ANTECEDENTS AND OUTCOMES OF KNOWLEDGE SHARING IN SMALL AND MEDIUM SIZED ENTERPRISES (SMEs) IN PAKISTAN

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Supervisor: Dr. Asad Amjad

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Dedicated to my parents, whose prayers and unwavering support have served as a guiding light and inspiration throughout this endeavor.

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Knowledge Sharing (KS)

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Self-Efficacy (SE)

Interpersonal Trust (IPT)

Reciprocity (REC)

Social Ties (ST)

Knowledge Technology (KT)

Employee Performance (EP)

Clan Culture (CC)

Knowledge-oriented Leadership (KOL)

Knowledge Based View (KBV)

ABSTRACT

Knowledge is widely recognized as one of the most valuable assets in today's dynamic global business environment. Knowledge Sharing is essential for improving the performance of SMEs of Pakistan. Hence this study explores the influence of antecedents of knowledge sharing on employee performance of IT related SMEs of Pakistan. The systematic literature review is performed on the antecedents of knowledge sharing from the year (2011-2023). This study uses the knowledge-based view theory to explain the whole research model. Moreover, this study explores the moderating role of clan culture and knowledge-oriented leadership. A quantitative approach is employed to collect data. Data is gathered using the non-probability convenience sampling method from the IT professionals working in the IT related SMEs of Pakistan. G*Power software is used to compute the sample size, the total 451 valid responses are used for the data analysis, and SPSS and PLS tools is be used to analyze the data. The findings of this research indicate that all the antecedents show positive and significant relation with knowledge sharing, and KS also have positive and significant relation with employee performance. Clan Culture does not moderate the relation except between motivation and KS, self-efficacy and KS and interpersonal trust and knowledge sharing. Knowledge-oriented leadership also does not moderate the relation except the moderating relation between motivation and Knowledge sharing, interpersonal trust and knowledge sharing and self-efficacy and knowledge sharing. By putting forth elements based on an in-depth analysis of knowledge sharing literature, the suggested conceptual model expands the theoretical underpinnings of knowledge sharing. The study contributes to the body of information regarding knowledge sharing and performance of employees working in IT related SMEs of Pakistan. This research's proposed is novel to investigate. This model has never been explored in previous research. The moderators, clan culture and knowledge-oriented leadership are new to study among these variables. There is lack of studies present on SMEs of Pakistan, especially the IT related SMEs of Pakistan so, this study contributes to fill this gap.

Keywords: Antecedents of Knowledge Sharing, Employee Performance, SLR, IT related SMEs of Pakistan, KBV Theory.

CHAPTER 1

INTRODUCTION

1.1 Introduction

The study begins with this chapter, which covers various important topics. The background provides context and sets the stage for the research. The problem statement outlines the specific issues and challenges this research addresses. In this chapter, the study strives to address present research gaps by highlighting areas of prior research that are lacking. The study's relevance and potential impact on the field are also explored. Clear aims and objectives guide the study's direction. The study's need and contribution to knowledge are explained in detail in this chapter. The research objectives and questions outline the study's goals and questions.

1.2 Background of the Study

Because managing knowledge is critical in a knowledge-based economy, knowledge management has received a lot of attention from both scholars and practitioners over the last several decades. According to studies, education is essential in both modern business and the creative industry (Manfredi Latilla et al.,2018). Superior knowledge capitalization is a critical determinant for success and economic growth in today's knowledge-based economy. Rather than tangible resources like assets, capital, and buildings, a firm's competency and competitive advantage are mostly defined by its people. Its intellectual capital, which includes technological know-how, managerial expertise, and knowledge reserves (Nguyen et al., 2021; Le and Lei, 2019).

The annual cost of lost information, which is mostly the result of knowledge management failure, is estimated to be $31.5 billion by a study of Fortune 500 companies (Wang and Noe, 2010). Therefore, (Wang et al. 2014; Asrar-ul-Haq and Anwar, 2016) mentioned that it is essential that this information be communicated and kept because Organizations may maintain their competitive advantages over time by using knowledge as a valued resource. Xiaojun and Venkatesh (2017) define knowledge sharing as transmission of information between members of an organization. Organizations' long-term success depends on their knowledge as one of their key

resources. According to Sergieva and Andreeva (2016), researchers have studied different types of knowledge categorized according to context, process, and application. Although existing research on knowledge sharing (KS) and employee performance has primarily focused on the context of Pakistani SMEs (Massaro et al., 2016), both KS and employee performance in Pakistani IT SMEs have an immediate influence on the growth of SMEs and the national economy (Anand and Dalmasso, 2020).

Small and Medium Sized Enterprises (SMEs) play a crucial role in Pakistan's economy as these SMEs are very big source that creating jobs, innovation and plays a vital role in enhancing the economic growth of Pakistan. SMEs are backbone of Pakistan's economic development. According to the Small and Medium Enterprises Development Authority (SMEDA), SMEs account for over 90% of all businesses in Pakistan and contribute nearly 40% of the country's GDP (SMEDA, 2021). Furthermore, they employ approximately 80% of the non-agricultural labour force, demonstrating their importance in job creation and poverty reduction (World Bank, 2019).

The IT sector has a vital role in Small and Medium Sized Enterprises' landscape because of job creation, innovation and because of export growth. Pakistan's IT industry has grown significantly in recent years, owing to a growing skill pool, increased internet penetration, and favorable government regulations that encourage the sector's development (Pakistan Software Export Board, 2020). The creation of IT SMEs in Pakistan symbolizes the country's transformation to a knowledge-based economy, in which technology and innovation drive economic growth. These IT SMEs operate in a variety of industries, including software development, IT services, e-commerce, and digital marketing, boosting both domestic economic activity and international competitiveness.

Despite the potential growth trajectory, IT SMEs in Pakistan still face significant barriers to access capital, trained human resources, infrastructure, and regulatory framework (Khan et al., 2019). In addition, the rapidly changing nature of the IT industry requires continuous learning, innovation and knowledge sharing to remain competitive in the global marketplace. In this setting, comprehending the causes and consequences of knowledge sharing among IT SMEs in Pakistan becomes critical. This study aims to contribute to a better understanding of knowledge dynamics

within the IT related SMEs of Pakistan and to inform strategies for improving organizational effectiveness and competitiveness by investigating factors such as motivation, self-efficacy, reciprocity, interpersonal trust, knowledge technology, and social ties, as well as their impact on employee performance.

Knowledge Sharing plays a pivotal role in enhancing the employee performance as Knowledge Sharing helps in effective decision making (Cabrera and Cabrera, 2002), fostering the innovation in a sense when people exchange ideas with one another that facilitates creativity and innovation (Nonaka and Takeuchi, 1995). And this creativity and innovation lead to growth and development of employees and enhance their performance and make them competitive, when employees become competitive then the organization will get the competitive advantage (Lin,2007). Knowledge sharing also plays a pivotal role in solving problems (Alavi and Leidner 2001). Knowledge Sharing strengthens the organizational culture and cohesion as (Nahapiet and Ghoshal's ,1998) research emphasizes the importance of knowledge sharing in building social capital and fostering a positive organizational culture characterized by openness, transparency, and mutual respect.

Clan culture and knowledge-oriented leadership integrated as moderators to enhance the relationship among the antecedents of knowledge sharing and knowledge sharing. In modern literature, clan culture refers to a work environment in which employees have strong interpersonal ties and a sense of belonging, enabling collaboration and open communication (Liu et al., 2023). Leaders play a very crucial role in knowledge management and in building a knowledge sharing culture (Khatri et al., 2023). So, this study illuminates the factors that how the personal factors (Motivation, Self-efficacy), interpersonal factors (reciprocity, interpersonal trust and social ties) and other factors (Knowledge technology) influence knowledge sharing processes within IT SMEs, thus impacting employee performance. This holistic approach aims to provide timely insights for fostering knowledge sharing and bolstering organizational effectiveness in Pakistan's evolving IT landscape. It is critical to investigate the link between KS and employee performance in Pakistani IT SMEs in order to better understand how to optimize the performance of such SMEs. Such a study can give useful insights into how these SMEs might enhance their efficiency and production.

1.3 Problem Statement

According to a survey of Fortune 500 organizations, the yearly cost of lost information is around $31.5 billion, which is mostly due to knowledge management failure (Wang and Noe, 2010). As a result, the act of sharing and retaining such information is critical (Tubigi et al., 2013), because knowledge is a resource that helps an organization to establish and preserve a sustainable competitive advantage (Asrar-ul-Haq and Anwar, 2016). In a knowledge-based economy, knowledge sharing is essential for Pakistani SMEs since it may help them improve their competitiveness, innovation, and performance. According to several research, SMEs in Pakistan have significant problems such as a lack of financing, technology, trained labor, market intelligence, skill gap and infrastructure (Khalique et.al.,2021; Ribeiro-Soriano et.al.,2019). So, these challenges can be overcome by sharing knowledge and competitive advantage can be gained by increasing the innovation capabilities in the employees and by increasing the creativity in the employees.

Organizations must maximize the use of resources to be competitive in an environment of rapid change and a knowledge-based economy, especially those that are valuable, unique, and incomparable, like knowledge and expertise (Barney, 2002). According to Wang et al. (2014) and Asrar-ul-Haq and Anwar (2016), it is crucial to give sharing and preserving knowledge top priority since knowledge is a crucial resource for maintaining long-term competitive advantages. According to Witherspoon et al. (2013), sharing knowledge among organizations is a crucial 6 organizational competence for preserving a competitive advantage. Although the importance of knowledge sharing to organizational success is well known, there is a lack of empirical research that specifically addresses the antecedents and consequences of knowledge sharing in the context of small and medium enterprises (SMEs), particularly in the IT sector in Pakistan. (Wensley and Toulouse, 2020). It is vital to develop the individual talents of employees in order to increase the performance of small and medium-sized companies (SMEs), and this may also boost the performance of the firm (Arooj and Nisar, 2023). To remain competitive in a fast-changing global environment, the IT sector demands ongoing learning, innovation, and information exchange. In this context, understanding the causes and implications of information sharing among IT SMEs in Pakistan is crucial (Khan et.al., 2019).

Knowledge sharing in Pakistani IT SMEs has substantial obstacles due to infrastructure limits, cultural norms, and organizational shortcomings (Ali et al. 2017; Aamir et al., 2019; Farooq et al., 2017). Limited access to technology and poor IT infrastructure impedes the smooth transmission of information, especially in smaller firms with limited resources (Ali et al., 2017). Furthermore, cultural issues like as hierarchical structures and collectivist attitudes frequently restrict free communication and cooperation among employees, leading to apprehension about sharing information, which is exacerbated in the fast-paced and competitive atmosphere of IT SMEs (Aamir et al., 2019). The lack of formal knowledge management methods inside SMEs adds to information silos and inefficiencies in knowledge transfer processes, limiting their capacity to innovate and compete in the rapidly changing IT market (Ali et al., 2017). To address these challenges in Pakistani IT SMEs, tailored strategies must be developed that take into account the organizations' unique context and constraints, emphasizing the importance of investing in technology, cultivating a culture of trust and collaboration, and implementing effective knowledge management strategies to drive innovation and competitiveness.

A survey conducted on IT SMEs in Pakistan, which included 150 enterprises, found that 68% of participants identified the lack of institutional knowledge sharing rules as a major hindrance, while 75% highlighted insufficient technological infrastructure as a barrier. Moreover, a significant difficulty identified by 60% of respondents was the lack of adequate training in knowledge management procedures, as reported by (Ahmed, 2020). A separate study carried out among 200 workers working in IT businesses in Lahore revealed that 72% of them believed that their organizational culture did not encourage the sharing of information. Additionally, 65% of the participants identified the absence of incentives and recognition as factors that discouraged them from engaging in such activities (Khan & Tariq, 2019).

A survey conducted in Karachi, involving 180 IT professionals, revealed that 70% of respondents identified mistrust among employees as a major obstacle to knowledge sharing. Additionally, 58% expressed concerns about knowledge exploitation, while 62% feared that sharing knowledge could potentially threaten their job security (Rehman & Iqbal, 2018). Similarly, a survey conducted with 160 IT firms in Islamabad on technological challenges in knowledge sharing revealed that 78% of the firms reported a deficiency in the required technological tools

and platforms, 67% identified budget constraints as a significant problem, and 55% highlighted the absence of technical expertise needed to implement effective knowledge sharing systems (Ali & Shah, 2019).

A survey conducted on 120 IT startups in Pakistan found that 64% of the participants believed that fast organizational expansion was a barrier to effective information sharing. Additionally, 70% of the respondents claimed that informal structures within the organizations inhibited the establishment of formal knowledge management systems (Raza & Hussain, 2020). Additionally, a study examining the correlation between employee motivation and knowledge sharing involved 190 participants from different IT companies. The findings indicated that 62% of individuals with low intrinsic motivation were less inclined to share knowledge. Furthermore, it was discovered that low job satisfaction significantly hindered knowledge sharing (Nawaz & Saeed, 2021).

A survey of 150 Lahore software developers found significant knowledge distribution barriers. The study found that 68% of respondents cited heavy workloads and tight deadlines as barriers to knowledge sharing. Additionally, Qureshi and Ahmed (2018) discovered that 72% of respondents said their firms did not have knowledge documentation and sharing protocols. Without established methods, knowledge management was less effective.

A Karachi survey of 200 IT workers revealed various management support issues. Research found that 70% of employees thought their superiors didn't favor knowledge sharing. Most respondents (65%) said that senior executives' engagement may improve sharing of knowledge in their businesses (Raza & Khan, 2019).

1.4 Research Gap

The systematic literature review was done on the antecedents of knowledge sharing from the year (2011-2023). The keyword “antecedents of knowledge sharing” has been searched on the Scopus Data base. 188 articles were found by searching the “antecedents of knowledge sharing” on Scopus database. The literature matrix was formed on these articles including the author, year,

country, DOI, article, abstract and theory used in these articles. First of all, duplicate articles were removed and then after reading the abstracts from all the articles, found the relevant articles to our study and also excluded the articles which were not fully accessed. The total relevant articles remained were 77 which are used to find out the influential antecedents of knowledge sharing. The flow diagram of selected articles through systematic literature review done through Scopus database is shown in Appendix-C.

After reading the selected relevant articles fully the table of frequencies of the antecedents of knowledge sharing was formed out of these articles. After forming the frequency table which is also in Appendix-A, antecedents were selected which have the greater frequency than 5. The reason behind the selection of the higher frequency antecedents is that they are more impactful and influential antecedents, and these antecedents have a positive and significant effect on the knowledge sharing. Six impactful antecedents of knowledge sharing have been selected in which interpersonal trust has 18 frequencies, motivation has 9 frequencies, social ties and reciprocity have both 6 frequencies, self-efficacy has 7 frequencies and knowledge technology has also 8 frequencies.

The whole model used in this study is novel. Because this complete model has not been studied in previous research, we can find some antecedents at a time that are playing role of antecedents of knowledge sharing but these all antecedents has not been studied together in previous literature (Wu et al., 2023; Fauzi et al., 2021; Nguyen et al., 2022; Chang et al., 2018; Yepes & Lopez, 2023), in these studies interpersonal trust, motivation, reciprocity, self-efficacy, social ties and knowledge technology are studied in separate research as an antecedent of knowledge sharing. Motivation, self-efficacy, interpersonal trust, reciprocity, social ties, and knowledge technology have been studied extensively, but a cohesive and full model has yet to be developed. These elements have been studied independently, but clan culture and knowledge-oriented leadership have not been extensively researched in their effects on knowledge sharing and employee performance.

Motivation and self-efficacy affect knowledge sharing, according to considerable studies (Baki et al., 2021; Sweeney, 2022). Similarly, interpersonal trust and reciprocity improve sharing

knowledge (Ranjan & Read, 2021; Zhu et al., 2021). However, clan culture and knowledge-oriented leadership moderate these components, therefore there is little study that unites them. The ability to better understand how these variables interact might lead to more successful tactics for increasing knowledge sharing practices in companies.

Clan culture and knowledge-oriented leadership have been shown to affect knowledge sharing (Lee et al., 2022; Zhang et al., 2023), but there is no empirical evidence on how these moderators affect the specific antecedents and knowledge sharing. The link between these moderators and social interactions and reciprocity is poorly understood, making it an essential study topic.

Clan culture is rarely studied as a moderator between one or two antecedents of knowledge sharing and knowledge sharing , the researchers suggested to study the organization culture as a moderator among the knowledge sharing predictors like knowledge technology , self-efficacy and reciprocity (Yepes & Lopez, 2023), as we conduct this study on IT SMEs of Pakistan , as clan culture is defined as, " Clan culture is a family-like type of corporation with the commonality of goals and values" (Khatami et al., 2020).SMEs culture is also family like culture so, this variable would be good to study as a moderator in this research. Clan culture is new to study as a moderator among these relations used in this study as the various papers have studied on the moderating role of clan culture but not found the moderating relation of clan culture in this study. The table of the studies on moderating role of clan culture is present in Appendix-C. So, logically the clan culture can be studied as the moderator among the antecedents used in this research and knowledge sharing, as clan culture is also not studied before as a moderator among these all variables so, this study will fill this gap.

There is a need to study on the knowledge-oriented leadership, knowledge-oriented leadership should be studied as a moderator suggested by the researchers to enhance the knowledge sharing in the organizations (Nguyen et al., 2022), so, this study will fill this gap by studying the moderating role of knowledge-oriented leadership among the antecedents of knowledge sharing and knowledge sharing. This study would also contribute by examining the moderating role of knowledge-oriented leadership as it is previously studied as the antecedent of the knowledge

sharing (Shariq et al., 2019). There is a limited literature present on knowledge-oriented leadership and, according to Le & Nguyen (2023), future research should check the influence of knowledge-oriented leadership on knowledge sharing. So, this research would check the moderating influence of knowledge-oriented leadership among the antecedents of knowledge sharing and knowledge sharing.

