56.2
Total	219	100

As estimated the numbers of male respondents are low than females in the sector of software houses. There were 96 males and 123 females among the respondents, which shows 43.8% male and 56.2% female respectively.

TABLE 3.2: Age

	<b>Frequency</b>	<b>Percent</b>
20-25	71	32.4
26 – 29	93	42.5
30 – 34	55	25.1
Total	219	100

In this study with different age groups, respondents led the questionnaires. Respondents age groups are between 20 to 25-year ago was 71, the respondents between 26 to 29-year age was 93, the respondent between 30 to 34-year age were 55.

TABLE 3.3: Education

	<b>Frequency</b>	<b>Percent</b>
Master's degree	62	28.3
Bachelor's degree	114	52.1
Diploma	34	15.5
Others	9	4.1
Total	219	100

The education level also varies among respondents according to the survey 62 respondents were with the qualification of master's degree, the education level of respondents having bachelors was 114 and some other respondents reported for diploma were 34 and respondents with other degrees were 9 as shown in the table of qualification.

TABLE 3.4: Experience

	<b>Frequency</b>	<b>Percent</b>
Below 3 years	135	61.6
3 – 5 years	81	37
Above 5 years	3	1.4
Total	219	100

The respondent having experience ranges from below 3 years were 135, respondents with experience of 3-5 years were 81, above 5 years' experience of respondents were 3 as shown in table.

# Chapter 4

## Data Analysis and Discussion

### 4.1 Data Analysis

This chapter has all the results of the analysis in both tabular form and narrative form. Descriptive statistics, correlations, reliabilities, and the effect of linear mediation and moderation regression analysis are identified. Inside the section there are significant and relations of the selected variables using IBM SPSS and AMOS.

### 4.2 Descriptive Statistics

Descriptive approach computes the standardized values of the univariate summary statistic for the various variables in a single table. Descriptive statistic contains fundamental information such as the sample size, maximum and minimum values, standard deviation values, and mean values. The table contains descriptive information about current data. First column of table contains information about the variables. The second, third, fourth, fifth, and the sixth column provide information on the sample size, minimum values, mean, maximum value, and the standard deviation.

TABLE 4.1: Descriptive Statistics

<b>Variables</b>	<b>N</b>	<b>Min.</b>	<b>Max.</b>	<b>Mean</b>	<b>Std. Dev.</b>
Ambidextrous Leadership	219	1.07	5	3.5382	0.85515
Innovative Work Behavior	219	1.6	5	3.6904	0.90587
Psychological Ownership	219	1	5	3.6412	0.98608
Organizational Innovative Cli- mate	219	1	5	3.7205	0.7647

Mean or the average values of data collection, is most commonly used metric of the central tendency. The mean value of ambidextrous leadership is 3.5382, innovative work behavior is 3.6904, psychological ownership is 3.6412 and organizational innovative climate is 3.7205. The standard deviation is square root of the variance and measures the spread or the dispersion that offers an indicator of the variability in data collected. The standard deviation value of ambidextrous leadership is 0.85515, innovative work behavior is 0.90587, psychological ownership is 0.98608 and organizational innovative climate is 0.76470. The mean and the standard deviation are the two most important descriptive statistic tools for the interval and the ratio scales.

### 4.3 Correlation Analysis

The correlation analysis is the statistical approach used to determine the strength and the direction of correlations between the two or more than two variables (Taylor, 1990). Pearson Product Moment Correlation Coefficient is used to calculate weight of the correlation ( $r$ ). The  $r$  value is frequently between +1 to -1. An  $r$  value around +1 suggests strong positive association, whereas  $r$  value near -1 indicate strong negative relation. When the  $r$  is equal to zero, no relation is considered. According to the research by (Hair et al., 2019), some assumptions must be satisfied if the researcher want to utilise  $r$  to investigate the correlations between the study's variables, as follows. The assumptions include the need that



data be in the interval or ratio format. The assumption is satisfied in the study since data is gathered in intervals using Likert-type scale. Secondly, the connection under consideration must be linear.

The assumption is satisfied because the purpose of the study is to investigate direct association between the independent factors and the dependent variables. Before beginning the correlation analysis, final assumption which must be satisfied is the data is regularly normally distributed. The assumption was evidently satisfied as findings reported in section demonstrated, as a result, the Pearson Product Moment Correlation Coefficient is presented in table below.

The ambidextrous leadership is positively related to innovative work behavior ( $r = 0.579$ ,  $p < 0.01$ ), psychological ownership ( $r = 0.425$ ,  $p < 0.01$ ), organizational innovative climate ( $r = 0.297$ ,  $p < 0.01$ ). The innovative work behavior is positively related to psychological ownership ( $r = 0.641$ ,  $p < 0.01$ ) and organizational innovative climate ( $r = 0.296$ ,  $p < 0.01$ ). Whereas, psychological ownership is positively related to organizational innovative climate ( $r = 0.232$ ,  $p < 0.01$ ).