Recent research has focused on knowledge sharing as a mediator between antecedents and employee performance (Gao et al., 2022; Lu, 2023). By spreading and using crucial information throughout businesses, knowledge sharing helps various elements affect employee performance. Motivation, trust, social linkages, and knowledge technology affect information sharing and employee performance, but little is known about their effects.

Recent study has shown that motivation and self-efficacy strongly influence knowledge sharing behaviors (Chen et al., 2021; Sweeney, 2022). Motivating employees to share knowledge requires these traits. There is little research on how these antecedents interact with other elements like social ties and trust to affect knowledge sharing and performance. Mutual trust and reciprocity have been thoroughly examined and shown to improve knowledge sharing by generating a sense of safety and mutual benefit (Ranjan & Read, 2021; Zhu et al., 2021). There is little empirical study on how these aspects, especially when combined with knowledge technology, affect knowledge sharing and employee results.

Social ties improve knowledge sharing (Kim & Park, 2020). The right tools from knowledge technology help manage knowledge efficiently (Zhang et al., 2023). However, social ties, technological expertise, and their effects on knowledge and performance sharing have not been widely studied. These relationships have also been little studied in relation to clan culture and knowledge-oriented leadership. Clan culture, which prioritizes shared values and norms, may affect social efficiency and information exchange (Cameron & Quinn, 2011). Knowledge-focused leadership fosters knowledge sharing (Jin & Lee, 2018). The particular ways these leadership techniques interact with pre-existing elements that impact knowledge sharing have not been well researched.

Although knowledge sharing mediates the association between antecedents and employee performance, research must include all relevant components into a single model. This strategy will help you understand how motivation, trust, social connections, and knowledge technologies affect knowledge sharing and employee performance. Addressing these gaps may expand theoretical knowledge and provide practical insights that might improve knowledge management in modern organizations.

There is very little research done on the SMEs of Pakistan, there is need to further study on the SMEs of Pakistan (Khan and Nazir, 2022). According to Khan and Nazir (2022), SMEs of Pakistan are growing now a days and IT SMEs can get competitive advantage by using the technology efficiently and by sharing knowledge the SMEs can enhance the performance of employees and can get competitive advantage (Wu et al., 2023). Due to specific research gaps, studying knowledge sharing in IT-related SMEs in Pakistan is crucial. While knowledge sharing has been extensively studied in other industries, Pakistani IT-related SMEs have not. These enterprises are vital to the nation's scientific and economic success, but their unique challenges and dynamics have not been fully examined. IT SMEs in Pakistan face rapid technical improvements and fierce competition, requiring effective sharing of knowledge to drive innovation and competitiveness (Ali & Shah, 2019). To develop effective knowledge management strategies, one must understand how motivation, trust, social interactions, and knowledge technologies interact in this setting.

Pakistani IT SMEs have unique cultural and organizational challenges that differ from those experienced by larger firms or in other sectors. Many small and medium-sized firms (SMEs) have hierarchical organizational structures and unclear processes, which may hinder information sharing (Ahmed & Khan, 2019). Clan culture and knowledge-oriented leadership's effects on knowledge sharing in small and medium-sized firms (SMEs) are important due to resource constraints. Current study has not sufficiently investigated these concerns in Pakistani IT SMEs (Farooq & Khan, 2021).

IT-focused SMEs in Pakistan can face technological barriers that hamper their knowledge management and dissemination (Ali & Shah, 2019). Recent study has focused on larger

organizations with more advanced systems, leaving little understanding of how SMEs with fewer resources might overcome these challenges. Thus, knowledge technology's role in improving information sharing in these organizations must be examined (Zhang et al., 2023).

Although knowledge sharing mediates the relationship between antecedents and employee performance in wider organizational settings (Gao et al., 2022; Lu et al., 2023), there is little research on IT SMEs in Pakistan. Studying how information sharing affects employee performance in this business may help Pakistani IT SMEs improve efficiency and creativity. To conclude, this study examines how various characteristics and variables affect knowledge sharing and employee performance in Pakistani IT-related SMEs, filling critical gaps in the literature. This research might help establish effective knowledge management techniques for Pakistani IT SMEs.

1.5 Aim of the Study

This study examines the impact of antecedents of knowledge sharing and outcomes of knowledge sharing within the Small and Medium Sized Enterprises (SMEs) of Pakistan. Theses SMEs are basically the IT SMEs of Pakistan with a focus on understanding of the influence of personal factors (motivation, self-efficacy), interpersonal factors (interpersonal trust, social ties and reciprocity) and other factors (knowledge technology) on knowledge sharing. This study also examines the moderating role of clan culture and moderating role of knowledge-oriented leadership among the antecedents of knowledge sharing and knowledge sharing and their subsequent effect on the employee performance. These all-variables studies under the light of Knowledge based view theory. So, according to the knowledge-based view theory, knowledge is a resource that can enhance employees' creativity and innovation capabilities, or in other words, employee performance, and if employee performance improves, so will organizational performance (Grant, 1996; Seleim and Khalil, 2007 & Sahibzada and Mumtaz, 2023). This study provides a thorough understanding of the variables driving knowledge sharing and its consequences for organizational success, as well as significant insights for both academics and practitioners working with Pakistani IT SMEs.

1.6 Research Questions

The research question section entails primary research questions and secondary research questions. Primary research question represents overall problem (hence is broad/overarching) research question that this study interested to investigate while secondary research questions are derived from it and are necessary steps towards answering the primary question.

1.6.1Primary Research Question

Primary research questions address the subject's basics. These studies analyze the study's main topic and the main relationships between relevant variables. This investigation seeks to identify key characteristics and outcomes that are relevant to the study's goals (Babbie, 2020). The primary research question of this study is:

PRQ: What are the primary factors that influence the sharing of knowledge among employees in small and medium-sized enterprises (SMEs) in Pakistan, and what are the subsequent consequences for employee performance?

1.6.2 Secondary Research Questions

Secondary research topics are smaller and focus on certain areas of the main study subject. They want to understand the problem's many parts. These questions assist in analyzing and explaining key variables of the main research subject, offering in-depth insights and a complete understanding of the study issue (Creswell & Creswell, 2018).

This study will answer these following research questions:

RQ1: Does motivation have a positive impact on knowledge sharing?

RQ2: Does interpersonal trust have a positive effect on knowledge sharing?

RQ3: What is the impact of knowledge technology on knowledge sharing?

RQ4: What is the role of self-efficacy in influencing knowledge sharing?

RQ5: Does reciprocity have a positive impact on knowledge sharing?

RQ6: Do social ties have a positive impact on knowledge sharing?

RQ7: Does clan culture moderate the relation among motivation, interpersonal trust, reciprocity, self-efficacy, social-ties, knowledge technology and knowledge sharing?

RQ8: Does knowledge-oriented leadership moderate the relation among motivation, interpersonal trust, reciprocity, self-efficacy, social-ties, knowledge technology and knowledge sharing?

RQ9: Does knowledge sharing mediate the relation among motivation, interpersonal trust, reciprocity, self-efficacy, social-ties, knowledge technology and employee performance?

RQ10: Does knowledge sharing have a positive impact on employee performance?

1.7 Research Objectives

This study will help to understand the relation between antecedents of knowledge sharing (Interpersonal Trust, Motivation, Reciprocity, Self-efficacy, Knowledge Technology and Social Ties),and knowledge sharing, and will also enlighten the impact of knowledge sharing on the employee performance by moderating the role of clan culture and knowledge-oriented leadership among the antecedents of knowledge sharing (Interpersonal Trust, Motivation, Reciprocity, Self-efficacy, Knowledge Technology and Social Ties), and knowledge sharing. So, the basic research objectives of this study are:

RO1: To assess the positive impact of motivation on knowledge sharing.

RO2: To assess the positive impact of interpersonal trust on knowledge sharing.

RO3: To assess the positive impact of knowledge technology on knowledge sharing.

RO4: To assess the positive role of self-efficacy in influencing knowledge sharing.

RO5: To assess the positive impact of reciprocity on knowledge sharing.

RO6: To assess the positive impact of social ties on knowledge sharing.

RO7: To analyze the moderating role of clan culture in relation among motivation, interpersonal trust, reciprocity, self-efficacy, social-ties, knowledge technology and knowledge sharing.

RO8: To analyze the moderating role of knowledge-oriented leadership in relation to motivation, interpersonal trust, reciprocity, self-efficacy, social-ties, knowledge technology and knowledge sharing.

RO9: To investigate the mediating role of knowledge sharing in relation among motivation, interpersonal trust, reciprocity, self-efficacy, social-ties, knowledge technology, and employee performance.

RO10: To assess the positive effect of knowledge sharing on employee performance.

1.8 Significance of the study

This study is significant because it adds to the literature on knowledge sharing and employee performance, specifically in the setting of IT SMEs in Pakistan. The study provides useful insights and practical consequences for organizations in the IT industry by solving a research gap and focusing on this unique scenario. The findings can help managers and policymakers create ways for promoting knowledge sharing, improving employee performance, and improving overall organizational outcomes. Furthermore, by presenting a unique conceptual model and studying the moderating impacts of clan culture and knowledge-oriented leadership, this study increases theoretical understanding.

The study's findings have the potential to be transferable outside the unique environment, providing insights that might be useful for SMEs, IT businesses in many nations, and other organizations. The study's findings have the potential to be relevant outside of the unique environment, providing insights that can be useful for SMEs, IT businesses Pakistan and other countries. he significance of this study lies in its potential to address critical gaps in understanding and practice within the realm of knowledge sharing in Pakistani IT SMEs. As the backbone of Pakistan's economy, SMEs, particularly those in the IT sector, play a pivotal role in driving innovation, creating employment opportunities, and fostering economic growth. However, the

effective sharing and utilization of knowledge within these organizations remains understudied, and often overlooked.

By investigating the antecedents and outcomes of knowledge sharing, as well as the moderating effects of clan culture and knowledge-oriented leadership, this study aims to provide actionable insights and practical recommendations tailored to the unique context of Pakistani IT SMEs. Through a deeper understanding of the factors influencing knowledge sharing behaviors and their impact on employee performance, organizations can implement targeted interventions to enhance collaboration, innovation, and competitiveness. Ultimately, the findings of this study have the potential to not only contribute to academic scholarship but also to inform policy-making and organizational practices, driving positive change and sustainable development within the Pakistani IT SME sector.

Knowledge dissemination in the IT industry of Pakistan yields several advantages, such as heightened innovation, amplified productivity, superior decision-making, and enhanced staff growth and retention. According to the Pakistan Software Export Board (PSEB), organizations who actively engage in knowledge-sharing activities saw a 20% growth in innovative goods and services over a period of five years. Additionally, a study conducted in 2022 revealed a 15% rise in total productivity among these firms. Moreover, Systems Limited and NETSOL Technologies have experienced substantial enhancements in project productivity and software development cycles as a result of their strong knowledge-sharing frameworks. Companies that had well-established cultures of sharing information also saw greater rates of staff retention and showed superior ability to adapt to new technologies. The Pakistan Software Houses Association (P@SHA) specifically pointed out a 30% quicker rate of adaption. Moreover, the act of sharing information contributes to a decrease in operating expenses, as demonstrated by a survey conducted by Tech Pakistan. The survey revealed that IT organizations who engaged in knowledge sharing had a notable 12% decrease in expenditures. The significance of knowledge-sharing techniques in the IT industry of Pakistan is emphasized by these advantages, as they help retain a competitive advantage and facilitate ongoing progress.

1.9 Structure of Thesis

This study comprises six chapters.

Chapter 1 provides a brief introduction and overview of the topic of the study, primarily incorporating the concepts of motivation, self-efficacy, interpersonal trust, reciprocity, social ties. Knowledge technology, clan culture, knowledge-oriented leadership, knowledge sharing, and employee performance. It then proceeds towards the research problem, research questions and research objectives of the study followed by the contribution and the significance of the study.

Chapter 2 entails a review of the key variables of the study; the concepts within themselves as well as their relationship with one another as per prior literature. It then proceeds to provide a research framework, highlighting the direct, mediating and moderating relationships between the variables, which formulates the primary basis of the study.

Chapter 3 reveals the methodology and the data collection procedure undertaken for this study, emphasizing the specific techniques as well as the tools utilized to inspect the relationships between the variables of the study.

Chapter 4 embodies the analysis of the collected data incorporating the specific steps performed via the Smart PLS and SPSS software. It entails the retrieved information in tabular form along with an explanation of the results from each specific step executed.

Chapter 5 incorporates a detailed discussion of the results achieved whilst linking them to existent literature, along with providing confirmation or rejection for the original hypotheses.

Chapter 6 concludes the discussion and proceeds to providing theoretical and practical implications of the research, along with the limitations of the study and directions for future research.

1.10 Summary of Introduction

This chapter provided the detailed knowledge on why this research is necessary, this study explained the background of the study, research problems of the study that how the knowledge sharing is addressing these problems and provide the significance of the study. This chapter also provided the research aims, research objectives and research questions that this study will answer. The research question entails two parts: primary research question and secondary research question. This study also explains the research gaps and provides detail about each research gap. This chapter basically explained the introduction of the whole thesis.

CHAPTER: 2

LITERATURE REVIEW

2.1 Introduction

The objective of this literature review is to provide a comprehensive analysis of the current research on the factors that impact and the outcomes that emerge from knowledge sharing among small and medium-sized enterprises (SMEs) in Pakistan. This chapter begins by analyzing the current corpus of research related to the dependent variable, which is employee performance. After that the mediator which is knowledge sharing is explained through literature and moderators that are clan culture and knowledge-oriented leadership are explained. Afterwards, it examines the autonomous forces that operate as the predecessors of information sharing. Subsequently, the chapter delves into relevant theoretical perspectives, which ultimately lead to the formulation of hypotheses. Finally, the research model is presented, together with a thorough description of the hypotheses.

2.2 Employee Performance

Knowledge sharing is essential to organizational efficiency, especially in SMEs. Research has found that organizational culture, trust, and leadership style influence knowledge sharing (Chumg et al., 2020). Jalal (2021) found that a strong company culture that values transparency and collaboration helps Pakistani SMEs share knowledge. Trust between people and within an organization is crucial. When employees trust their coworkers and company leaders, they impart knowledge more (Abbas et al., 2021).

The impacts of sharing knowledge on employee performance have been extensively studied. Knowledge distribution can improve employee performance by improving skills, proficiencies, and work satisfaction (Nguyen et al., 2022). Rehman et al. (2023) found that knowledge sharing in Pakistani SMEs boosts employee productivity and innovation. This relationship shows the need to create a knowledge-sharing environment to improve employee performance and meet business goals.

Recent research illustrates how knowledge sharing increases employee performance. Abbas et al. (2022) found that digital platforms in Pakistani SMEs improved sharing of knowledge, staff performance, and innovation. Digital technologies enable instant sharing of knowledge and interaction, which are crucial in a dynamic corporate environment, according to the report. Raza et al. (2022) noted that knowledge management training may empower people by boosting their ability to share and use knowledge.

In fostering a culture of knowledge sharing, leadership is crucial. Malik and Singh (2023) revealed that transformative leadership greatly affects employees' knowledge sharing. This is done by building trust and respect. Their research among Pakistani SMEs found that executives who actively encourage the sharing of knowledge and provide resources and assistance boosted employee performance.

2.3 Knowledge Sharing

Knowledge sharing in firms is widely recognized as crucial to performance and competitiveness. Sharing knowledge, skills, and expertise improves collective intelligence and organizational capacity (Kucharska & Bedford, 2020). Recent study has shown that knowledge sharing involves social connections, trust, and organizational culture as well as information

(Chaudhry, 2022). Multiple variables encourage sharing knowledge in companies. Organizational culture matters. A culture of openness, cooperation, and trust encourages employees to share their knowledge (Chumg et al., 2020). Creating a sharing knowledge environment requires strong leadership. This approach requires transformational leaders who can excite and motivate their workforce (Malik & Singh, 2023). Improved technology has also made knowledge dissemination easier. Digital platforms and knowledge management systems provide instantaneous information exchange, transcending distance and time (Abbas et al., 2022).

The benefits of sharing knowledge are well documented. Knowledge sharing improves organizational effectiveness, innovation, and employee growth. Nguyen et al. (2022) found that knowledge sharing improved employee performance by improving skills, competencies, and job satisfaction. Knowledge sharing in small and medium-sized firms (SMEs) promotes innovation by integrating diverse perspectives and expertise, leading to new ideas and products (Rehman et al., 2023). A culture that encourages information sharing helps create a learning organization that prioritizes continual improvement and adaptation, which are firmly established in the organizational structure (Chaudhry, 2022).

2.4 Clan Culture

According to Cameron and Quinn (2011)'s Competing Values Framework, clan culture is a familial environment that values collaboration, trust, and support. This organization emphasizes mentoring, interaction, and collaborative decision-making to foster worker inclusion and devotion (Cameron & Quinn, 2011). Firms that value internal maintenance, adaptability, concern for people, and consumer sensitivity often have clan culture. Staff engagement, shared values, and loyalty to the organization's goals define clan culture. Clan cultures view leadership as mentorship rather

than authority. This encourages open communication and collective problem-solving (Cameron & Quinn, 2011). Lee and Kim (2022) found that these work environments boost job satisfaction and employee engagement because employees feel valued and important to the company's success.

Clan culture greatly affects organizational sharing knowledge. Trust and strong interpersonal relationships create a safe space for professionals to share their knowledge (Chaudhry, 2022). Clan culture encourages collaborative learning and innovation by sharing knowledge (Naqshbandi & Tabche, 2022). Clan cultures' mentorship and supportive leadership enable the creation of formal and informal information exchange channels, enhancing the organization's intellectual capital (Park et al., 2022). The clan culture encourages professional development and worker productivity (Park et al., 2022). Cooperation and teamwork boost collective efficacy, which improves performance (Naqshbandi & Tabche, 2022).

2.5Knowledge-Oriented Leadership

Knowledge-oriented leadership improves organizational performance, innovation, and competitiveness. This leadership style promotes organizational learning, sharing of knowledge, and intellectual growth (Birasnav, 2022). Knowledge-oriented leaders focus on knowledge generation, distribution, and application to harness organizational knowledge assets (Donate & de Pablo, 2015). Knowledge-based leaders differ from traditional leaders. Leaders value their employees' knowledge and skills, encouraging continuing learning and career progress (Serenko, 2021). They create an environment of trust and open communication that makes individuals feel valued and driven to share their expertise (Nonaka & Takeuchi, 1995). Knowledge-focused leaders are also seen as mentors and coaches, helping their staff solve problems and make decisions (Politis, 2001).

Knowledge-oriented leadership greatly impacts company knowledge sharing. Leaders that value knowledge create a culture where sharing information is integrated in the organization (Khalil & Shea, 2023). These leaders use knowledge management systems, collaborative platforms, and frequent training to share information freely (Birasnav, 2022). Thus, staff are more likely to share information and skills, improving collective intelligence and creativity (Liao et al., 2020). Research shows that knowledge-focused leadership boosts staff performance. These leaders encourage information sharing and constant learning, which helps employees gain new skills and increase job performance (Choi et al., 2022). According to research, organizations with knowledge-focused executives had reduced staff turnover. They feel more valued and fulfilled at work (Birasnav, 2022).

2.6 Motivation

The presence of motivation in the workplace is a crucial determinant of employee performance, job satisfaction, and overall organizational success. Psychologists Ryan and Deci (2000) define it as the cognitive process that motivates and guides action towards certain goals. Over time, theories of motivation have developed, and current research examines both inner and extrinsic factors that impact employee behavior and performance.

Intrinsic motivation is doing something because it makes you happy, not for any other reason (Ryan & Deci, 2000). Mastery, autonomy, and purpose boost intrinsic motivation. Gagné and Deci (2005) found that intrinsic motivation predicts high performance, inventiveness, and employee well-being. Extrinsic motivation involves doing something to get a reward or avoid a punishment. Rewards like bonuses and promotions can motivate workers. Too much emphasis on these rewards may undermine employees' intrinsic desire (Deci, Koestner, & Ryan, 1999).

Motivated workers share information more, according to research. For instance, Cabrera and Cabrera (2005) demonstrated that intrinsic and extrinsic motivators greatly affect employees' knowledge sharing. A supportive company culture and leadership that promotes knowledge sharing boosts incentive to contribute (Ipe, 2003).

2.7 Self-Efficacy

Self-efficacy, proposed by Bandura (1977), is the belief that one can take the necessary steps to attain goals. Employee motivation, performance, and organizational outcomes depend on self-efficacy. Recent research links self-efficacy to improved work satisfaction, devotion, and productivity (Judge et al., 2021; Stajkovic, 2018). Recent organizational research expands self-efficacy knowledge. Tziner et al. (2022) found that remote workers with higher self-efficacy adapted better and worked more productively. Chen et al. (2023) found that self-efficacy improves virtual team performance by promoting communication and collaboration.

High-self-efficacy employees are more inclined to share their knowledge and skills because they believe in their talents and contributions (Li et al., 2022). Sharing knowledge and skills is essential for innovation and problem-solving in knowledge-intensive industries. Wang and Noe (2020) found that self-efficacy improves sharing knowledge attitudes and knowledge management engagement. High-self-efficacy employees establish demanding objectives, work harder, and persevere longer, improving performance (Schmidt & DeShon, 2020).

2.8 Interpersonal Trust

Organizational cooperation, communication, and performance depend on interpersonal trust. confidence is the willingness to expose oneself to another party's actions with the expectation

that they will carry out activities important to the person placing their confidence, regardless of their ability to supervise or control them (Mayer, Davis, & Schoorman, 1995). Trust is crucial to a positive workplace and employee engagement, according to recent research (Costa, Fulmer, & Anderson, 2018; De Jong et al., 2020).

Interpersonal trust has several organizational benefits. Trust increases employee cooperation, knowledge sharing, and innovation (Chughtai, 2022). Trust reduces the need for extensive controls, lowering administrative costs and improving organizational performance (Dirks & Ferrin, 2001). Trust boosts employee morale and work satisfaction, reducing turnover (Huang et al., 2022). Knowledge sharing among companies requires trust. Confident employees are more likely to share valuable information with coworkers and managers, which improves organizational learning and creativity (Foss et al., 2009). King and Marks (2021) found that trust based on emotions and ideas affects how willing people are to share implicit and explicit knowledge. A meta-analysis by Li et al. (2020) confirmed that trust is essential to knowledge exchange in varied organizations.

2.9 Reciprocity

Organizational behavior relies on reciprocity to foster cooperation, collaboration, and effective teamwork. The reciprocal exchange of benefits or favors builds trust and positive connections among employees (Cropanzano & Mitchell, 2005). Recent studies show that reciprocity boosts employee engagement, work satisfaction, and organizational commitment (Zhang et al., 2021; van den Berg, 2023).

Reciprocity fosters knowledge sharing through mutual aid. Knowledge-sharing is more likely when employees feel they will be rewarded (Hsu et al., 2018). Blau's 1964 Social Exchange

Theory says that people provide knowledge when they expect similar support. Expecting reciprocal benefits encourages collaboration and information exchange, which boosts organizational learning and innovation (Bock et al., 2021).

Recent research shows that reciprocity encourages information sharing and enhances its quality. Mutual aid encourages employees to provide complete and accurate information, improving organizational decision-making and problem-solving (Liao et al., 2021). Reciprocity helps overcome knowledge hoarding and unwillingness to share critical information (Zhou & Li, 2022).

2.10 Social Ties

Employee social ties, whether strong or weak, promote knowledge sharing and improve organizational effectiveness. Regular, personal ties build trust and support in strong partnerships (Granovetter, 1973). Weak ties are less formal and rare, yet they help gather information and connect social networks (Burt, 1992). Both types of linkages enhance knowledge sharing and teamwork in companies.

Recent research shows that social relationships greatly impact knowledge transmission. Strong social ties with regular and meaningful encounters may increase employee trust and knowledge exchange, according to Cummings (2004). However, weak links allow the sharing of diverse and imaginative ideas, boosting organizational learning and adaptability (Hansen, 1999).

Research shows that a mix of strong and weak connections balances trust and access to different information best for knowledge sharing (Liu et al., 2021; Zhang et al., 2022). Degree and kind of social ties affect organizational creativity. Strong relationships foster trust and open communication, which fosters cooperation and innovation, according to Tsai and Ghoshal (1998).

However, weak connections allow for the flow of fresh ideas and perspectives, which can inspire creativity and invention (Phelps et al., 2012). Companies with both types of ties innovate and adapt better to changing market conditions (Wu et al., 2023).

2.11 Knowledge Technology

Knowledge technology helps businesses produce, exchange, and manage knowledge. By making information more accessible and manageable, these technologies improve organizational learning, decision-making, and innovation (Alavi & Leidner, 2001). Knowledge management systems (KMS), workplace social networks, and collaborative platforms are essential for storing and using corporate data. KMS help collect, store, and retrieve essential data. Knowledge technology greatly impacts knowledge sharing. Wikis, forums, and collaborative platforms improve information flow (Kane et al., 2023).

Enterprise social networks let departments and locations share informal knowledge and collaborate (Leonardi, 2022). However, user uptake and organizational fit determine how well these technologies distribute knowledge (Zhang et al., 2022). Technologies that integrate with current practices and enable casual interactions are more likely to succeed (Venkatesh et al., 2021). Improving decision-making and efficiency (Davenport & Prusak, 1998). Artificial intelligence (AI) and machine learning have transformed knowledge management by providing superior data analysis and prediction capabilities (Brynjolfsson & McElheran, 2021). Big data analytics efficiently processes large volumes of data to identify patterns and inform strategic decisions (Chen et al., 2022).

2.12 Theoretical Perspective

2.12.1 Knowledge Based View Theory

Within the KBV approach, self-efficacy and motivation are also important. Individuals who believe in their capacity to give and share their knowledge have greater self-efficacy views. Motivation, whether intrinsic or extrinsic, can impact a person's propensity to engage in knowledge sharing behaviors (Cyril Eze et al., 2013). According to the KBV hypothesis, when employees are intrinsically driven or adequately compensated, they are more likely to actively participate in knowledge sharing activities (Cyril Eze et al., 2013; Kaewchur and Phusavat, 2016). Another essential antecedent in the KBV framework is reciprocity. Reciprocity promotes a culture of reciprocal knowledge exchange in which individuals see the value of sharing their knowledge and are driven to reciprocate when others contribute their skills (Ali et al., 2019. Organizations may encourage ongoing knowledge exchange among employees by fostering a culture of reciprocity, leading to enhanced performance results.

The study model of this research also includes two moderators: knowledge-oriented leadership and clan culture. Leaders that prioritize and support knowledge generation, sharing, and use inside the organization are referred to as knowledge-oriented leaders (Diamantidis & Chatzoglou, 2019). Knowledge-oriented leadership, according to the KBV theory, is critical in building an atmosphere that supports and fosters knowledge sharing behaviors among employees, hence favorably improving performance (Diamantidis & Chatzoglou, 2019). Another moderator is clan culture, which is defined by teamwork, trust, and shared ideals. Clan culture, according to the KBV, develops a friendly and cooperative atmosphere in which information exchange is valued and actively fostered (Cameron and Quinn, 2022). Organizations can increase employee performance results by fostering a clan culture, which improves the social and cultural elements that affect knowledge sharing behaviors.

This study has used the knowledge-based view theory to explain the whole research model. Knowledge based view theory is derived from the RBV theory which is about getting competitive advantage by having the rare, inimitable and valuable resources in the organization. So, in knowledge-based view theory, knowledge is the resource through which the employee’s creativity,

employee's innovation capabilities can enhance and in other words the employee performance can enhance and if the performance of the employees will increase then the organization performance will also increase (Grant, 1996; Seleim and Khalil, 2007 & Sahibzada and Mumtaz, 2023). Through the perspective of the KBV theory, we intend to study the elements that impact employee performance in our research model. Several antecedents are identified, including trust, self-efficacy, reciprocity, and motivation.

These antecedents, according to the KBV theory, play a critical role in facilitating knowledge sharing, which leads to increased employee performance. Trust is a critical component of the KBV framework because it fosters a psychologically secure workplace in which workers feel comfortable sharing their expertise without fear of negative repercussions (Bakker et al., 2006; Rutten et al., 2016). Organizations may foster knowledge sharing behaviors that increase collective understanding, problem-solving abilities, and ultimately contribute to enhanced performance results through developing trust among people.

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improving performance (Diamantidis & Chatzoglou, 2019). Another moderator is clan culture, which is defined by teamwork, trust, and shared ideals. Clan culture, according to the KBV, develops a friendly and cooperative atmosphere in which information exchange is valued and actively fostered (Cameron and Quinn, 2022). Organizations can increase employee performance results by fostering a clan culture, which improves the social and cultural elements that affect knowledge sharing behaviors.

2.13 Hypotheses Development

PERSONAL FACTORS

2.13.1 Motivation and Knowledge Sharing

Motivation is defined as the readiness to go to considerable lengths to achieve the company's goals, as long as the effort meets some individual need in the form of incentives or advantages for performing activities, as well as the intrinsic enjoyment that these actions provide. Joy and feelings (Cyril Eze et al., 2013) Previous research has found that individuals that are motivated are happier with their jobs and are more likely to discuss ideas with coworkers and offer specialized information or experience (Fathi et al., 2011).

Another individual characteristic that enhances information sharing is motivation to share knowledge (Paulin and Suneson, 2012). Understanding employee motivation to share information and how organizations establish settings that support knowledge sharing will be beneficial. Personal interests, regulatory concerns, and social concerns all have a substantial impact on information sharing practices (Amayah, 2013).

Personal advantages include any type of personal benefit derived by an employee by sharing knowledge with others, such as praise or gratitude from coworkers. According to the literature, motivation is linked to knowledge sharing (Akhavan et al., 2013; Nooshinfard and Nemati-Anaraki, 2014). Hence, the following hypothesis is formulated as:

H1: Motivation is positively correlated with knowledge sharing.

2.13.2 Self- Efficacy and Knowledge Sharing

Self-efficacy (SE) has been defined as people's belief in their ability to carry out a goal that would benefit others (Chen and Hung, 2010). It is concerned with the personal conviction in one's ability to generate the desired end by one's own efforts, as well as persons who are eager to engage in a task because they feel they can complete it (Maddux, 2016).

SE has also been identified as an important component in knowledge sharing, with a large body of literature indicating that it influences KS (Kaewchur and Phusavat, 2016; Othman and Skaik, 2014), and researchers are interested in investigating SE's role in predicting KS (Lai and Hsieh, 2013). SE has a favorable and significant impact on knowledge exchange.

Self-efficacy (SE) has been defined as people's belief in their ability to achieve a goal that would benefit others and research shows that SE plays an important role in promoting knowledge sharing within organizations (Chen and Hung, 2010). Empirical research validates the existence of a favorable correlation between self-efficacy and the act of sharing knowledge. An example is research conducted by Ryu et al. (2022) which showed that employees who possess high self-efficacy are more inclined to actively share their expertise and engage in collaborative initiatives.

In a similar vein, a study conducted by Kim and Lee (2022) discovered that self-efficacy boosts employees' enthusiasm to participate in sharing knowledge by augmenting their perceived capacity and diminishing apprehension of adverse consequences.SE and KS have a favorable and substantial association (Bilginoglu and Yozgat, 2018). So, the following hypothesis is formulated as:

H2: Self-efficacy is positively correlated with knowledge sharing.

INTERPERSONAL FACTORS

2.13.3 Interpersonal Trust and Knowledge Sharing

Employee trust is generally acknowledged to be one of the variables driving knowledge sharing activities in an organization. Interpersonal trust is defined as one party's willingness to be vulnerable (Cyril Eze et al., 2013). Companies must generate enough trust and openness to

promote information exchange, in addition to having a clear organizational vision and goals (Cyril Eze et al., 2013). Employees that have a greater degree of confidence in the organization are more likely to share their expertise with one another (Chan and Chow, 2008).

However, trust has been recognized as a key driver of knowledge sharing in several research (Bakker et al., 2006). Individuals will not share information if it is seen to be useful and valuable because they are afraid of losing prospective rewards. Tacit knowledge may be transmitted with a high level of affect-based trust, whereas explicit knowledge requires a high level of cognitive trust (Rutten et al., 2016). Researchers, however, are skeptical about the amount of trust that leads to high information sharing, independent of tacit or explicit knowledge. According to the literature, interpersonal trust is a significant predictor of information sharing (Bakker et al., 2006; Rutten et al., 2016). Hence, the following hypothesis is formulated as:

H3: Interpersonal trust among employees is positively correlated with knowledge sharing.

2.13.4 Reciprocity and Knowledge Sharing

Reciprocity refers to the sharing of ideas and expertise among employees. This implies that employees are more willing to share ideas with those who compensate them. As a result, reciprocity is thought to impact knowledge sharing (Ali et al., 2019).

The anticipation of rewarding behavior is referred to as reciprocity. Individuals who acquire important information from others (i.e., knowledge donors) have a duty to return similar knowledge to knowledge donors and this suggests that knowledge givers anticipate their knowledge exchange to be valuable through mutual knowledge providing and receiving.

Researchers found a positive association between reciprocity and knowledge sharing. Kankanhalli et al. (2021) found that workers are more likely to provide knowledge if they expect reciprocation. Zhang et al. (2022) found that reciprocal links increase employees' knowledge sharing, especially in collaborative contexts.

This reciprocity has been demonstrated to be a powerful motivator of knowledge sharing (Chang and Chuang, 2011; Lin, 2007). Mutual knowledge-sharing connections promote

knowledge-sharing behaviour, and individuals may be more eager to share their valuable information as a result (Lin, 2007). So, the following hypothesis formulated as:

H4: Reciprocity is positively correlated with knowledge sharing.

2.13.5 Social Ties and Knowledge Sharing

Previous research has proven the value of knowledge sharing for collaborative work (Kotlarsky and Oshri, 2005). Individuals, on the other hand, would not give their knowledge away lightly if they acknowledged that knowledge is a type of personal property right (Hunter et al., 2002) or if they believed that their knowledge was valuable and vital (Bock and Kim, 2002).

Knowledge sharing is a two-person process that takes place between the knowledge contributor and the knowledge consumer (Kwok and Gao, 2005). Although the relative benefits of strong ties and weak ties between contributor and recipient are debated, it is widely accepted that strong ties increase the likelihood that social actors will share sensitive information with each other, whereas weak ties provide access to a greater amount of sensitive information.

Hansen (1999) discovered, however, that weak connections are ineffective for conveying complicated information. Furthermore, Uzzi and Lancaster (2003) claimed that embedded relationships and private information transmission have a substantial positive association. According to Granovetter (1973; 1974), strong links correspond to intragroup social contacts that provide social cohesiveness, whereas weak ties refer to intergroup social interactions that provide new resources (Wu and Choi, 2004).

In line with these findings, we propose that the degree of social links between knowledge producers and their coworkers promotes information sharing. The following hypothesis is formulated as:

H5: Social Ties are positively correlated with knowledge sharing.