TABLE 4.2: Correlation Analysis

Variables	1	2	3	4
Ambidextrous Leadership	1			
Innovative Work Behaviour	.579**	1		
Psychological Ownership	.425**	.641**	1	
Organizational Innovative Climate	.297**	.296**	.232**	1

Notes: N= 271, \*\*. Correlation is significant at the 0.01 level (2-tailed).

## 4.4 Reliability Analysis

Reliability analysis is ability of the scale to study its property based on the items which are included in the scale. The table shows that Cronbach alpha was calculated, and it serves as the instrument which is used for finding internal reliability.

Value of the Cronbach Coefficient Alpha or the internal consistency reliability ranges from 0 to 1. Value of the alpha 0.7 is more reliable and the value of alpha below 0.7 is considered less reliable. According to (Zacher et al., 2016) the minimum acceptable value of Cronbach alpha is 0.6 so the value of Cronbach alpha in this research is reliable. The table given below shows Cronbach Coefficient Alpha value of ambidextrous leadership .930, innovative work behavior .866, psychological ownership .903, organizational innovative climate .894.

TABLE 4.3: Reliability Analysis

Variables	Items	Cronbach's ( $\alpha$ )	alpha
Ambidextrous Leadership	14	0.93	
Innovative Work Behavior	5	0.866	
Psychological Ownership	7	0.903	
Organizational In- novative Climate	10	0.894	

## 4.5 Confirmatory Factor Analysis for Latent Variable

Confirmatory Factor Analysis (CFA) is used as the measuring model, that included five (4) latent variables: ambidextrous leadership, psychological ownership, organizational innovative climate, and innovative work behavior. For the measurement model validation, the confirmatory factor analysis or CFA was carried out in accordance with the recommendations of (Anderson et al., 2004). Model fit was

evaluated using a mixture of fit indices, including the model chi-square, Tucker-Lewis's index (TLI), incremental fit index (IFI), comparative fit index (CFI), and the root mean square error of approximation or (RMSEA). Table below shows that measurement model matched the data better than the other models ( $\chi^2/df = 2.246$ ,  $CFI = 0.846$ ,  $TLI = 0.834$ ,  $IFI = 0.848$ ,  $RMSEA = 0.076$ ). The findings of the CFA demonstrated that five-factor model had acceptable discriminant validity.

TABLE 4.4: Confirmatory Factor Analysis

Model	CMIN/DF	CFI	TLI	IFI	AGFI	RMSEA
Default Model	2.246	0.846	0.834	0.848	0.731	0.076