OTHER FACTORS

2.13.6 Knowledge Technology and Knowledge Sharing

The fast growth of knowledge technology offers individuals new ways to share knowledge in organizations while offering specialized goods and services (Tseng and Huang, 2011; Ahmed et al., 2019). Social media platforms such as Facebook, LinkedIn, and Instagram, as well as digital platforms such as weblogs, Zoom, Microsoft Teams, and Skype, as well as big data and online resources, are changing how knowledge is created, distributed, and shared in a variety of contexts (Ahmed et al., 2019).

Individuals and organizations have begun to feel the profound and far-reaching effects of these changes, not only in terms of scale, access, and availability of knowledge, but also in how knowledge is shared, where it comes from, and what roles individuals play in creating, distributing, and sharing knowledge (Swanson et al., 2020; Lepore et al., 2021). So, the following hypothesis is formulated as:

H6: Knowledge technology is positively correlated with knowledge sharing.

2.13.7 Knowledge Sharing and Employee Performance

Employee performance has been described as "the extent to which an individual employee's level of productivity meets the firm's performance standards" (Diamantidis & Chatzoglou, 2019). Atatsi et al. (2019) discovered in their assessment of the literature on employee performance that employee performance may be defined in terms of employee production under addition to extra-role performance, duties under job descriptions are expected to be completed. Employee performance is influenced by a variety of elements, including employee motivation, employee happiness, and HRM practices such as employee training, salary, and performance review.

Knowledge sharing is a crucial action that improves an individual's ability to obtain new facts and resources for learning, problem solving, and self-improvement (Din and Haron, 2012). The success of knowledge sharing in business is tied to both technological and behavioral

variables. Businesses must create open environments and incentive/reward systems to encourage members to share their knowledge positively and voluntarily. Knowledge, as opposed to data and information, is closer to the action, making it more valuable than others and improving employee performance (Diamantidis & Chatzoglou, 2019). So, the following hypothesis is formulated as:

H7: Knowledge sharing is positively correlated with employee performance.

2.13.8 Mediating Role of Knowledge Sharing

Rapid change and a knowledge-based economy need organizations to remain competitive through maximizing the use of resources, particularly those that are precious, uncommon, and incomparable, such as knowledge and expertise (Barney, 2002). Knowledge sharing is a critical organizational competence for sustaining a competitive advantage (Witherspoon et al., 2013). Knowledge sharing is an important procedure that connects many knowledge management methods and practices. Without information sharing, organizations struggle to maximize their investments in knowledge acquisition and creation (Carrillo et al., 2010). As a result, many practitioners and scholars have turned to knowledge sharing as a solution to many of the challenging difficulties that organizations confront in a knowledge-based environment. The process of exchanging knowledge is known as knowledge sharing. Knowledge sharing is the process of communicating knowledge to other members of an organization in a decision-making-appropriate manner (Ali et al., 2019).

Knowledge sharing may increase organizational efficiency and performance directly or indirectly by lowering costs, improving innovation, and getting a better knowledge of consumers (Anwar, 2017). Researchers, however, are skeptical about the amount of trust that leads to high knowledge sharing, independent of tacit or explicit knowledge. According to the literature, interpersonal trust is a significant predictor of knowledge sharing and enhances employee performance (Bakker et al., 2006; Rutten et al., 2016). Understanding employee motivation to share information and how organizations establish settings that support knowledge sharing will be beneficial. Personal interests, regulatory concerns, and social concerns all have a substantial impact on information sharing practices that will lead to enhanced employee performance (Amayah, 2013). Self-efficacy (SE) has been defined as people's belief in their ability to achieve

a goal that would benefit others and research shows that SE plays an important role in promoting knowledge sharing within organizations (Chen and Hung, 2010).

SE and KS have a favorable and substantial association and then this relation leads to enhanced employee performance (Bilginoglu and Yozgat, 2018). The anticipation of rewarding behavior is referred to as reciprocity. Individuals who acquire important information from others (i.e., knowledge donors) have a duty to return similar knowledge to knowledge donors and this suggests that knowledge givers anticipate their knowledge exchange to be valuable through mutual knowledge providing and receiving and also leads to employee performance. Knowledge sharing is a two-person process that takes place between the knowledge contributor and the knowledge consumer (Kwok and Gao, 2005).

Although the relative benefits of strong ties and weak ties between contributor and recipient are debated, it is widely accepted that strong ties increase the likelihood that social actors will share sensitive information with each other, whereas weak ties provide access to a greater amount of sensitive information and when the persons share knowledge with each other than their performance also increases. Individuals and organizations have begun to feel the profound and far-reaching effects of these changes, not only in terms of scale, access, and availability of knowledge, but also in how knowledge is shared, where it comes from, and what roles individuals play in creating, distributing, and sharing knowledge (Swanson et al., 2020; Lepore et al., 2021).So the following hypotheses will be formulated of mediation of knowledge sharing.

H8a: Knowledge sharing mediates the relation between motivation and employee performance.

H8b: Knowledge sharing mediates the relation between self-efficacy and employee performance.

H8c: Knowledge sharing mediates the relation between interpersonal trust and employee performance.

H8d: Knowledge sharing mediates the relation between reciprocity and employee performance.

H8e: Knowledge sharing mediates the relation between social ties and employee performance.

H8f: Knowledge sharing mediates the relation between knowledge technology and employee performance.

2.13.9 Moderating Role of Clan Culture

Clan culture is defined as a culture of mutual help and coherence (Cameron and Quinn, 2022). Strong team solidarity and support, internal communication, a sense of collaboration, and employee appreciation are all examples of this (Naranjo-Valencia et al., 2017). As a result, a clan culture that encourages involvement and engagement should relate to good organizational unit employee attitudes, such as motivation that encourages employee knowledge sharing behavior (Hartnell et al., 2011).

People share ideas and insights in organizations with a culture of knowledge sharing because it feels natural to them, not because it is something they are forced to do (McDermott and O'dell, 2001), whereas clan culture is a family-like culture that supports and motivates employees to increase knowledge sharing behavior in the organization (Farooq, 2018; Khatami et al. 2020).

Companies that wish to foster a knowledge-sharing culture must encourage and inspire their staff to collaborate in order to generate new information within the organization. Durmusoglu et al. (2014) define organizational clan culture as the process through which new knowledge is developed, distributed, and legitimized inside the organization.

A clan culture that encourages participation and involvement should be related with good unit-level employee attitudes, such as employee mutual trust, which encourages employee knowledge sharing behavior (Hartnell et al., 2011).

One of the most significant criteria for the success of a KM project is family culture. Platforms for technology can assist, but no technology can accelerate the flow of information unless the cultural and organizational context encourages individuals to generate and exchange knowledge (Raja and Haddad, 2008), therefore the clan culture has a significant impact on the

flow of knowledge via an organization's KT infrastructure. SE and KS have a favorable and substantial association (Bilginoglu and Yozgat, 2018) and social ties of the employees will be strong when the organization would provide the family like culture to the employees (Cameron and Quinn, 2022). So, the following hypotheses of moderating role of clan culture would be formulated as:

H9a: Clan culture moderates the relation between motivation and knowledge sharing.

H9b: Clan culture moderates the relation between self-efficacy and knowledge sharing.

H9c: Clan Culture moderates the relation between interpersonal trust and knowledge sharing.

H9d: Clan culture moderates the relation between reciprocity and knowledge sharing.

H9e: Clan culture moderates the relation between social ties and knowledge sharing.

H9f: Clan culture moderates the relation between knowledge technology and knowledge sharing.

2.13.10 Moderating Role of Knowledge Oriented Leadership

Donate and Sánchez de Pablo (2015) combine transformational and transactional leadership approaches in their work on KOL. In their study, KOL is examined as a predictor of KS behavior, and they discover that KOL has a favorable influence on KS behavior. A knowledge-oriented manager promotes learning, offers training, serves as a role model, focuses on intellectual stimulation of workers, and provides incentives for the development of mechanisms for knowledge transfer, storage, and application (Williams & Sullivan, 2011). Yahya and Goh (2002) contend that organizations and leaders should foster an atmosphere in which information may be effectively managed through the use of KS. In this approach, management knowledge orientation becomes a dynamic competence of the organization, promoting the production, sharing, storage, and use of tacit and explicit knowledge. Knowledge oriented leadership enhances the relation between interpersonal trust and knowledge sharing among employees (Cyril Eze et al., 2013).

Knowledge oriented leaders create such an environment in the workplace that environment increases the motivation of the employees to share the knowledge with each other and when the employees share knowledge with each other than the performance of employees increases and the organization get competitive advantage sharing (Akhavan et al., 2013; Nooshinfard and Nemati-Anaraki, 2014).

Self-efficacy and reciprocity relation with knowledge sharing among employees may also increase as the knowledge-oriented leadership encourage the employees to share the knowledge with one another to thinking in a creative way and to enhance innovative performance of employees (Diamantidis & Chatzoglou, 2019; Williams & Sullivan, 2011).

Social ties becomes strong when there are knowledge oriented leaders are present in the organization (Kotlarsky and Oshri, 2005), and knowledge technology and knowledge sharing relation may also strengthen by moderating role of knowledge oriented leadership between knowledge technology and the knowledge sharing because knowledge oriented leaders focuses on the intellectual stimulation of the employees and they want to increase the knowledge of the employees and they also provides incentives and the development plans to increase the knowledge of the employees application (Williams & Sullivan, 2011), in this way the knowledge sharing among employees will increase and performance of employees will increase and the organization would get competitive advantage.

H10a: Knowledge oriented leadership moderates the relation between motivation and knowledge sharing.

H10b: Knowledge oriented leadership moderates the relation between self-efficacy and knowledge sharing.

H10c: Knowledge oriented leadership moderates the relation between interpersonal trust and knowledge sharing.

H10d: Knowledge oriented leadership moderates the relation between reciprocity and knowledge sharing.

H10e: Knowledge oriented leadership moderates the relation between social ties and knowledge sharing.

H10f: Knowledge oriented leadership moderates the relation between knowledge technology and knowledge sharing.

Table 2.1: Summary of Hypotheses

Hypotheses Number	Hypotheses Statements
H1	Motivation is positively correlated with knowledge sharing.
H2	Self-efficacy is positively correlated with knowledge sharing.
H3	Interpersonal trust among employees is positively correlated with knowledge sharing.
H4	Reciprocity is positively correlated with knowledge sharing.
H5	Social Ties are positively correlated with knowledge sharing.
H6	Knowledge technology is positively correlated with knowledge sharing.
H7	Knowledge sharing is positively correlated with employee performance.
H8a	Knowledge sharing mediates the relation between motivation and employee performance.
H8b	Knowledge sharing mediates the relation between self-efficacy and employee performance.
H8c	Knowledge sharing mediates the relation between interpersonal trust and employee performance.
H8d	Knowledge sharing mediates the relation between reciprocity and employee performance.
H8e	Knowledge sharing mediates the relation between social ties and employee performance.

H8f	Knowledge sharing mediates the relation between knowledge technology and employee performance.
H9a	Clan culture moderates the relation between motivation and knowledge sharing.
H9b	Clan culture moderates the relation between self-efficacy and knowledge sharing.
H9c	Clan Culture moderates the relation between interpersonal trust and knowledge sharing.
H9d	Clan culture moderates the relation between reciprocity and knowledge sharing.
H9e	Clan culture moderates the relation between social ties and knowledge sharing.
H9f	Clan culture moderates the relation between knowledge technology and knowledge sharing.
H10a	Knowledge oriented leadership moderates the relation between motivation and knowledge sharing.
H10b	Knowledge oriented leadership moderates the relation between self-efficacy and knowledge sharing.
H10c	Knowledge oriented leadership moderates the relation between interpersonal trust and knowledge sharing.
H10d	Knowledge oriented leadership moderates the relation between reciprocity and knowledge sharing.
H10e	Knowledge oriented leadership moderates the relation between social ties and knowledge sharing.
H10f	Knowledge oriented leadership moderates the relation between knowledge technology and knowledge sharing.

2.14 Hypothesized Research Model

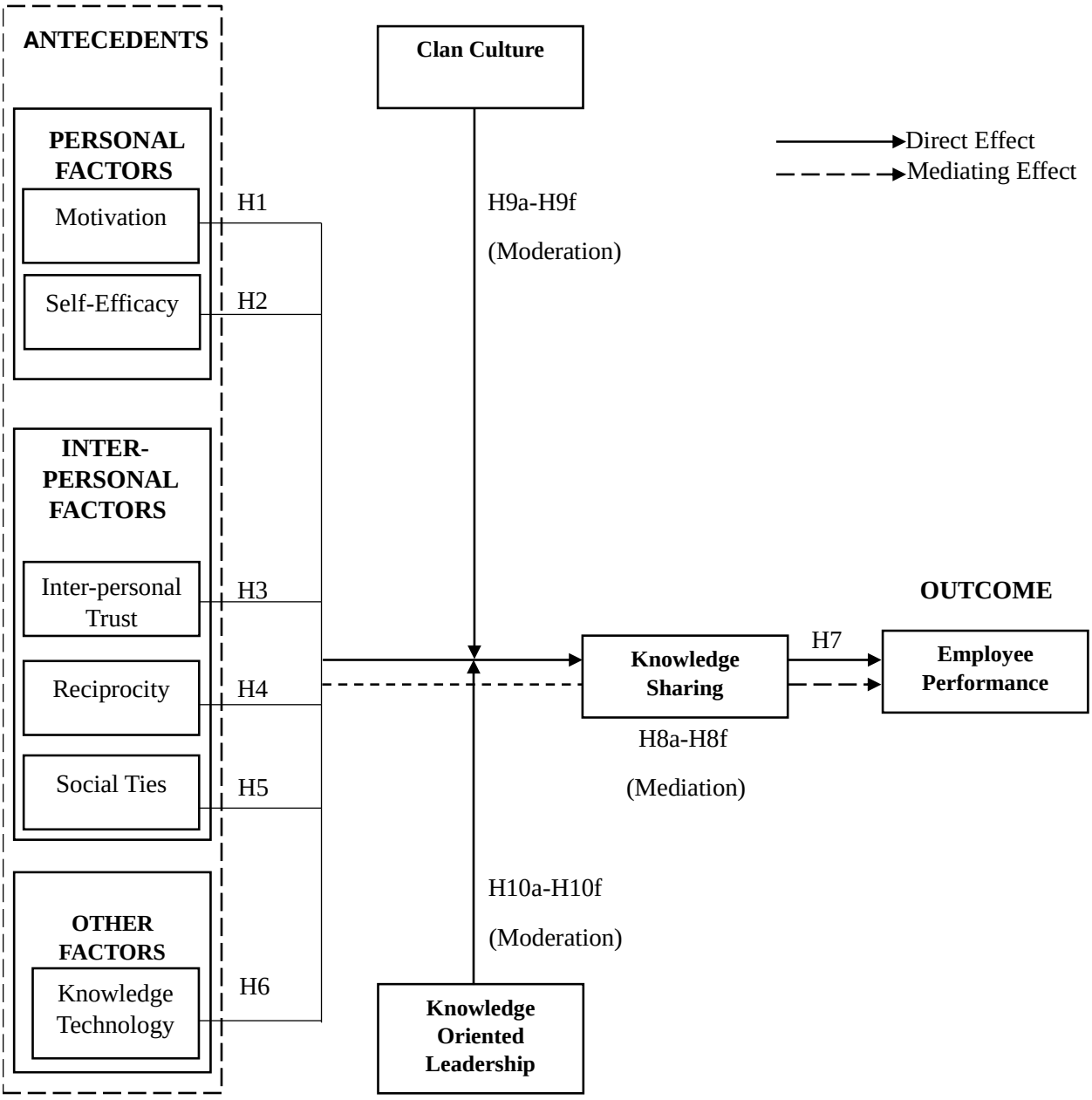

Figure 2.1: Hypothesized Research Model

2.15 Summary Literature Review

This chapter offers a thorough examination of the factors by utilizing existing literature. This study examines the connections between various independent variables, including motivation, self-efficacy, interpersonal trust, reciprocity, social ties, and knowledge technology. It also explores the role of knowledge sharing as a mediating variable and employee performance as the dependent variable. Additionally, the study considers the influence of clan culture and knowledge-oriented leadership as moderating variables. These relationships are supported by relevant literature. The research model is constructed based on a theoretical perspective, utilizing the Knowledge-Based View (KBV) theory to clarify the whole framework of the study. The hypotheses are developed, and the research model is comprehensively elucidated, supported by prior investigations.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter aims to describe the application of the methodology used in this research work. Along with explaining research philosophy and research design, this chapter also discusses different approaches to research. This chapter consists of details of the sample and the technique used around it. Moreover, a thorough contextual analysis is also included in this chapter which contains details regarding the IT sector of Pakistan. Furthermore, details regarding the measures used to collect data are also included in this section. And lastly, the data analysis techniques used for the collected data and ethical considerations to consider for this study are also incorporated.

3.2 Research Paradigm/Philosophy

A paradigm is a belief system that guides researchers broadly (Guba & Lincoln, 1994, p. 105). It helps researchers choose acceptable study methods and communicate their original assumptions (Guba & Lincoln, 1994). According to Saunders et al. (2009), research philosophy is a collection of beliefs and assumptions about knowledge development. According to Crossan (2003), research philosophy involves philosophical questions that demonstrate conceptual knowledge. The study's philosophy and topic can also predict its benefits (Alainati, 2015). Positivism, constructivism, and critical theory were the three main research paradigms studied by Saunders et al. (2019).

Empirical studies are based on the notion that they may give evidence for objective reality. As a result, positivism, a research paradigm often linked to quantitative research, is widely employed in such studies (Creswell, 2007). According to Crossan (2003), it suggests that human behavior and the human mind depend on an objective reality. In order to get impartial and long-lasting outcomes, the researcher must maintain a neutral stance within this framework (Guba &

Lincoln, 1994). Positivism proposes that researchers provide an impartial evaluation of the data collected, use scientific methods to elaborate and describe the research in order to forecast events (Saunders et al., 2009). Positivism employs the hypothetical deductive method to examine assumptions that frequently arise in quantitative research, assuring objectivity throughout the process of data collection and analysis (Sekaran, 2003). Positivism is embraced by many researchers in order to validate ideas, accomplish research goals, and tackle research enquiries.

The current study used an objective ontology. Ontology studies existence and the researcher's view of structure and management (Devaux et al., 2009). The ontological perspective of objectivism holds that the environment is authentic regardless of the researcher, eliminating bias in the researcher's approach. This perspective shows that the researcher's bias doesn't impact reality and calls objectivism "Realism."

This study adopts a positivist epistemological perspective. Epistemology, the examination of the fundamental nature of knowledge and its capacity to be transmitted, plays a critical role in comprehending how a researcher apprehends knowledge (Burrell & Morgan, 1979). According to Gabriel et al. (2013), several epistemic methodologies may be employed in business and management research, contingent upon the characteristics of the data. Positivist epistemology asserts that research has specific goals, employs quantitative methods, and produces conclusions that may be applied to a wider context (Saunders et al., 2009). Therefore, positivism was selected for this research to assess the linkage between the antecedents of knowledge and knowledge sharing and its subsequent effect on the employee performance and also the moderating link of clan culture and knowledge-oriented leadership.

3.3 Research Design

3.3.1 Quantitative Research Design

This the study adopted the quantitative research design, entailing statistical investigation and empirical evaluation of the proposed associations (Bradley, 2023). Moreover, when quantitative studies are integrated with systematic data-gathering methods they can generate descriptive findings, claim Saunders et al. (2019). Cohen and colleagues (2007) stressed the

significance of quantitative studies in granting empirical support via the gathering and examination of numerical data. In addition, researchers can accurately measure factors and evaluate trendy associations in the data utilizing quantitative investigation, hence providing numerical data that could be statistically analyzed (Creswell & Tashakkori, 2007) To gain valid conclusions based on actual evidence rather than biased interpretations, to apply statistical methods for data analysis, and for hypothesis testing, quantitative research seeks to quantify the issue that is being studied (Barlett et al., 2001; Cohen et al., 2007). Research shows that statistical analysis strives for objectivity and attempts to project results to larger groups by reducing subjective characteristics and researcher bias (Creswell & Tashakkori, 2007). Furthermore, when other scholars utilize quantitative research design and expand the investigations through the quantification of variables and behaviors, the validity and reliability of results in the discipline of business research are enhanced (Barlett et al., 2001; Saunders et al. 2019). Therefore, to analyze the statistical significance of causal relationships demonstrated in the research framework we have adopted the quantitative research method.

3.3.2 Survey Research Method

To guarantee precision and efficacy in the study, data was collected once using the survey method. According to Creswell (2014), positivist and quantitative research benefit from this strategy. Surveys allow for the systematic collection of data from a large number of participants, providing a complete picture of the research topic (Saunders, Lewis, & Thornhill, 2019). The survey questionnaire was designed to capture quantitative data using closed-ended questions (Appendix-D). In quantitative research, close-ended questions limit respondents' responses to specified alternatives, making data quantification and analysis easier (Fowler, 2014). Participants were asked to pick one of the choices for each statement, allowing for consistent and comparable results (Krosnick, 1999).

The study used cross-sectional research, which collects data from a sample at one time (Levin, 2006). This method helps identify patterns and trends in variable relationships (Cohen, Manion, & Morrison, 2007). Cross-sectional studies are cheaper and faster than longitudinal ones,

making them suitable for this study (Bryman, 2016). Close-ended questions are standardized, making data more reliable. Because all responders receive the same questions in the same way (DeVellis, 2017). Predetermined response options reduce responder interpretation, improving data accuracy (Fink, 2015). The survey's quantitative data may be statistically analyzed to test hypotheses, find relationships, and draw conclusions (Field, 2018). This objective technique guarantees that judgements are based on facts, not opinion.

A cross-sectional study approach was used to obtain quantitative data utilizing survey questionnaires. This technique was chosen because it fit the positivist worldview and produced reliable, correct data for statistical analysis. Using a standardized survey at a given time, the study quickly collected data to examine the research subjects and evaluate the hypotheses.

3.4 Context of the Study

The data is collected from the IT SMEs of Pakistan. SMEs in poor nations do not pursue innovation outcomes at all, but they do respect frontline staff' efforts to generate and implement creative ideas (Kesting and Ulhoi, 2010). SMEs contribute significantly to the growth of both established and emerging economies. SMEs in Pakistan also contribute significantly to economic and social growth. Wholesale and retail commerce (5%), hotels and restaurants (53%), social and human services (22%), and manufacturing (20%) are among Pakistan's SMEs (Yasir and Majid, 2018). The majority of Pakistani SMEs are unaware of the benefits of KS and KM systems (Hussain et al., 2011).

Despite the fact that the Pakistan Small and Medium Enterprises growth Authority (SMEDA) has taken several steps to promote SMEs, there is still a need to encourage KS among SMEs, which plays a critical role in the promotion and growth of sustainable SMEs. According to the Small and Medium Enterprise Development Authority (SMEDA), Pakistan has over 5 million SMEs. SMEs generate 40% of Pakistan's GDP and 25% of total exports. After agriculture, the SME sector employs the greatest proportion of the working population in the country (State Bank of Pakistan, 2022). The IT sector in SMEs of Pakistan, the exports of this sector services increase up to 50% from the past 5 years, the IT Industry is growing in Pakistan from the past few years

(SMEDA, 2021) and IT firms frequently depend substantially on knowledge sharing. So, this study would be interesting to study on the IT SMEs of Pakistan.

3.5 Research instrument

The quantitative method is employed to conduct this study. The research instrument used in this study consists of a total of 46 items and a five-point Likert scale was used to respond to the survey items with 1 representing strongly disagree to 5 representing strongly agree. A six-item scale of Interpersonal trust was adapted from (Cyril Eze et al., 2013), sample items from the scale include "I share my ideas, experiences, and information with my close colleagues, and "Our work environment enhances confidence among employees to foster effective knowledge sharing."

A six-item scale of motivation was adapted from (Cyril Eze et al., 2013), sample items from the scale include "I like being praised by my superiors for sharing knowledge", and "Sharing knowledge may assist me in getting benefits such as promotion or rewards."

A six-item scale of knowledge technology was adapted from (Akosile, A., & Olatokun, W. 2020), and sample item from the scale include "There are various knowledge technology tools to facilitate knowledge sharing in this organization" to measure knowledge technology."

A 4-item scale from (Kwahk and Park,2016) to measure reciprocity. A sample item of reciprocity from the scale is "I think that people will develop reciprocal beliefs on give and take based on other people's intentions and behavior."

A 3-item scale of clan culture was adapted from (Khatami et al., 2020). A sample item from the scale includes "There is a cordial relationship between the individuals and management in the organization."

A 3-item scale of knowledge sharing was adapted from (Ali et.al., 2019). A sample item from the scale includes "I frequently share my knowledge with my colleagues in this organization."

A six -item scale of self-efficacy was adapted from (Bock et.al., 2005) to measure this variable. A sample item from the scale includes "When sharing knowledge, I feel confident in my ability and knowledge to help colleagues to solve their problems."

A 4-item scale of social ties was adapted from (Chiu et.al.2006) to measure this variable. A sample item from the scale includes “I maintain close social relationships with my colleagues in this organization.”

A six-item scale of knowledge-oriented leadership was adapted from (Donate et, al.,2015). A sample item from the scale includes “Leaders in this organization reward employees who share and apply their knowledge.”

A 3-item scale of employee performance was adapted from (Guan & Frenkel, 2019). A sample item from the scale includes “I adequately complete assigned duties.”

3.6 Sampling Technique/Sample Size

Non-probability convenience sampling technique is used to collect the data for this study, and these are widely used techniques of sampling when dealing with humans (Polit and Beck, 2001). Non-probability sampling is also considered as a more appropriate and powerful approach to sampling in social sciences (Omeihe et al., 2021). Data is collected from the IT professionals working in the IT SMEs of Pakistan. A quantitative approach is employed to collect data. Because generalization of outcomes is expected, the proposed research is based on objective ontology and positivist epistemology. The study's approach is deductive, and due to time constraints, the research design is cross-sectional.

A power analysis is performed using G*Power 3.1.9.2 software to identify the minimum sample size for the conceptual framework used in this research (Faul et al., 2007). According to the findings of the power analysis, a minimum sample size of 153 is required for this study to achieve 80% statistical power for a medium effect (0.15) at a level of 5% for the conceptual research framework. After power analysis we came to know that the minimum required sample size for this study is 153. The combination of non-probability convenience sampling technique is used to collect the data for this study, and these are widely used techniques of sampling when dealing with humans (Polit and Beck, 2001). Non-probability sampling is also considered as a more appropriate and powerful approach to sampling in social sciences (Omeihe et al., 2021). Data is collected from the IT professionals working in the IT SMEs of Pakistan. A quantitative approach

is employed to collect data. Because generalization of outcomes is expected, the proposed research is based on objective ontology and positivist epistemology. The study's approach is deductive, and due to time constraints, the research design is cross-sectional.

3.7 Pretesting

Pretesting session was conducted before the actual data collection phase. Pretesting is essential for the research as it eliminates the issues existing in the questionnaire which could tamper with the results of the research (Kock et.al., 2021). The pretesting session for the questionnaire of this study was conducted with 5 respondents. Upon attempting the questionnaire, it became evident by the expressions, body language and verbal communication by the respondents that 3 particular statements of the questionnaire were confusing and difficult to understand. So, these statements were altered and rephrased accordingly. The questionnaire was then considered suitable for the data collection process.

3.8 Data Collection/Response Rate

Data is collected from the employees working in the IT SMEs in different cities of Pakistan.

Table 3.1: Response Rate

Questionnaires	**Responses**
No. of questionnaires distributes	700
No. of questionnaires returned	570
No. of incomplete questionnaires	119
Response rate	65%

700 questionnaires were distributed in IT SMEs of different cities of Pakistan. And data was collected by personally visiting the IT SMEs in different cities of Pakistan. The unit of analysis

are the employees working the IT SMEs of Pakistan whether they are working at the executive, managerial or non-managerial level. Out of these 700 questionnaires, 570 questionnaires were received. Out of these 570 questionnaires, 119 incomplete responses were deducted during the screening process. So, a total of 451 valid responses are used for the data analysis indicating net response rate of (451/700 x 100) 65%. According to the (Kahsey and Kwena (2022), a response rate of over 50% is generally considered as sufficient for valid results of a survey study.

3.9 Operationalization of Variables

Table 3.2: Operational definitions of variables used for this study

Category	Variables	Operationalization	Source
	Knowledge Sharing	Knowledge sharing refers to actively sharing one's skills with colleagues, participating in different subject conversations, and working cooperatively to overcome complex challenges inside the organization.	(Deng et al., 2023)
	Clan Culture	Clan culture is defined as the degree of significant support from employers and coworkers in difficult times, amicable relationships with management, and the amount of loyalty and collaboration among members.	(Huang et al, 2022)
	Knowledge-oriented Leadership	Knowledge-oriented leadership refers to the extent to which leaders assist the organization's learning requirements in order to achieve its goals.	(Safari,A.,and Azadehdel, M.R.,2015)

	Employee Performance	Employee performance is defined as the degree to which employees effectively satisfy assigned assignments, fulfil job description requirements, and complete expected tasks within the organization.	(Hermina and Yosepha, 2019)
Personal Factors	Motivation	Motivation is the level of internal drive that pushes the readiness to share information, which is determined by elements such as incentives, recognition, contentment, and work relevance.	(Nguyen et al., 2019)
	Self-Efficacy	Self-efficacy in knowledge sharing refers to one's confidence in one's ability to contribute effectively to issue solving, business possibilities, process improvement, productivity, and meeting organizational performance objectives.	(Safdar et al.,2021)
Interpersonal Factors	Interpersonal Trust	Interpersonal trust is the level of confidence and mutual dependence among employees that promotes open communication, honesty, consistency, and a dedication to share information and experiences.	(Masood et.al.,2023)
	Social Ties	Social connections refer to the degree of intimate relationships, extensive engagement, personal acquaintance, and regular communication among colleagues that build a strong sense of connection inside the organization.	(Wu and Choi, 2004)

	Reciprocity	Reciprocity is the degree to which one feels that giving information and assisting others will result in getting aid and support in kindness, motivated by a feeling of justice and responsibility.	(Wang et al., 2021)
Other Factors	Knowledge Technology	Knowledge technology is the degree to which technological tools and processes are integrated within an organization to facilitate knowledge exchange, hence increasing decision-making, problem-solving, and creativity.	(Ahmed et al., 2019)

3.10 Data Preparation

After the collection of data, it was then compiled in accessible form. The collected data is coded as per the requirement of SPSS and the values are entered in the variable sheet. Values that are missing or incomplete and then are filtered out. Out of 700 questionnaires, 570 questionnaires were received. Out of these 570 questionnaires, 119 incomplete responses were deducted during the screening process. So, a total of 451 valid responses are used for the data analysis.

There are several reasons behind the incomplete data, including:

1. Missing/incomplete answers.

2. Repetition of response for every question (e.g., answering 4 or 5 for all questions)

3. The time duration is approximately 10 to 12 minutes per questionnaire, but when respondents take less time than this, this is an indication of their lack of attention.

To gather descriptive statistical reports, to check common method bias, and for checking missing values or any error the usable 381 data was loaded into SPSS. For analyzing the structural

models of the data set on Smart PLS the generated raw data was saved in the form of an Excel CSV file.

3.11 Common Method Bias

Considering the collection and reporting of data by self, there persisted a chance of common method bias (Poadsakof et al., 2003). To avoid the common methos bias a cover letter was added in a start of each survey seek out their consent to participate, verifying the anonymity of every respondent, and assuring them that the information provided them will remain confidential (Reio et al., 2010). The language of the questionnaire was simple and easy to understand to ensure that all respondents can answer using same amount of determination (Shuck et al., 2014; Reio et al., 2010). Statistically, the elimination of common method bias was ensured by conducting the Harmon one-factor test (Harman, 1967). The results of exploratory factor analysis, performed on all items, indicated the maximum variance of 21.8% which is less than the threshold value which is 50% which means that there is problem with common method bias in this data.

Table 3.3: Harmon's One Factor Test for Common Method Bias

Total Variance Explained

	Initial Eigenvalues			**Extraction Sums of Squared Loadings**		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	10.016	21.774	21.774	10.016	21.774	21.774
2	5.291	11.502	33.276			
3	3.420	7.434	40.711			
4	3.016	6.556	47.267			
5	2.259	4.910	52.177			

6	1.861	4.046	56.223
7	1.636	3.557	59.781
8	1.507	3.276	63.057
9	1.242	2.701	65.758
10	1.096	2.383	68.141
11	1.042	2.265	70.405
12	.861	1.872	72.277
13	.749	1.629	73.906
14	.715	1.554	75.460
15	.646	1.405	76.865
16	.612	1.331	78.195
17	.604	1.313	79.508
18	.559	1.215	80.723
19	.535	1.164	81.887
20	.515	1.119	83.006
21	.501	1.089	84.095
22	.490	1.065	85.160
23	.460	.999	86.159
24	.445	.968	87.128

25	.425	.924	88.052
26	.423	.920	88.972
27	.408	.887	89.859
28	.385	.838	90.697
29	.369	.802	91.499
30	.353	.768	92.266
31	.342	.744	93.010
32	.335	.728	93.738
33	.312	.678	94.416
34	.297	.645	95.061
35	.288	.626	95.687
36	.282	.612	96.299
37	.273	.593	96.892
38	.270	.587	97.479
39	.261	.568	98.047
40	.258	.562	98.609
41	.229	.497	99.106
42	.222	.483	99.589
43	.189	.411	100.000

3.12 Data Analysis Methods

SPSS and PLS-SEM software is used to analyze data. Any missing value in the collected data is analyzed through SPSS and demographic analysis is also conducted in SPSS. Smart PLS-SEM software is used for two reasons; firstly, it helps predict the incremental characters that are present in this study and the dependent variables (Richter et al., 2016; Nitzl et al., 2016). Smart PLS 3.2.9 software is used to do analysis and the analysis is conducted in two stages, first stage was focused on the measurement model and second stage was focused on the structural model (Hair et al., 2017; Ramayah et al., 2018). With the utilization of Smart PLS software various tests are performed as part of the measurement model as well as structural model (including internal consistency reliability, convergent validity, discriminant validity, multicollinearity etc.).

3.13 Ethical Considerations

Research ethics is essential for scientific integrity, respect for human rights and dignity, and collaboration between science and society. These criteria ensure that research participants are given a choice, are informed about the study, and have increased trust in the confidentiality of their information. Even if the theory being researched is helpful to society, this does not authorize any researcher to violate the dignity or human rights of people who participated in the study. This study will also explore closely adhering to research ethics when gathering data. It will be ensured that the respondents are informed that their involvement in this study is entirely voluntary and that they will not be compelled to participate in any way. They also have the right to withdraw at any moment for any reason (including retracting data they have previously submitted). They will be notified by including a brief cover note with the questionnaire. The confidentiality of the data gathered by respondents will be protected, and the data will only be utilized by the researcher for the indicated study. Furthermore, participants will be assured that their identities will be kept private, and they will be notified that, in addition to the researcher, the supervisor will have access to the acquired data.