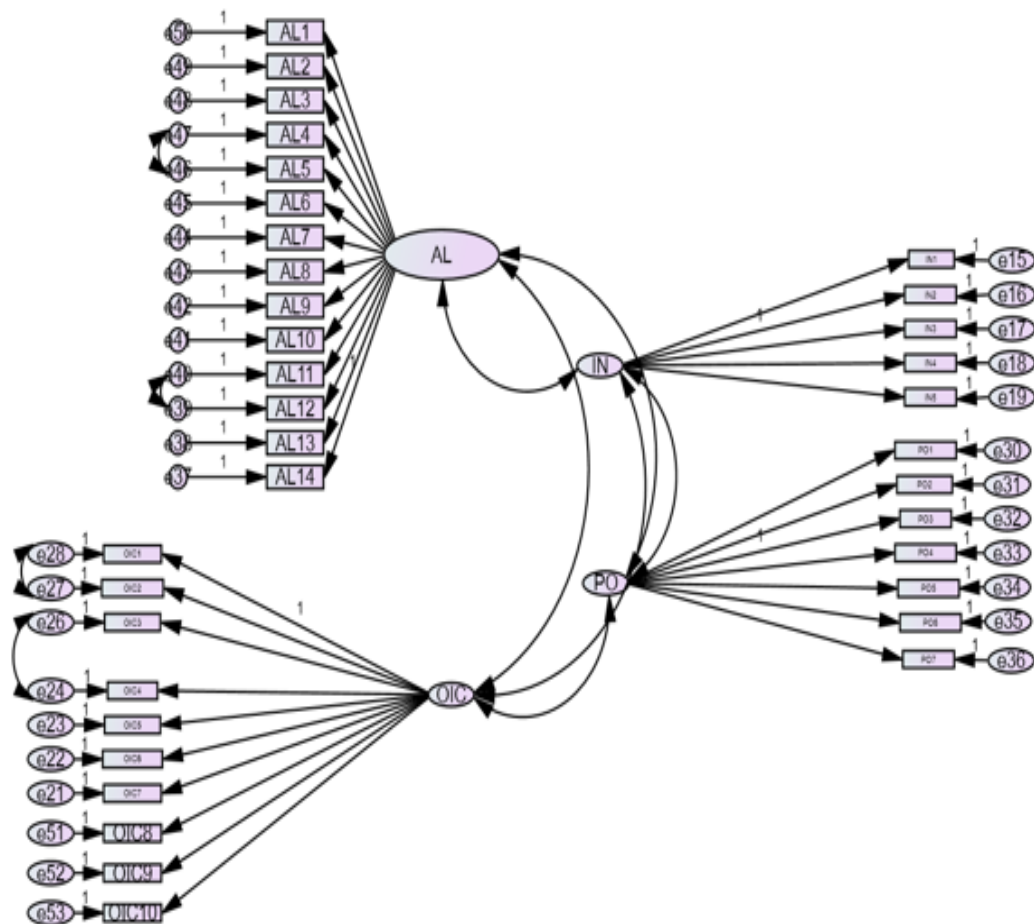


FIGURE 4.1: Confirmatory Factor Analysis

## 4.6 Hypotheses Testing

### 4.6.1 Test of Hypothesis 1

**H1:** Ambidextrous leadership has positive and significant relationship with Innovative work behavior.

The first path tested in this study was from ambidextrous leadership to innovative work behavior, which showed that the ambidextrous leadership has positive and significant relationship with innovative work behavior. The Beta value of 0.84 indicates that 84 units of variance in innovative work behavior is predicted by 1 unit change in ambidextrous leadership. The p-value indicates that there is positive and significant relationship between ambidextrous leadership and innovative work behavior. Hence, accepting the H1 of the study.

TABLE 4.5: Hypothesis 1

Structural Path	$\beta$	SE	T	P-value
AL $\rightarrow$ IWB	0.84	0.27	3.05	0.000

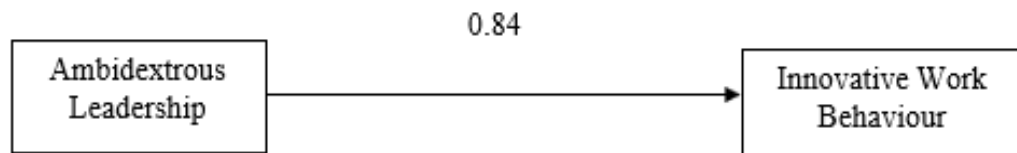


FIGURE 4.2: Hypothesis 1

### 4.6.2 Test of Hypothesis 2

**H2:** Ambidextrous leadership has positive and significant relationship with the psychological ownership.

The second path tested in this study was from ambidextrous leadership to psychological ownership, which showed that the ambidextrous leadership has positive and significant relationship with psychological ownership. The B value of 0.49 indicates that 49 units of variance in psychological ownership is predicted by 1 unit change in ambidextrous leadership. The p-value indicates that there is positive

and significant relationship between ambidextrous leadership and psychological ownership. Hence, accepting the H2 of the study.

TABLE 4.6: Hypothesis 2

Structural Path	$\beta$	SE	T	P-value
AL $\rightarrow$ PO	0.49	0.07	6.92	0.000

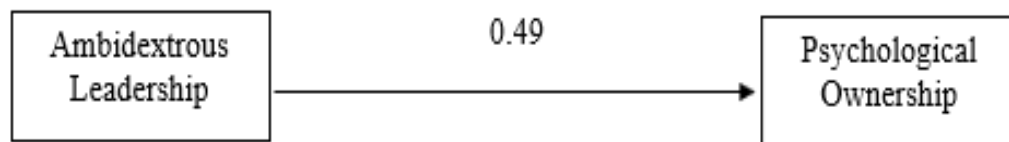


FIGURE 4.3: Hypothesis 2

### 4.6.3 Test of Hypothesis 3

**H3:** Psychological ownership has positive and significant relationship with innovative work behavior.

The third path tested in this study was from psychological ownership to innovative work behavior, which showed that the psychological ownership has positive and significant relationship with innovative work behavior. The B value of 0.43 indicates that 43 units of variance in innovative work behavior is predicted by 1 unit change in psychological ownership. The p-value indicates that there is positive and significant relationship between psychological ownership and innovative work behavior. Hence, accepting the H3 of the study.

TABLE 4.7: Hypothesis 3

Structural Path	$\beta$	SE	T	P-value
PO $\rightarrow$ IWB	0.43	0.04	9.16	0

### 4.6.4 Test of Hypothesis 4

**H4:** Psychological ownership is mediating the relationship between the ambidextrous leadership and the innovative work behavior.

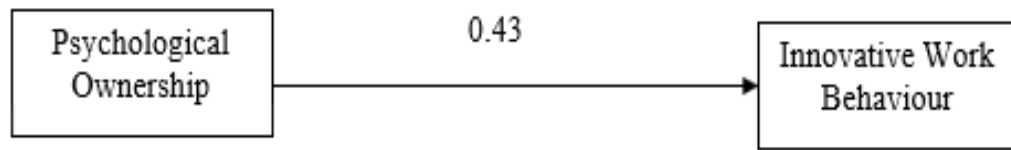


FIGURE 4.4: Hypothesis 3

Mediation analysis is performed to test the impact of the mediating variable (psychological ownership) among ambidextrous leadership and the innovative work behavior. For moderation and mediation analysis, model 5 has been used in SPSS Process macro. The analysis is conducted at 5000 bootstraps and a 95% confidence interval.

#### 4.6.4.1 Total Effect

As shown in Table below, the total effect shows the impact of ambidextrous leadership on innovative work behavior the presence of psychological ownership. The results show that the total effect of ambidextrous leadership on innovative work behavior is ( $b = 0.84$ ,  $t = 3.05$ ,  $p < 0.001$ ). The bootstrap results showed that ULCI and LLCI results do not contain zero, which indicates the significance of results.

#### 4.6.4.2 Direct Effect

As shown in Table, the direct effect shows the relationship of ambidextrous leadership on innovative work behavior. The results show that the direct effect of ambidextrous leadership on innovative work behavior is significant ( $b = 0.43$ ,  $t = 9.16$ ,  $p < 0.001$ ). The bootstrap results showed that ULCI and LLC results do not contain zero, which indicate the significance of results.

#### 4.6.4.3 Indirect Effect

As shown in Table, the indirect effect shows the relationship of ambidextrous leadership on psychological ownership and its impact on innovative work behavior. The results show that the indirect effect of ambidextrous leadership on innovative

work behavior through psychological ownership is significant with bootstrapping results ( $b = 0.21$ ,  $LLCI = 0.12$ ,  $ULCI = 0.31$ ).

TABLE 4.8: Hypothesis 4

<b>AL → PO → IWB</b>	<b>Effect</b>	<b>SE</b>	<b>T</b>	<b>p-value</b>	<b>LLCI</b>	<b>ULCI</b>
Total effect	0.84	0.27	3.05	0.00	0.29	1.38
Direct effect	0.43	0.04	9.16	0.00	0.34	0.52
Indirect effect	0.21	0.48	-	-	0.12	0.31

Based on total, direct, and indirect effect results it could be concluded that the mediation of psychological ownership exists in the relationship of ambidextrous leadership and innovative work behavior. Therefore, Hypothesis 4 is accepted.

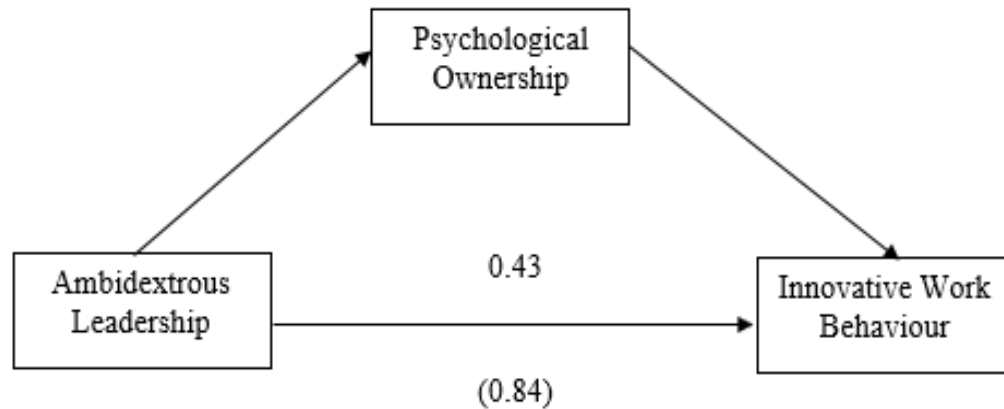


FIGURE 4.5: Mediation Analysis

#### 4.6.5 Test of Hypothesis 5

H5: Organizational innovative climate moderates' relationship between the ambidextrous leadership and innovative work behavior in a way when innovative

climate is high ambidextrous leadership will significantly enhance innovative work behavior of employees and vice versa.

To test the moderating effect of organizational innovative climate in the relationship ambidextrous leadership and innovative work behavior, Preacher and Hayes have been used via SPSS process macro. The results demonstrate a significant negative moderating role of Organizational Innovative Climate on the linkage between ambidextrous leadership and innovative work behavior ( $b = -0.12$ ,  $t = -1.73$ ,  $p = 0.08$ ). This shows that at higher level of organizational innovative climate, the impact of ambidextrous leadership on innovative work behavior does not affect.

The higher organizational innovative climate does not lead to significant change in innovative work behavior. The values of ULCI and LLCI are not in the same direction which means insignificant results and there is no moderation exists in the relationship. The results showed that organizational innovative climate does not moderates the relationship of ambidextrous leadership and innovative work behavior. Hence hypothesis 5 is not supported by current data as shown in the table.

TABLE 4.9: Hypothesis 5

		<b>Coeff</b>	<b>SE</b>	<b>T</b>	<b>p-value</b>	<b>LLCI</b>	<b>ULCI</b>
<b>AL*OIC</b>	→	-0.12	0.07	-1.73	0.08	-0.26	0.01
<b>IWB</b>							

## 4.7 Summary of Hypothesis

Using AMOS and SPSS software packages data has been processed to examine the hypothesis. The present study contains 5 hypotheses, predicting the effect of the ambidextrous leadership on the employee innovative work behavior with the mediating role of psychological ownership and the moderating role of innovative climate. The results indicate that 4 hypotheses were supported and 1 is rejected.