3.14 Summary of Research Methodology

This chapter included basic components of research methodology associated with research objectives. The chapter starts with research philosophy, along with research strategy and design. The chapter further enlightens upon the contextual analysis of the study. The chapter further proceeded by mentioning the target population, sample techniques, data collection, and data preparation sections. The chapter ended by addressing common method bias applied data analytical techniques, and ethical considerations.

CHAPTER 4

ANALYSIS AND RESULTS

4.1 Introduction

This study directly surveyed IT-related SMEs across Pakistan using questionnaires. Researchers manually distributed and collected questionnaires at these firms, ensuring a high response rate and reliable data. After collecting all responses, a thorough examination selected only the questionnaires that matched the research requirements. This chapter involves survey data gathered from the respondents, beginning with the demographic statistics involving gender, age, education, organization, designation, work-experience in current organization, and city of work. This demographic data is presented in paragraph and in tabular form as well. The descriptive statistics of the variables are also done in SPSS. The next phase of this chapter includes both paragraph form, tables and figures for the measurement model, details including internal consistency reliability, convergent validity and the study's construct validity. The results of the structural model analysis were also demonstrated through the tables figures and in paragraph shape. These analyses were done using SPSS and Smart PLS software.

4.2 Demographic Profile Of The Respondents

The data was collected from the employees working in the IT SMEs of Pakistan. Total 700 survey questionnaires were distributed to personally visit the IT SMEs of Pakistan. Out of 700 questionnaires 570 were received. And out of these 570 questionnaires 119 were not properly filled or not completely filled so that's why these 119 questionnaires were excluded in the screening phases. So, 451 questionnaires were used for the final data analysis.

The demographic variables used on the questionnaire are age, gender, education, organization, designation, work-experience in current organization, and city of work. 451 questionnaires data was processed under the SPSS Software to determine the frequency and percentage of the demographic variables. By interpreting the demographic data, it came to know that the mostly data was collected from the male category employees with the percentage of 70.5% and female percentage is 29.5%. Most of the respondents were under the age category of 29 years

or less age with the percentage of 76.7%. By analyzing the education category of demographic section, it came to know that most of the respondents have bachelor's degree in IT SMEs of Pakistan with the percentage of 71.6%.

The data was collected from the different IT SMEs of Pakistan which are located in different cities of Pakistan. The data was collected from the different cities to get diverse results. Data was collected from the total 59 IT SMEs of Pakistan and their names are also mentioned in the Table 4.1.

Table 4.1: Demographic Profile Of The Respondents

Demographic Variables	Category	Frequency	Percentage
Gender	Male	318	70.5%
	Female	133	29.5%
Age	29 years or less	346	76.7%
	30-39 years	89	19.7%
	40-49 years	14	3.1%
	50 years and above	2	.4%
Education	Matriculation	1	.2%
	Intermediate	15	3.3%
	Bachelors	323	71.6%
	Masters	107	23.7%
	Ph. D or above	5	1.1%
Organization	Confiatech	16	3.5%
	Cloudtek	20	4.4%
	Cyber Soft Vantage - CSV	13	2.9%
	Stella Technology	12	2.7%

Veclar Technologies	9	2.0%
Twinhub	12	2.7%
Thunderbird Technologies	2	.4%
Bitnine Global Inc.	2	.4%
EagleZ Soft	7	1.6%
TechUp Solutions (Pvt) Ltd	10	2.2%
iGate Technologies	12	2.7%
Uforia Infotech Solutions	20	4.4%
Growstep Technologies	2	.4%
Ikonic Solution	16	3.5%
Alfoze Technologies	6	1.3%
Softzee Solutions	1	.2%
F3 Technologies	7	1.6%
National Cyber Security Auditing and Evaluation Lab (NCSAEL)	5	1.1%
Codup	17	3.8%
Icreativez Technologies	9	2.0%
Datasoft Solutions (Pvt.) Ltd.	11	2.4%
Coding Technologies	10	2.2%
Digitalsofts	6	1.3%
Tatech world	7	1.6%
Codesway Technologies	8	1.8%
DatumSquare IT Services	5	1.1%
TechnoLyte	7	1.6%
StepUp IT Solutions	8	1.8%
AMD TechX	6	1.3%
PhedraTech Private Limited9	8	1.8%
FixTech	7	1.6%
Genesis ERP Software Solutions	7	1.6%

	Icreativez Technologies	7	1.6%
	Genetech Solutions	8	1.8%
	Subrays Technologies PVT. LTD	4	.9%
	The Debuggers IT Solutions	9	2.0%
	Orixes Tech	9	2.0%
	TechnoLyte	6	1.3%
	GraceSol Technologies	9	2.0%
	DatumSquare IT Services	5	1.1%
	Aquila Techs	1	.2%
	Loxvo Technologies	6	1.3%
	Toplya	5	1.1%
	Invictus Solutions	5	1.1%
	ZEPTO Systems	7	1.6%
	Fillinx Solutions Private Limited	15	3.3%
	Tezeract	6	1.3%
	Digitaez	5	1.1%
	Cloud Primero B.V	8	1.8%
	Zeropoint.IT Pvt Ltd	7	1.6%
	Globosoft Technologies	3	.7%
	Cubix IT	4	.9%
	Jeux Developers	3	.7%
	Worksonics	4	.9%
	BeSpider Pvt. Ltd.	5	1.1%
	Lynx Solutions, Inc.	6	1.3%
	Catalyst IT Systems	5	1.1%
	CODIFFY	5	1.1%
	Ingeniero Solutions	6	1.3%
Designation	Executive	104	23.1%

	Managerial	97	21.5%
	Non-Managerial	250	55.4%
Work Experience	Less than 2 years	281	62.3%
	2-5 years	120	26.6%
	6-10 years	35	7.8%
	11 years or above	14	3.1%
City	Karachi	71	15.7%
	Rawalpindi	50	11.1%
	Islamabad	133	29.5%
	Lahore	72	16.0%
	Faisalabad	62	13.7%
	Sahiwal	63	14.0%

Note: Respondent sample size (N = 451)

Data was gathered from the employees at different designations whether they were at the executive level, managerial or non-managerial level. But most of the respondents were from non-managerial staff with the percentage of 55.4 %. 62.3% of the respondents have experience of less tha 2 years. 26.6% of the respondents have the experience of 2 to 5 years' experience in the current organization where they are working. 7.8% of the respondents have work experience of 6 to 10 years and 3.1 % of the respondents have work experience of 11 years or above in the current organization.

Data is collected from 6 different cities of Pakistan, Islamabad, Faisalabad, Rawalpindi, Karachi, Lahore, and Sahiwal. 15.7% respondents were from Karachi, 11.1 % respondents were from Rawalpindi, 29.5 % respondents were from Islamabad, 16% respondents were from Lahore, 13.7% respondents were from Faisalabad and 14 % respondents were from Sahiwal. Table 4.1 exhibits the demographic profile of the respondents.

4.2 Descriptive Statistics

To summarize and describe the key properties of a dataset, descriptive statistics are required (Fisher & Marshall, 2009; Gravetter & Wallnau, 2013; De Vaus, 2002). Stats include mean, standard deviation, skewness, and kurtosis. You may learn about the data's asymmetry and peak of the distribution compared to the normal distribution by looking at its skewness and kurtosis, respectively.

This study's descriptive statistics—mean, variability (standard deviation, skewness, and kurtosis)—are shown in Table 4.2. Starting with mean values, which represent each variable's arithmetic average. The average scores for the following variables are: IPT (3.9564), MOT (3.3858), REC (3.9793), CC (3.4095), KS (3.9933), KT (3.8710), ST (4.1735), SE (4.007)1, KOL (2.3396), and EP (4.3415). The mean values are the middle of each variable's data. The high average scores for ST (4.1735) and EP (4.3415) show that respondents rated these features highly.

The standard deviation measures the variability of a set of numbers around the mean. These variables have standard deviations: IPT = (0.76130), MOT = (0.71816), REC = (.81199), KS = (0.75797), KT = (0.80840), ST = (0.68655), SE = (0.78709), KOL = (0.70677), and EP = (0.73320). A higher standard deviation indicates more data dispersion. ST has (0.68655) standard deviation, whereas CC has (1.18670), indicating more response diversity. This means ST ratings are more stable.

Each variable's skewness values show its asymmetry. The skewness numbers: KS, KT, ST, SE, and KOL have skewness values of (-1.180), (-1.241), (-1.402), (-1.278), and (-0.527), respectively. The distribution has a larger left tail, and most values are clustered right of the mean if the skewness is negative. It appears that most respondents rated IPT, ST, and EP highly, with few negative evaluations. KOL has a positive skewness of (0.541), indicating a longer right tail. This means fewer good ratings and more bad ratings.

Table 4.2: Descriptive Statistics of Variables

Descriptive Statistics							
	N	Mean	Std. Deviation	Skewness		Kurtosis	
Variables	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
IPT	451	3.9564	.76130	-1.334	.115	1.864	.229
MOT	451	3.3858	.71816	-.556	.115	-.115	.229
REC	451	3.9793	.81199	-1.054	.115	1.280	.229
CC	451	3.4095	1.18670	-.527	.115	-.911	.229
KS	451	3.9933	.75797	-1.180	.115	2.072	.229
KT	451	3.8710	.80840	-1.241	.115	1.715	.229
ST	451	4.1735	.68655	-1.402	.115	2.834	.229
SE	451	4.0071	.78709	-1.278	.115	1.930	.229
KOL	451	2.3396	.70677	.541	.115	.030	.229
EP	451	4.3415	.73320	-1.359	.115	2.161	.229
Valid N (listwise)	451						

Note*:* IPT = Interpersonal Trust, MOT = Motivation, REC = Reciprocity, CC = Clan Culture, KS=Knowledge Sharing, KT = Knowledge Technology, ST = Social Ties, SE = Self-Efficacy, KOL = Knowledge-Oriented Leadership, EP = Employee Performance

Kurtosis values, which indicate distribution "tailedness": Kurtosis values for these variables: IPT = (1.864), MOT = (-0.115), REC = (1.280), CC = (-0.91), KS = (2.072), KT = (1.715), ST = (2.834), SE = (1.930), KOL = (0.030), EP = (2.161)Positive kurtosis values suggest distributions with more severe tail values and a sharper peak than normal distributions. ST and EP show a higher frequency of extreme values in these distributions. Negative kurtosis values in MOT

and CC show distributions with lighter tails and fewer peaks, indicating fewer extreme values. The values of descriptive statistics of variables used in this study are demonstrated in Tables 4.2.

PLS-SEM, or partial least square structure equation modeling, was used to analyze the fictitious model. The majority of HRM and social science research uses this statistical analysis (Ringle et al., 2020). Firstly, SPSS software was used Demographic analysis was also done on SPSS software. After this analysis the data was entered into the PLS- SEM software for further analysis on this collected data. Secondly, PLS- SEM is used because of the two reasons; firstly, it assists in the prediction of dependent variables and secondly incremental characters present in this study as clan culture and knowledge-oriented leadership acting as moderators among the antecedents of knowledge sharing and knowledge sharing (Nitzl et al., 2016; Richter et al., 2016). Smart PLS 3 .2.9 software was used to do analysis and the analysis was conducted in two stages, first stage was focused on the measurement model and second stage was focused on the structural model (Ramayah et al., 2018; Hair et al., 2017).

4.3 Measurement Model Assessment

Testing measurement models is essential for confirming their ability to capture constructs. This procedure evaluates how well the model fits the data, construct reliability and validity, and observable variable-latent construct correlations. For robust measuring instruments and improved research quality, a measurement model must precisely reflect the desired constructs (Kline, 2015; Hair et.al., 2019; Wang & Wang, 2019).

4.3.1 Internal Consistency Reliability

To evaluate the convergent, divergent, and internal consistency reliability dimensions, the measuring paradigm was put to the test. For measuring the relationship between items and their latent constructs, internal consistency reliability was used (Hair et al., 2014; Ramayah et al.,2018). Internal consistency reliability “is a measure of the degree to which the items reflect the latent constructs”. The composite reliability method was used to assess internal consistency (Hair et al., 2017). The composite dependability of the measurement model must be more than 0.7 in order for it to be judged good (Ringle et al., 2018; Richter et al., 2016). According to the findings, every

construct displayed a good CR value – Clan Culture (0.948), Employee Performance (0.891), Knowledge Sharing (0.877), Knowledge Oriented Leadership (0.858), Motivation (0.816), Self-Efficacy (0.914), Interpersonal Trust (0.881), Reciprocity (0.906), Social Ties (0.891), and Knowledge Technology (0.913).

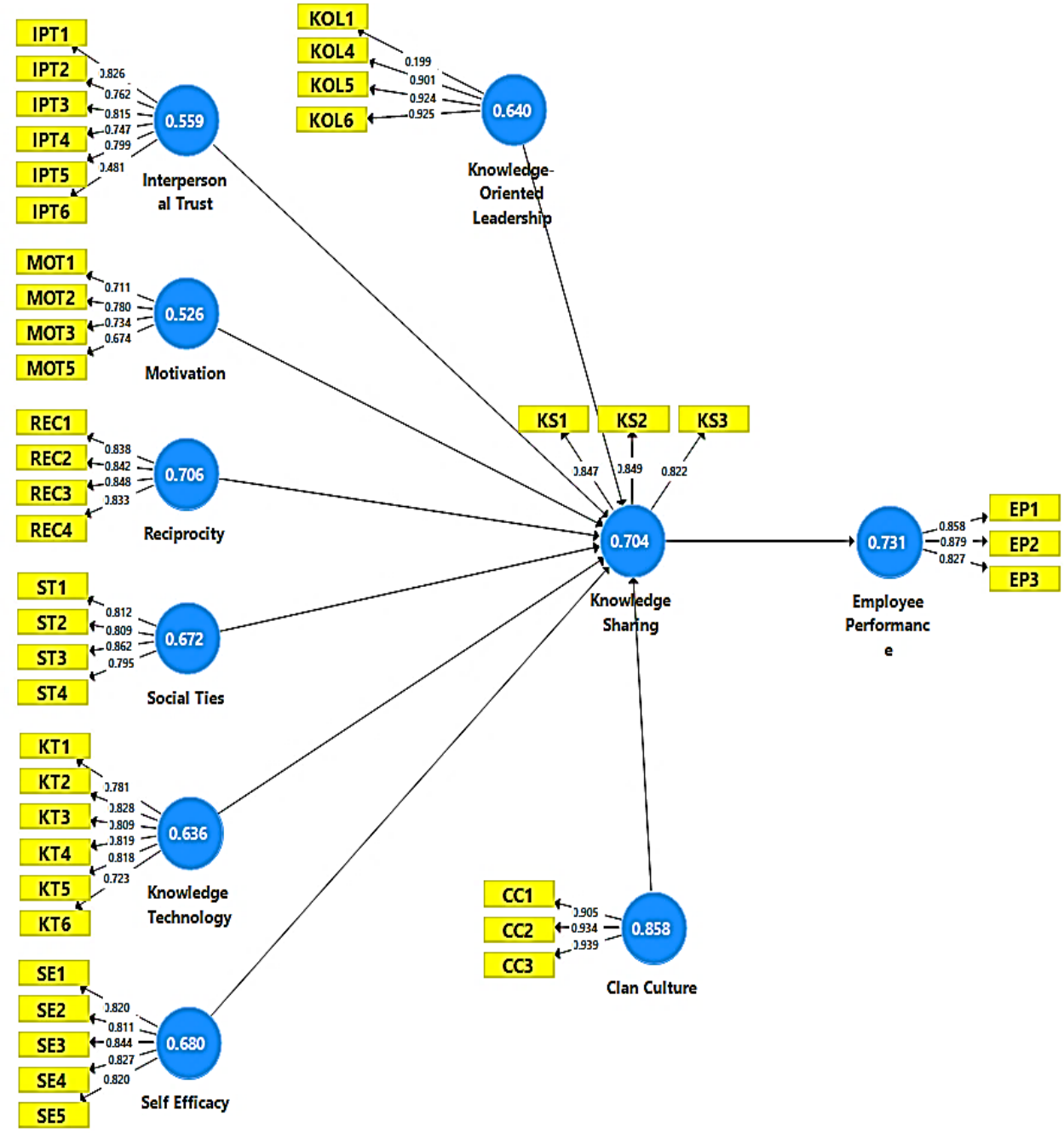

Figure 4.1: Measurement Model

4.3.2 Convergent Validity

Convergent validity is calculated after examining the composite reliability of my constructs, which assists in analyzing the degree to which one measure has positive correlations with other measures of the same construct (Hair et al., 2017, p. 112). The outside loadings of the items were examined for convergent validity. The outside loadings must be bigger than 0.6. (Chin et al., 1998), but to obtain good results, the AVE score must be equal to or better than 0.5 (Avkiran, 2017).

The result of CV indicates that all the indicators have satisfactory loadings except MOT4, MOT6, KOL2 and KOL3 items were deleted to deleted in order to adjust the AVE of the motivation and knowledge-oriented leadership constructs. The other low loadings indicators were not deleted because their construct's AVE value was now greater than 0.5 after deleting lowest loading items as shown in Table 4.3 and Figure 4.1 that the average variance extracted value of Clan Culture (0.858), Employee Performance (0.731), Knowledge Sharing (0.704), Knowledge Oriented Leadership (0.640), Motivation (0.526), Self-Efficacy (0.680), Interpersonal Trust (0.559), Reciprocity (0.706), Social Ties (0.672), and Knowledge Technology (0.636).