TABLE 4.10: Summary of Hypothesis

	<b>Statements</b>	<b>Status</b>
H1	Ambidextrous leadership has positive and significant relationship with Innovative work behavior	Supported
H2	Ambidextrous leadership has positive and significant relationship with the psychological ownership.	Supported
H3	Psychological ownership has positive and significant relationship with Innovative work behavior.	Supported
H4	Psychological ownership is mediating the relationship between the ambidextrous leadership and the innovative work behavior.	Supported
H5	Organizational innovative climate moderates' relationship between the ambidextrous leadership and innovative work behavior in a way when innovative climate is high ambidextrous leadership will significantly enhance innovative work behavior of employees and vice versa.	Not Supported

# Chapter 5

## Discussion and Conclusion

### 5.1 Introduction

Considering the lack of research studies on the topic of ambidextrous leadership, this current research intended to fill the literature gap by depicting the factors that describe ambidexterity. This research converted the phenomenon of leadership into recognizing the implementation of this medium in the context of the worker needs as well as innovation characteristics. Therefore, in return, this recognition helps in formulating a targeting strategy, and thus improves the linkages with present and future employees (Gerlach et al., 2020). This section highlights the results from Chapter 4 by concentrating on responding to the research questions mentioned in the first chapter. This part summarized the findings of the study by examining how these findings have contributed to tackling the research questions. The chapter discusses findings, followed by the study implications in practical and theoretical aspects, and suggestions about approaches to ambidextrous leadership. Moreover, it concludes the efforts of the study by demonstrating an analysis of the study's contributions (Zacher & Wilden, 2014). Limited research studies have been carried out on ambidextrous leadership; therefore, the present research study could add some useful insights into the existing literature on leadership and enlighten practitioners. This section also highlights the study limitation, gives recommendations for further research, and finally, the research conclusion is presented.

## 5.2 Discussion

The objective of the current study is to depict how ambidextrous leadership influences the innovative work behavior of employees and how psychological ownership mediates and organizational innovative climate moderates this relationship. The findings are harmonized with the previous findings and develop the existing knowledge about the linkage between ambidextrous leadership and innovative work behavior of employees (Usman et al., 2022; Alghamdi, 2018). The findings of this research highlight that leadership can result in the exchange of novel ideas. It approves previous findings that demonstrate that leadership plays a crucial role in impacting innovative employee work (Gerlach et al., 2020). The analysis of data came up with various important results. Firstly, the findings highlighted the relationship between ambidextrous leadership and the innovative working behavior of workers (Zacher & Wilden, 2014). This research is based on past research studies and highlights that the trusted quality between subordinates and their managers influenced the engagement level of employees and innovative behavior at work in IT projects. The detailed discussion of each research question is given below.

RQ1: Does ambidextrous leadership impact IWB of the employees working in Pakistan's IT sector?

The objective of this research is to depict the impact of ambidextrous leadership on innovative behavior at work by employees. The findings of the study highlighted that ambidextrous leadership (being a contextual resource) is positively as well as significantly linked to workers' innovative work behavior. It is also approved by the findings that this relationship is significantly mediated by the variable of psychological ownership. Considering the findings of previous investigations, as those of (Zacher & Wilden, 2014), and the social integration framework, the results highlighted that ambidextrous leadership positively influences the innovative work behavior of workers, in which the workers can discuss the novel, fresh, and unique ideas. The researchers can manage the complexity with the help of matched techniques of leadership like ambidextrous leadership. Thus, the present research findings further support the findings of past investigations conducted in a varied cultural setting (Alghamdi, 2018; Gerlach et al., 2020).

RQ2: Does psychological ownership play a mediating role among the relation of ambidextrous leadership and IWB of the employees working in Pakistan's IT sector.

The results of this research indicate that ambidextrous leadership is substantially as well as constructively linked to psychological ownership (i.e., mediator). Past investigations have highlighted that different leadership styles like a transformational, servant, and authentic are positively linked to psychological ownership (Usman et al., 2022). Based on this, the current research findings demonstrate that just like other leadership styles, the style of ambidextrous leadership facilitates psychological ownership extent. Various leadership styles such as the leadership technique of ambidextrous are regarded as implementers. The findings of the present study are congruent with the theory of (Singh et al., 2021) that the leadership style of ambidextrous improves the combined influence of exploration as well as exploitation. Thus, it can be said that the impact of synergies can help in enhancing the psychological ownership level. Moreover, the findings of the present research approve the hypothesis that the variable of psychological ownership produces innovative working behavior among employees.

Moreover, the present study gives actual evidence that psychological ownership plays a critical role in linking ambidextrous leadership with workers' innovative work behavior. The findings highlight that the mediating role of the variable-psychological ownership in the linkage of ambidextrous leadership with workers' innovative work behavior is substantial. The ambidextrous leadership prepared the workers to exhibit motivational behaviors. The behaviors of exploration as well as exploitation among employees are also improved by ambidextrous leadership, making sure that the employees learn and demonstrate novel work behavior (Zacher & Rosing, 2015). The research also highlights various consequences for the firm. The results demonstrated the significance of investigating the qualities of ambidextrous leadership in organizational leaders. This leading way can be acquired and practiced. It would aid in establishing a working environment that will stimulate workers to exhibit highly innovative behavior at work. This style of leadership would examine the errors, foster experimentation, and provide room for novel thoughts and ideas. Organizational leaders must implement this leadership

technique in the firms to develop the organization's environment for innovative work behavior (Oluwafemi, Mitchelmore, & Nikolopoulos, 2020).

RQ3: Does organizational innovative climate play a moderating role among relationship of the ambidextrous leadership and the IWB of the employees working in Pakistan's IT sector?

This research investigates the ambidextrous leadership style from the individual stance and links it with the innovative behavior of employees, which shows the individual innovation psychology within the firm (Li et al., 2020). The ambidextrous leadership concept focuses on the involvement as well as the participation of employees, which is harmonized with the stance that innovation in the workplace is accomplished by workers' innovative behavior. Employees settled in a workplace are impacted by leadership and respond to the workplace via their behavior (Men & Yue, 2019). The findings of the present study provide an effective understanding regarding the impacts of employees on the development of leadership as well as innovation from the stance of individuals. Furthermore, perceptions of employees about the organization are crucial and have drawn the attention of various scholars in current times (Ren & Zhang, 2015). The research findings however are contradictory in this context as results demonstrates that organizational innovative climate does not moderates' relationship between the ambidextrous leadership and innovative work behavior. The hypothesis 5 of current research is rejected representing that there is no impact of organizational climate on the relationship between ambidextrous leadership and innovative work behavior.

### 5.3 Theoretical Implications

This research enlarges the existing knowledge on innovative behaviors of workers towards the ambidextrous style of leadership. This study makes contributions to the domain of organizational psychology and individual innovation in the following ways. Firstly, psychological ownership is considered in this study to investigate its intermediate impact on the linkage of ambidextrous leadership with the innovative behavior of employees. The concept of ambidextrous leadership is regarded as a

pro-innovation factor, and its basic mechanism moves towards individual innovation highly emphasizing RBV ("Resource-based view"). This research utilizes the theory of self-determination to establish a connection that links ambidexterity leadership style to individual innovation through innovative organizational climate and psychological ownership.

Secondly, this research investigates the influence of ambidextrous leadership on employees' innovative behavior. The findings of the past study highlighted that leadership is independently linked to innovative work behaviors and very little consideration has been provided to investigate the influence of the linkage of these factors (Berraies & El Abidine, 2019; Afsar et al., 2019). The present study depicts that innovative behavior reinforcement occurs from the contact of ambidextrous leadership style via psychological ownership, which shows that factors of higher level (like organizational leaders) together shape the cognition of employees and identifications of their job roles, and therefore their behaviors are linked to innovation. Furthermore, the findings also recommend that implementing the cognitive evaluation model into the above-mentioned linkages, gives a novel motivational stance to depict roles that are played by ambidextrous leaders in the workplace.

This research adds to the literature on ambidexterity by implementing the ambidexterity leadership theory for innovation to employees working in non-Western culture from the stance of individuals. This type of study is the first to be carried out in a non-Western region, Saudi Arabia, specifically in the southern area. Another important contribution of the present research is that researchers and experts can implement the ambidexterity leadership theory for innovation in cultures different from the West because the survey formulated in the Western culture, demonstrated effective psychometric properties. The findings of the present study also approved it and were congruent with the theory of ambidexterity leadership for innovation and past studies commenced in western cultures.

## 5.4 Practical Implications

The results of the present study exhibit various ways through which business firms can strategically concentrate on their efforts of leadership.

First, firms must make efforts to retain the impacts of the ambidextrous leadership style and make extra investments in the training of ambidextrous which focuses on discipline and novelty simultaneously. The findings of the study indicate that perceptions of employees regarding their ambidextrous leadership impact their innovative behavior as well as psychological ownership at work. Thus, it is suggested to organizations not only ensure the development of beliefs, opinions, and values that encourage innovation but also properly communicate them to workers (Li et al., 2020).

The leaders face a number of practical issues. Initially, the ambidextrous leadership was shown to help the workers' IWB through the knowledge-sharing. Research advocate that manager utilise ambidextrous leadership style and stress upon openness, empowering employees and accessibility, to express fresh ideas, express their preferences, and encouraging them to execute beneficial ideas. Aside from this, leaders must comprehend the methods that might promote IWB in workers. Those that exhibit patriotism, loyalty, which disclose greater IWB. Initiating training programmes are important steps which leader would take to develop strong relationships with their personnel.