The Cronbach alpha values of all the variables should exceed 0.7 (Hair et al., 2014) and the Cronbach alpha values of all the variables are above 0.7 as shown in Table 4.3. Cronbach's Alpha scores of constructs show item internal reliability and consistency. Clan Culture's Cronbach's Alpha is 0.918, indicating reliability. The Employee Performance's Cronbach's Alpha coefficient is 0.816, showing reliability. Knowledge-oriented Leadership has a decent Cronbach's Alpha of 0.744, although it is less reliable than other constructions. Knowledge Sharing's Cronbach's Alpha of 0.791 suggests reliability.

Knowledge Technology's Cronbach's Alpha is 0.885, suggesting strong reliability. Motivation's Cronbach's Alpha is 0.727, showing moderate reliability. Reciprocity has a Cronbach's Alpha of 0.862, suggesting strong internal consistency. Cronbach's Alpha for Self-Efficacy is 0.882, suggesting good reliability. Social Ties' components have a Cronbach's Alpha score of 0.838, indicating strong internal reliability and consistency. These results indicate that the

majority of constructs in the model exhibit good to high reliability, while there is considerable variability among the individual constructs.

Table 4.3: Internal Consistency Reliability and Convergent Validity

Construct	Items	Cronbach's Alpha	Loadings	Composite Reliability (CR)	Average Variance Extracted (AVE)
Clan Culture	CC1	0.918	0.905	0.948	0.858
	CC2		0.934		
	CC3		0.939		
Employee Performance	EP1	0.816	0.858	0.891	0.731
	EP2		0.879		
	EP3		0.827		
Interpersonal Trust	IPT1	0.836	0.826	0.881	0.559
	IPT2		0.762		
	IPT3		0.815		
	IPT4		0.747		
	IPT5		0.799		
	IPT6		0.481		
Knowledge-oriented leadership	KOL1	0.744	0.199	0.858	0.640
	KOL2		*Deleted		
	KOL3		*Deleted		
	KOL4		0.901		
	KOL5		0.925		

	KOL6		0.924		
Knowledge Sharing	KS1	0.791	0.847	0.877	0.704
	KS2		0.849		
	KS3		0.822		
Knowledge Technology	KT1	0.885	0.781	0.913	0.636
	KT2		0.828		
	KT3		0.809		
	KT4		0.819		
	KT5		0.818		
	KT6		0.723		
Motivation	MOT1	0.727	0.711	0.816	0.526
	MOT2		0.780		
	MOT3		0.734		
	MOT4		*Deleted		
	MOT5		0.674		
	MOT6		*Deleted		
Reciprocity	REC1	0.862	0.838	0.906	0.706
	REC2		0.842		
	REC3		0.848		
	REC4		0.833		
Self-Efficacy	SE1	0.882	0.820	0.914	0.680
	SE2		0.811		
	SE3		0.844		

	SE4		0.827		
	SE5		0.820		
Social Ties	ST1	0.838	0.812	0.891	0.672
	ST2		0.809		
	ST3		0.862		
	ST4		0.795		

Note: *KOL2, *KOL3, *MOT4, and *MOT6 items are deleted due to weaker loadings. Loadings of these items were KOL2 (0.302), KOL3 (0.002), MOT4 (0.557) and MOT6 (0.540).

4.3.3 Discriminant Validity

DV is "the extent to which a construct is truly distinct from other constructs by empirical standards" (Hair et al., 2014, p. 104). When compared to other methods of evaluating DV, the Heterotrait-Monotrait ratio (HTMT) criterion used in this study is frequently thought to be the most conservative (Henseler et.al., 2015). It is the "ratio of the between-trait correlations to the within-trait correlation" (Hair et al., 2017, p. 118). HTMT value should not exceed 0.85 in order to meet the criteria of DV (Kline, 2011; Clark and Watson, 1995), or 0.90 (Gold et al., 2001; Teo et al., 2008). The present study met the criteria of HTMT and adequately measured the DV, as demonstrated in Table 4.4. The results of the analyzed measurement model were satisfactory and met the criteria given by Gold et al., 2001.

Table 4.4: Discriminant Validity (HTMT) Criterion

	CC	**EP**	**IPT**	**KOL**	**KS**	**KT**	**MOT**	**REC**	**SE**	**ST**
CC										
EP	0.077									
IPT	0.146	0.532								
KOL	0.142	0.091	0.185							
KS	0.192	0.488	0.638	0.224						

KT	0.274	0.305	0.524	0.306	0.647				
MOT	0.135	0.073	0.128	0.185	0.064	0.089			
REC	0.320	0.327	0.461	0.368	0.509	0.655	0.102		
SE	0.073	0.706	0.510	0.088	0.568	0.361	0.049	0.289	
ST	0.041	0.248	0.168	0.151	0.245	0.175	0.234	0.150	0.228

Note: CC (Clan Culture), EP (Employee Performance, IPT (Interpersonal Trust, KOL (Knowledge-Oriented Leadership, KS (Knowledge Sharing), KT (Knowledge Technology), MOT (Motivation), REC (Reciprocity), SE (Self-Efficacy), ST (Social Ties).

4.3.4. Multicollinearity

Before the analysis of the structural model, the variance inflation factor must be calculated to compute multicollinearity. Multicollinearity arises when the predictor variables in a regression model exhibit a strong correlation, hence impeding the ability to discern the independent impact of each predictor. The inflation of the standard errors of the coefficients might result in statistical judgements that are not accurate.

Table 4.5: Multicollinearity Test

Construct Items	**VIF**
CC1	3.144
CC2	3.658
CC3	3.186
EP1	1.758
EP2	2.124
EP3	1.729
IPT1	2.085

IPT2	1.761
IPT3	1.974
IPT4	1.644
IPT5	1.978
IPT6	1.203
KOL1	1.011
KOL4	3.171
KOL5	3.659
KOL6	3.194
KS1	1.606
KS2	1.786
KS3	1.641
KT1	1.846
KT2	2.304
KT3	2.127
KT4	2.334
KT5	2.238
KT6	1.801
MOT1	1.840

MOT2	2.053
MOT3	2.020
MOT5	1.057
REC1	1.926
REC2	2.168
REC3	2.241
REC4	1.893
SE1	2.033
SE2	1.912
SE3	2.370
SE4	2.121
SE5	2.211
ST1	1.770
ST2	1.852
ST3	2.067
ST4	1.846

One often used technique for identifying multicollinearity is to compute the Variance Inflation Factor (VIF). When the VIF values exceed 10, it indicates the presence of severe

multicollinearity (Burns and Burns, 2008). This suggests that the predictor variables are supplying duplicate information, as stated by O'Brien (2007). Examining and regulating VIF values is a method used to address multicollinearity, which helps to assure the reliability and validity of the findings obtained from the model (Hair et al., 2019). According to Hair et al. (2014), the threshold value is 5.0. According to the results conducted on this study all the values are lower than 5.0, which is the indication of the absence of multicollinearity issues in this study. Table 4.5 above shows the multicollinearity values.

4.4 Structural Model Assessment

The structural model evaluation examines construct causality. Structural model analysis shows research variables' linkages (Ibrahim et al., 2021). The bootstrapping method (5,000 subsamples, one-tailed significance) was used to assess the direct impact variables' statistical significance, and the two-tail test assessed the model's mediators. The path coefficient, T statistics, and p values are used to determine the significance of the relationships between the research variables. It is stated that p-value below 0.05 is considered acceptable to demonstrate the significance of proposed relationships between two given variables (Respati et al., 2021). According to Marliyah et al. (2022) and Hair et al. (2014), value of T-statistics above 1.645 for one tail test and above 1.96 for two tailed test is considered as acceptable to demonstrate a positive and significant relationship between two variables. Furthermore, according to Unegbu et al. (2022), path co-efficient values (β) ranging 0.05 to 0.2 are regarded as acceptable to reveal the significant and positive relationship between the proposed relationship.

4.4.1 Results of structural model analysis of direct effect variables

The results of structural model analysis of direct effect variables shows that the relation between motivation and knowledge sharing have a significant and positive result (p-value = 0.048, t-value = 1.665, β= 0.086), Self-efficacy and KS have a positive and significant relationship (p-value = 0.000, t-value = 4.674, β= 0.234), IPT and KS sharing the positive and significant relationship, (p-value = 0.000, t-value =, 5.029, β= 0.244), the relation between reciprocity and KS is also significant (p-value = 0.032, t-value =, 1.858, β= 0.187), the relation between social ties and KS is also significant and positive(p-value = 0.011, t-value =2.277, β= 0.186), the relation

between knowledge technology and KS also significant and positive(p-value = 0.000, t-value = 6.134, β= 0.299), the relation between knowledge sharing and employee performance shows the positive and significant results (p-value = 0.000, t-value = 7.136, β= 0.400). So, the direct effect hypotheses from H1 to H7 all show positive and significant results and are supported.

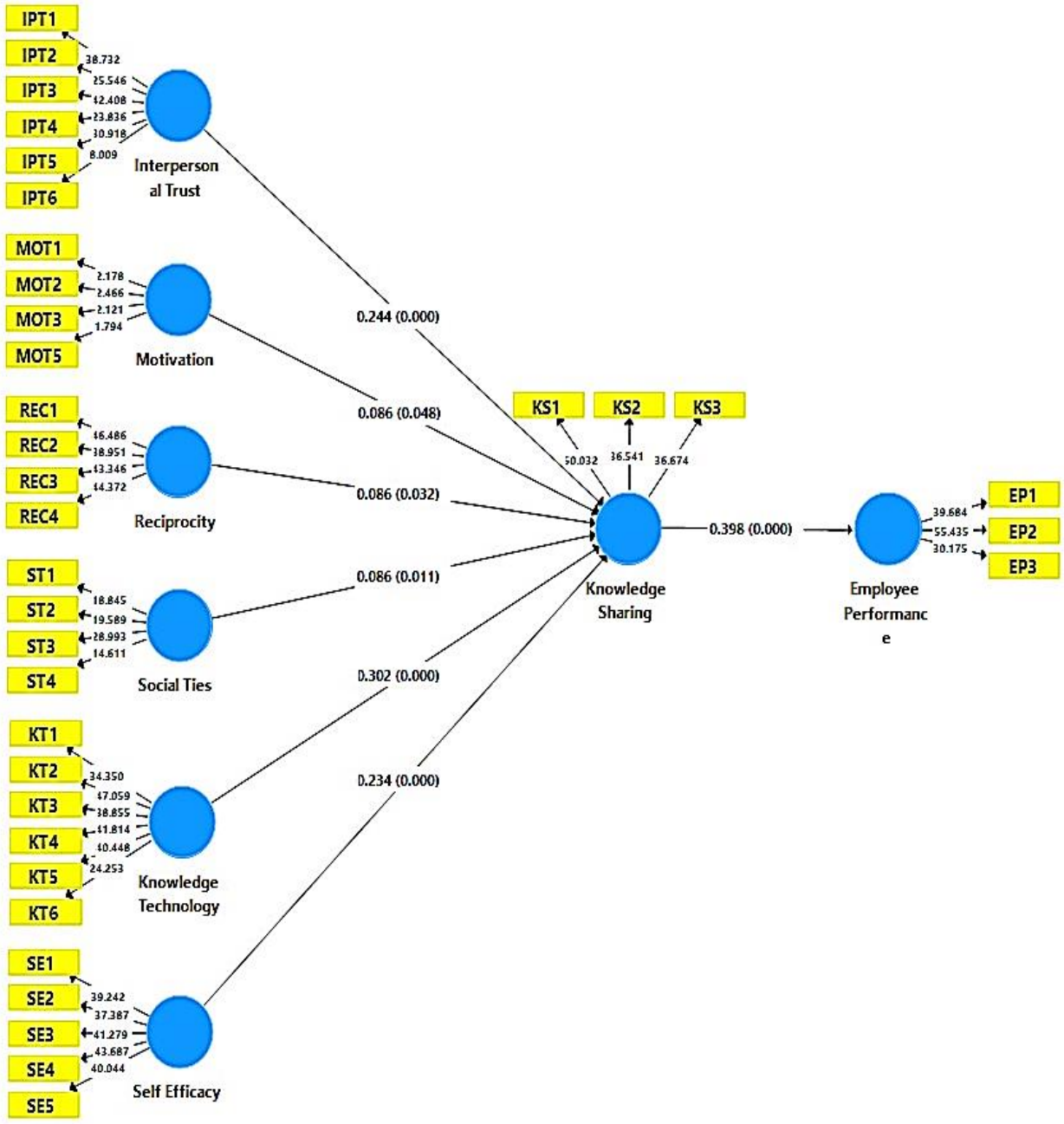

Figure 4.2: Structural Model Assessment: T-values, P-values and Path Co-efficient of Direct Effect Variables

4.4.2 Results of Mediation of Knowledge Sharing

All hypotheses (H8a to H8f) suggest that Knowledge Sharing acts as a mediator between the independent variables and Employee Performance. The statistical analysis shows that each hypothesis has a p-value of less than 0.05, indicating a significant association. These findings indicate that improving the practices of sharing knowledge within an organization might potentially enhance employee performance through a range of contributing variables.

The analysis of the mediating effect investigates the effects of the independent variables (IPT, KT, MOT, REC, SE, ST) on the dependent variable (EP) through the mediator variable (KS). The data clearly demonstrate substantial mediation in all hypothesized connections. The analysis for H8a provides evidence supporting the indirect impact of IPT on EP through KS. This is shown by a path coefficient of 0.097, a standard deviation of 0.015, a t-value of 6.292, and a p-value of 0.001. This suggests that the impact of IPT on EP is greatly influenced by KS. Similarly, hypothesis H8b demonstrates that the variable KT has a substantial indirect impact on the variable EP through the mediator KS. The path coefficient is measured at 0.12, with a standard error of 0.021. The t-value is 5.858, and the p-value is 0.002. Regarding H8c, the influence of MOT is significant.

MOT also affects EP through KS in H8c, as shown by a path coefficient of 0.034, a standard deviation of 0.005, a t-value of 6.472, and a p-value of 0.001. REC affects EP through KS significantly for H8d, with a path coefficient of 0.034, standard deviation of 0.012, t-value of 2.965, and p-value of 0.031.

SE has a substantial effect on EP, which is impacted by KS, with a path coefficient of 0.093, a standard error of 0.021, a t-value of 4.488, and a p-value of 0.006. Finally, the H8f hypothesis reveals that ST significantly affects EP through KS, with a path coefficient of 0.034, standard deviation of 0.011, t-value of 3.173, and p-value of 0.025.

The results show that the mediator variable KS is crucial in the relationships between the independent variables (IPT, KT, MOT, REC, SE, ST) and EP. KS is critical to these processes, since each hypothesis (H8a–H8f) shows significant mediation.

4.4.4 Results of Moderation of Clan Culture

The moderating hypotheses of clan culture range from H9a to H9f. According to the results Clan Culture moderates the relation between motivation and knowledge sharing (p-value = 0.047, t-value = 1.680, β= 0.080), self-efficacy and knowledge sharing (p-value = 0.021, t-value = 2.033, β= 0.103), and Interpersonal Trust and Knowledge Sharing (p-value = 0.003, t-value = 2.760, β= 0.123). Hypotheses H9a to H9c are accepted whiles hypotheses H9d to H9f are not accepted.

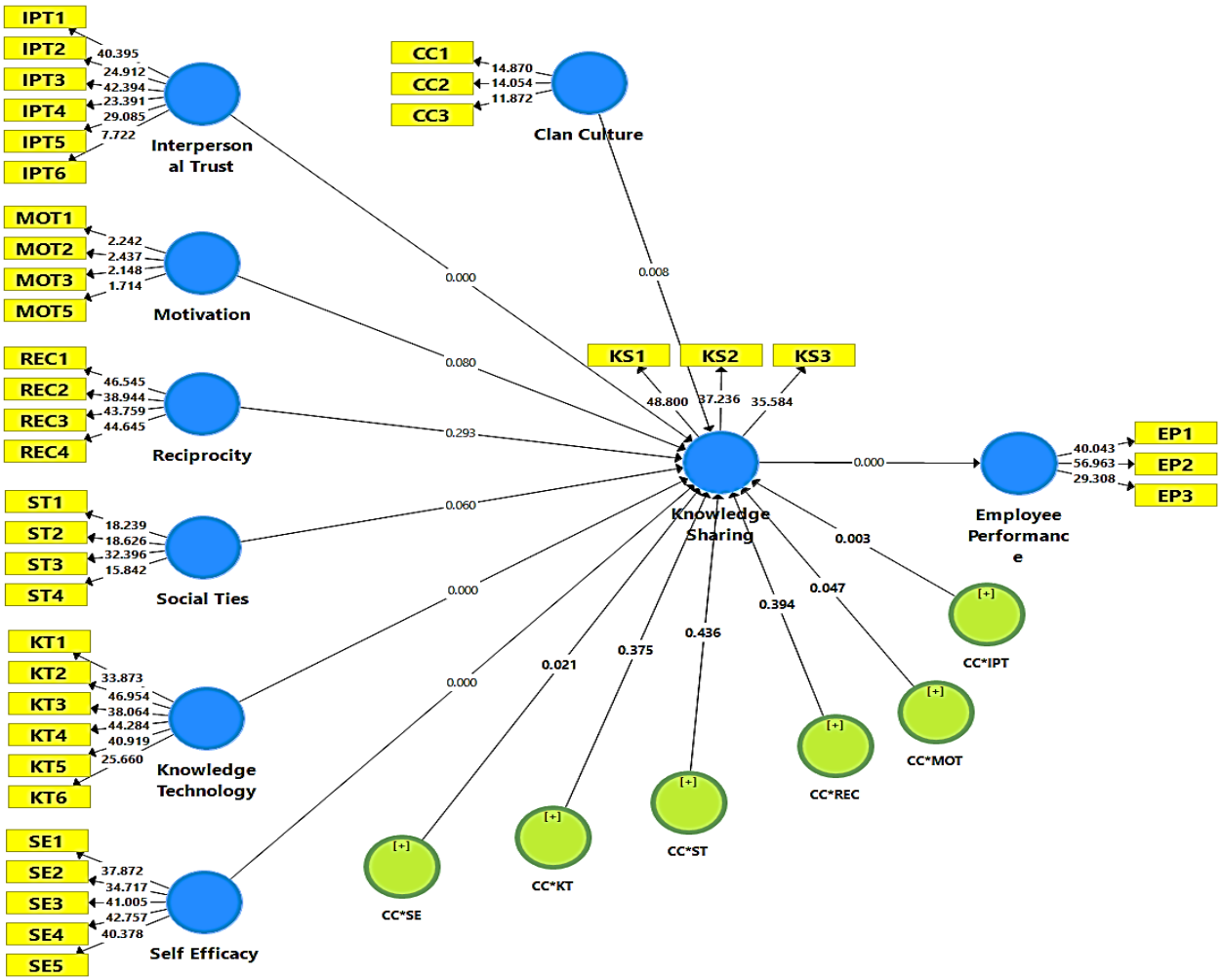

Figure 4.3: Moderation of Clan Culture

Clan culture is not moderating the relation between reciprocity and knowledge sharing (p-value = 0.394, t-value = 0.268, β= -0.013). Clan culture also does not moderate the relation between social ties and knowledge sharing (p-value = 0.436, t-value = 0.162, β= 0.007).