According to [Sveningsson and Alvesson \(2019\)](#) also state that "the changing complexity of the environment has made creativity and innovativeness essential sources of market competition". Employees may view innovation as a danger for the project-based business and may be afraid to discuss new changes. AL can boost the IWB for subordinates, which include those who see innovation as risk, by fostering a better feeling of the knowledge-sharing and the ambidextrous leadership. Furthermore, the ambidextrous leadership can be implemented on the group level, not simply for individual personnel. As a result, a collaborative effort to demonstrate IWB can foster culture in which all the employees are eager to embrace new developments.

The research also found that to attain the ambidexterity, management must reconcile competing and sometimes contradictory notions of the exploration and the exploitation. Leaders must first understand and resolve the contradictory tensions that arise from two opposing goals. Secondly, they must devise a deception-focused plan and communicate it to organisational members. The processes might

be encouraged by deceptive leaders that have complex attitudes and specific combinations, as well as top management traits.

As leadership can establish the environment at the workplace that offers clues for workers on how to act contexts, firms are suggested to clarify the principles, values, and norms that must be incorporated in their leadership. Moreover, it is interesting to note that the data was gathered from one industry for the study, however, the perceptions of workers regarding leadership differ substantially. It is also determined that large-scale firms have various bureaus and they have varied understandings regarding leadership due to job requirements, job roles, etc. Moreover, employers should communicate organizational vision and mutual objectives to their workers.

Psychological ownership trait is not personal and stays stable throughout situations, however, it is a cognitive factor that is shaped and impacted by various contexts of organization, and organizations are suggested to create environments that foster ownership of employees. Particularly, employers must not only emphasize activities linked to ownership, but also give them an environment in which they think that their actions are meaningful, valuable, and impactful and can also sense autonomy, independence, and self-efficacy.

Moreover, it is supposed that workers would show exploitation as well as exploration behaviors when their leaders support the employee's ideas of exploitation and motivate employees' exploration behaviors. Moreover, it is essential for leaders to remain flexible and easily switch to opening behavior to improve innovation and produce ideas, and to closing, behaviors to make sure high extents of performance, output, and efficiency. High-level opening and closing leaders' behaviors would highly enhance the innovative performance of employees, thus impacting the decision process, future novel and unique outcomes, and psychological well-being of employees.

It is suggested to business firms establish an innovative culture in which leadership styles highly promote exploitation as well as exploration behaviors in their followers, thus resulting in highly innovative performance by workers. Moreover, it is suggested that firms must focus on two crucial factors to impact the innovative



performance of workers, one is an organizational factor like freedom, supporting surroundings, and autonomy, and the other is individual factors also known as personal features like self-belief, and extrinsic/ intrinsic job motivation. It should be accomplished by training leaders about the behaviors of ambidextrous leadership and by motivating exploitation as well as exploration behaviors in workers.

## 5.5 Limitations and Future Research Direction

Even though this research study has various contributions to recognizing the ambidextrous leadership, innovative behavior of workers, and psychological ownership, it has various limitations as well. Firstly, the present study utilized a convenience sampling technique. The study just took the data from those workers working in the IT industry, which is service centred industry. Even though, the research findings highlighted that the IT industry relies on the worker's innovative behavior at work. To enhance the generalizability, it is recommended that future research studies must take samples from different service-oriented or product-oriented companies. Secondly, the present study has not tackled the affective system's dynamics and lagged in time. And not highlighted the employee's cognitive conditions and their impact on the innovation.

Further studies must collect data on multiple points in time and examine the dynamism procedure that results in innovative behavior at work and psychological ownership (Li et al., 2020). Literature as well as experimental procedures could be advantageous for the examination of dynamism included in the procedure that the present study assesses. Moreover, this study focused on examining the influence of ambidextrous leadership style and psychological ownership on the innovative behavior of employees at work, there are numerous other individuals as well as contextual precursors that can be examined. Future research studies can incorporate other mediators like confidence in leadership and satisfaction with job and other moderators like the climate of worker involvement, job complications, and human orientation in the above-mentioned relationship, in harmony with the theory of progress. Furthermore, the sample was randomly chosen for the study and

the participants had the same nationality. Thus, the impact of ambidextrous leadership may be different across different cultures as most frameworks are developed in the western context which makes up just 30% of the entire world population.

## **5.6 Conclusion**

Innovation plays a crucial role for business firms to survive in this highly competitive world, therefore leaders continuously try to improve the innovative work behavior of their subordinates (Hoang, Wilson-Evered, & Lockstone-Binney, 2020). The present research significantly adds to the existing knowledge body by exploring the positive and significant linkage of ambidextrous leadership style with innovative behaviors in the workplace. The linkage of the innovative element with the ambidextrous style of leadership enlarges the understanding of how leaders can utilize various elements of ambidextrous leadership to improve the innovation sense of their followers as well as their novel initiatives, and therefore, enhance their entire performance. Additionally, the indirect impact of ambidextrous leadership on innovative behavior via psychological ownership has also been supported by current study data. The higher psychological ownership at work, the stronger the relationship of ambidextrous leadership and innovative work behavior. Moreover, the results do not support the moderated model, that organizational innovative climate moderates the linkage of ambidextrous leadership style and innovative behaviors. Thus, implying that organizational innovative climate does not enrich innovative work behavior among employees working in software houses of Pakistan.

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# Appendix-A

## Questionnaire

Dear Respondent

I am an MS student at Capital University of Science and Technology, Islamabad. I am collecting data for my thesis on **“The effect of the ambidextrous leadership on the employee innovative work behavior with the mediating role of psychological ownership and the moderating role of innovative climate: The case of IT industry of Pakistan”**. Please feel free to share precise information as its optimal confidentiality will be ensured.

Sincerely,

**Aiman Asad,**

**MS PM Research Scholar,**

**Faculty of Management and Social Sciences,**

**Capital University Science and Technology, Islamabad.**

## Section 1: Demographics

Gender	1- Male 2- Female
Age(years)	1 (20-25), 2 (25-29), 3 (30-34), 4 (35-above)
Experience(years)	1 (Below 3), 2 (3-5 years), 3 (Above 5 years)
Qualification	1 (Master’s Degree), 2 (Bachelor’s Degree), 3 (Diploma), 4 (Others)

## Section 2:

Please tick the relevant choices: 1= strongly disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

Code	Items					
<b>AL</b>	<b>Ambidextrous Leadership</b>	1	2	3	4	5
AL1	My manager allows different ways of accomplishing a task	1	2	3	4	5
AL2	My manager encourages experimentation with different ideas	1	2	3	4	5
AL3	My manager motivates me to take risks	1	2	3	4	5
AL4	My manager gives possibilities for independent thinking and acting	1	2	3	4	5
AL5	My manager gives room for my own ideas My manager allows errors	1	2	3	4	5
AL6	My manager allows errors	1	2	3	4	5
AL7	My manager encourages error learning	1	2	3	4	5
AL8	My manager monitors and control's goal attainment	1	2	3	4	5
AL9	My manager establishes routines	1	2	3	4	5
AL10	My manager takes corrective action	1	2	3	4	5
AL11	My manager controls adherence (compliance) to rules	1	2	3	4	5
AL12	My manager sanctions (penalizes) errors	1	2	3	4	5
AL13	My manager sticks to plans	1	2	3	4	5
AL14	My manager pay attention to uniform task accomplishment	1	2	3	4	5
<b>IN</b>	<b>Innovative work Behavior</b>					
IN1	At work, I come up with innovative and creative notions	1	2	3	4	5

IN2	At work, I try to propose my own creative ideas and convince others	1	2	3	4	5
IN3	At work, I seek new service techniques, methods, or techniques	1	2	3	4	5
IN4	At work, I provide a suitable plan for developing new ideas	1	2	3	4	5
IN5	At work, I try to secure the funding and resources needed to implement innovations	1	2	3	4	5
<b>PO</b>	<b>Psychological Ownership</b>					
PO1	This is MY organization.	1	2	3	4	5
PO2	I sense that this organization is OUR company.	1	2	3	4	5
PO3	I feel a very high degree of personal ownership for this organization.	1	2	3	4	5
PO4	I sense that this is MY company.	1	2	3	4	5
PO5	This is OUR company.	1	2	3	4	5
PO6	Most of the people that work for this organization feel as though they own the company.	1	2	3	4	5
PO7	It is hard for me to think about this organization as MINE. (reversed)	1	2	3	4	5
<b>OIC</b>	<b>Organizational innovative climate</b>					
OIC1	Creativity is encouraged	1	2	3	4	5
OIC2	Our ability to function creatively is respected by the supervisor	1	2	3	4	5
OIC3	Around here, people are allowed to try to solve the same problems in different ways	1	2	3	4	5
OIC4	The main function of members in this organization is to follow orders, which come down through channels (Reversed)	1	2	3	4	5
OIC5	Around here, a person can get in a lot of trouble by being different. (Reversed)	1	2	3	4	5

OIC6	This organization can be described as flexible and continually adapting to change	1	2	3	4	5
OIC7	The best way to get along in this organization is to think the way the rest of the group does. (Reversed)	1	2	3	4	5
OIC8	People around here are expected to deal with problems in the same way. (Reversed)	1	2	3	4	5
OIC9	This organization is open and responsive to change	1	2	3	4	5
OIC10	The people in charge around here usually get credit for others' ideas	1	2	3	4	5
OIC11	In this organization, we tend to stick to tried and true ways	1	2	3	4	5
OIC12	This place seems to be more concerned with the status quo than with change	1	2	3	4	5
OIC13	The reward system here encourages innovation	1	2	3	4	5
OIC14	This organization publicly recognizes those who are innovative	1	2	3	4	5
OIC15	Innovative ideas are rewarded	1	2	3	4	5