Clan culture does not moderate the relation between knowledge technology and knowledge sharing according to the results (p-value = 0.735, t-value = 0.320, β= -0.018). The results of moderation of clan culture are shown in Figure 4.3.

4.4.5 Results of Moderation of Knowledge – Oriented Leadership

The moderating hypotheses of knowledge-oriented leadership (KOL) range from H10a to H10f. According to the results KOL moderates the relation between motivation and knowledge sharing (p-value = 0.047, t-value = 1.680, β= 0.080), Interpersonal Trust and knowledge sharing (p-value = 0.003, t-value =, 2.76 2, β= 0.123), and Self-Efficacy and Knowledge Sharing (p-value = 0.021, t-value =2.033, β= 0.103).

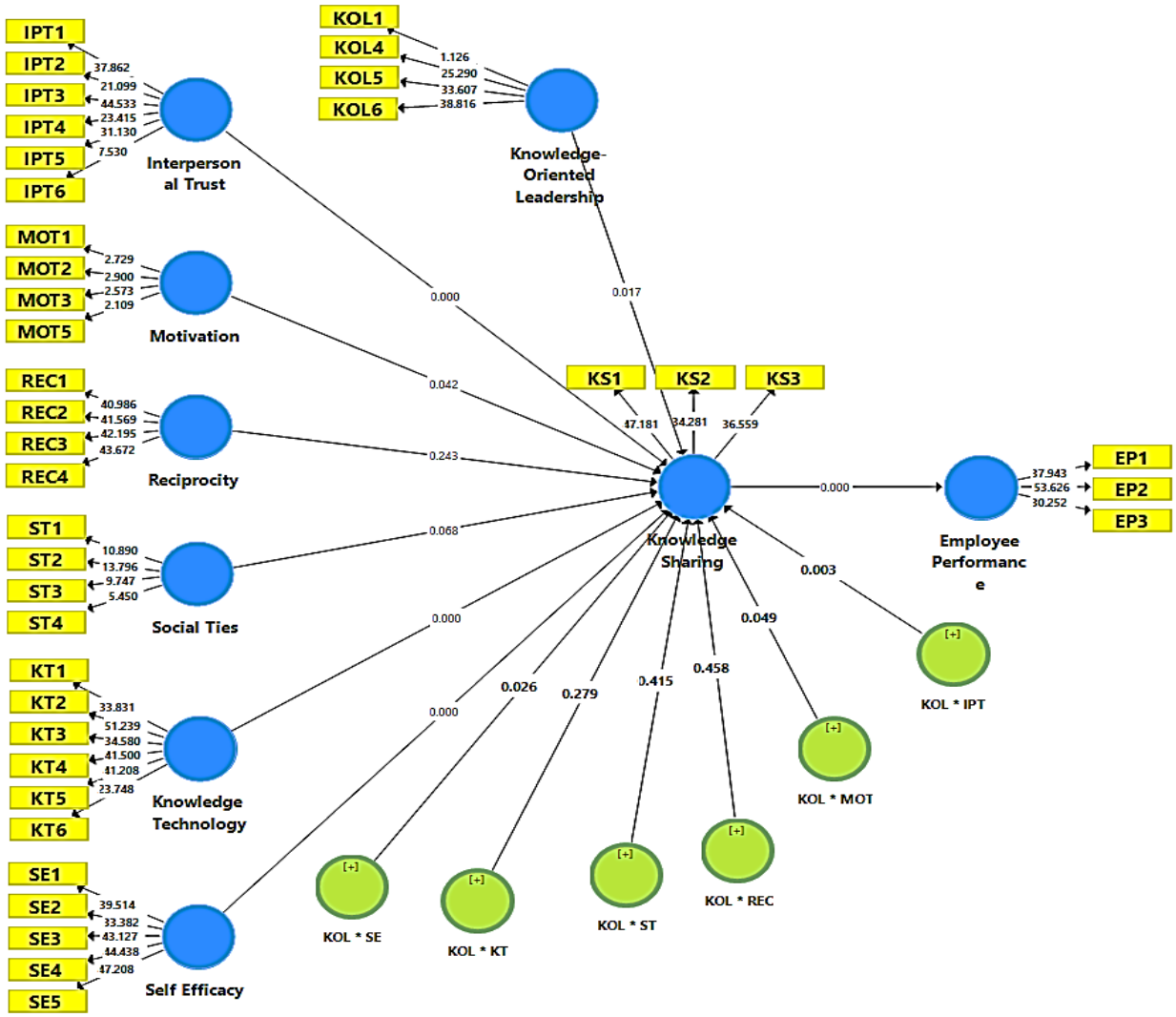

Figure 4.4: Moderation of Knowledge-Oriented Leadership

Hypotheses H10a to H10c are accepted while hypotheses H10d to H10f are not accepted. Knowledge oriented leadership does not moderate the relation between reciprocity and knowledge sharing (p-value = 0.394, t-value = 0.268, β= -0.013). Knowledge oriented leadership also does not moderate the relation between social ties and knowledge sharing (p-value = 0.436, t-value = 0.162, β= 0.007). The relation between knowledge technology and knowledge sharing also does not moderate by knowledge-oriented leadership (p-value = 0.375, t-value = 0.162, β= -0.018). Figure 4.4 shows the results of moderation of knowledge-oriented leadership.

Table 4.6: Structural Model Assessment: Hypotheses Result

	Hypotheses	**Beta**	**STDEV**	**T-Values**	**P-Values**	**Results**
	Direct Effect					
H1	MOT -> KS	0.186	0.05	1.665	0.048	Supported
H2	SE -> KS	0.234	0.050	4.674	0.000	Supported
H3	IPT -> KS	0.244	0.049	5.029	0.000	Supported
H4	REC -> KS	0.187	0.046	1.858	0.032	Supported
H5	ST -> KS	0.186	0.038	2.277	0.011	Supported
H6	KT -> KS	0.299	0.049	6.134	0.000	Supported
H7	KS -> EP	0.400	0.056	7.136	0.000	Supported
	Mediating effect					
H8a	IPT -> KS -> EP	0.097	0.015	6.292	0.001	Supported
H8b	KT -> KS -> EP	0.12	0.021	5.858	0.002	Supported
H8c	MOT -> KS -> EP	0.034	0.005	6.472	0.001	Supported
H8d	REC -> KS -> EP	0.034	0.012	2.965	0.031	Supported
H8e	SE -> KS -> EP	0.093	0.021	4.488	0.006	Supported
H8f	ST -> KS -> EP	0.034	0.011	3.173	0.025	Supported

	Moderating effect of Clan Culture					
H9a	MOT * CC -> KS	0.080	0.048	1.680	0.047	Supported
H9b	SE * CC -> KS	0.103	0.051	2.033	0.021	Supported
H9c	IPT * CC -> KS	0.123	0.044	2.760	0.003	Supported
H9d	REC * CC -> KS	-0.013	0.049	0.268	0.394	Not-Supported
H9e	ST * CC -> KS	0.007	0.042	0.162	0.436	Not-Supported
H9f	KT * CC -> KS	-0.018	0.055	0.320	0.375	Not-Supported
	Moderating Effect of Knowledge Oriented Leadership					
H10a	MOT * KOL -> KS	0.080	0.048	1.68	0.047	Supported
H10b	SE * KOL -> KS	0.103	0.051	2.033	0.021	Supported
H10c	IPT * KOL -> KS	0.123	0.044	2.76	0.003	Supported
H10d	REC * KOL -> KS	-0.013	0.049	0.268	0.394	Not-Supported
H10e	ST * KOL -> KS	0.007	0.042	0.162	0.436	Not Supported
H10f	KT * KOL -> KS	-0.018	0.055	0.32	0.375	Not-Supported

Notes: p-value should be < 0.05, t-value > 1.645 (one-tailed test), t-value > 1.96 (two-tailed test).

Table 4.6 shows the results of hypotheses and according to the hypotheses' result all the hypotheses are supported while H9d, H9e, H9f, H10d, H10e and H10f are not accepted and significant.

4.4.6 Co-efficient of Determination (R-Square)

The process of structural model assessment entails examining the causal connections between the components. The structural model was evaluated using several criteria, such as path coefficients, coefficient of determinations (R-square), and effect size (f-square) (Chin, 1998; Hair et al., 2017). R-square is a measure of the model's overall prediction accuracy (Hair et al., 2014). According to Cohen (1988), R-square values of 0.26, 0.13, and 0.02 should be categorized as considerable, moderate, and weak, respectively. Table 4.7 demonstrates the results of co-efficient of determination which shows that the values of R square of the variables have the substantial results.

The R-square change is a crucial factor in moderation analysis. Therefore, we will initially examine the R-square change derived from the main impact model. In the previous main effect model, the R-square value for the EP variable was 0.158 and for the KS variable was 0.466. In the interaction effect model, the R-square value for the EP variable remained the same, but the R-square value for the KS variable rose to 0.504.

Table 4.7: Co-efficient of Determination R-Square

Variables	R-Square without CC & KOL Moderation	R-Square with CC Moderation	R-Square with KOL Moderation	Results
EP	0.158	0.158	0.158	Moderate
KS	0.466	0.504	0.504	Substantial

Notes: The R-square values of 0.26, 0.13, and 0.02 may be classified as substantial moderate, and weak, respectively.

Under some conditions, incorporating a moderating effect can enhance the R-squared value when the interaction term significantly enhances the model's ability to account for variability in the dependent variable. This indicates that the moderating impact enhances the model's ability to make predictions beyond what can be accounted for by the primary components alone (Ramayah

et al., 2018). Same happened with the moderation of knowledge-oriented leadership R-square value of knowledge sharing changed from 0.466 to 0.504. The moderator's influence is seen by the change in R-square. A considerable rise in R-square with the interaction term suggests a significant moderating effect. So, this proves the moderation of Knowledge Oriented Leadership and Clan Culture in this model.

4.4.7 Effect Size (F-Square)

Effect size quantifies a phenomenon's magnitude. It standardizes statistical analysis by determining the strength or practical relevance of variable relationships regardless of sample size. Interpreting effect magnitude is essential for comprehending the practical importance of study results. Although small p-values can signal statistical importance, they may not necessarily represent the practical significance of the results (Cohen, 1988). Cohen (1988) highlights the significance of effect sizes as they offer a standardized estimate of the extent of an impact. This is crucial for assessing the practical significance of research findings. In addition, Fritz, Morris, and Richler (2012) explain that effect sizes provide valuable information on the magnitude of relationships and the practical significance of variables, which complements the information provided by p-values.

A structural model evaluation tests causal links between constructs. Path coefficients, R-square, and f-square were used to analyze the structural model (Chin, 1998; Hair et al., 2017). Effect size (f-square) refers to "the change in the R-square when a specified exogenous construct was omitted from the model which could be used to evaluate whether the omitted construct had a substantive impact on the endogenous variable" (Hair et al., 2014, p. 177). Cohen (1988) recommends f-square values of A value of 0.02 or greater is considered little, a value of 0.15 or greater is considered medium, and a value of 0.35 or greater is considered big effect sizes, respectively.

The analysis findings indicate that there are diverse effect sizes among various constructs. The association between EP and KS is very significant, with an effect size of 0.188, which indicates a medium effect. This suggests that EP has a major impact on KS. Similarly, the impact of KT and SE on KS is quite moderate, with size effect values of 0.096 and 0.079, respectively. This suggests

that both KT and SE contribute moderately to the variation observed in KS. The components IPT and KS have a weak to moderate effect size of 0.076, indicating a subtle but discernible association. On the other hand, the associations between KOL, REC, and ST with KS have very weak effect sizes (0.000, 0.007, and 0.012, respectively), suggesting that they have limited or no practical impact on KS. The associations between MOT and KS, as well as between ST and KS, exhibit effect sizes of 0.012, indicating a little impact. Overall, certain constructs have a moderate impact on KS, while others have very little or no effect. This emphasizes the need to take into account both the degree of the effect size and the statistical significance when evaluating these associations.

Table 4.8 Effect Size (F-Square)

	CC	EP	IPT	KOL	KS	KT	MOT	REC	SE	ST	Effect Size Results
CC					0.000						No Effect
EP					-						-
IPT					0.076						Weak to Moderate
KOL					0.000						No Effect
KS		0.188			-						Moderate
KT					0.096						Weak to Moderate
MOT					0.012						Weak
REC					0.007						Negligible
SE					0.079						Weak to Moderate
ST					0.012						Weak

Notes: F-square values (>=0.02 is small; >= 0.15 is medium;>= 0.35 is large)

4.5 Summary of Analysis and Results

This chapter provides information regarding the results and analysis procedures for this research. It started with the analysis of the demographic profile of the respondents and descriptive statistics of the variables, retrieved primarily via SPSS software. Then the measurement model assessment and structural model assessment is done with Smart PLS-SEM Software. The measurement model has been conducted using the PLS algorithm, and constitutes tests for the internal consistency reliability, convergent validity, discriminant validity for the constructs and

items of the study. Multicollinearity test was also conducted, after that structural model assessment was also conducted by utilizing the bootstrapping technique. The significance of the proposed hypotheses was determined through this assessment. The results of the hypotheses show that all the direct effect hypotheses (H1 to H7) are accepted. The mediation hypotheses (H8a-H8f) are also accepted. Clan culture moderating hypotheses (H9a, H9b, and H9c) are accepted while (H9d, H9e and H9f) are not accepted. Knowledge-oriented leadership moderating hypotheses' results show that the hypotheses (H10a, H10b and H10c) are accepted while (H10d, H10e, and H10f) are not accepted. After that the coefficient of determination (R-square) and effect size (F-Square) analysis are also conducted.

CHAPTER 5

DISCUSSION

5.1 Introduction

This chapter provides an in-depth explanation of the research findings. All the research hypotheses are discussed separately meanwhile linking achieved results with the previous literature in this domain. And also linking the findings and results with the theory

5.2 Discussion of Findings

This study looks at the influence of knowledge sharing antecedents and results on Pakistani Small and Medium Sized Enterprises (SMEs). These SMEs are mostly IT SMEs from Pakistan, with an emphasis on investigating the impact of personal variables (motivation, self-efficacy), interpersonal factors (interpersonal trust, social bonds, and reciprocity), and other factors (knowledge technology) on knowledge sharing. This study also looks at the moderating function of clan culture and knowledge-oriented leadership in relation to the antecedents of knowledge sharing and knowledge sharing, as well as their subsequent effect on employee performance.

These all-variables experiments were conducted in light of the Knowledge-Based View Theory. According to the knowledge-based view theory, knowledge is a resource that can improve employees' creativity and innovation capabilities, or employee performance, and as employee performance improves, so does organizational performance (Grant, 1996; Seleim and Khalil, 2007; Sahibzada and Mumtaz, 2023). This study provides a complete understanding of the elements that drive knowledge sharing and its implications for organizational performance, as well as valuable insights for academics and practitioners working with Pakistani IT SMEs.

The findings of this study indicates that the personal factors (motivation and self-efficacy) have a positive and significant effect on the knowledge sharing as H1 and H2 are supported, and these findings are also in line with the findings of the previous research (Fauzi et al., 2021; Helm et al., 2020; Eze et al.,2013; Ali et al., 2019; Jawadi et al., 2012; Nguyen et al., 2019). The

motivation to share the knowledge is necessary to enhance the performance of the employees, because when the employees share knowledge with one another the new ideas are born and leads to innovation (Ali et al., 2019) and according to the KBV theory knowledge is the resource (Sahibzada and Mumtaz, 2023) through organizations can get competitive advantage. Self-efficacy (SE) has been defined as people's belief in their ability to achieve a goal that would benefit others and research shows that SE plays an important role in promoting knowledge sharing within organizations (Chen and Hung, 2010). So, these findings can help the organization to improve their performance by sharing knowledge and can also get competitive advantage.

The other findings of this study indicate that interpersonal factors (interpersonal trust, reciprocity, and social ties) have a positive and significant effect on knowledge sharing. Hypotheses H3, H4, H5 were supported which shows the significant and positive relationship between these variables. These findings also having the previous support where these findings were supported (Li et al., 2022; Baima et al., 2022; Nguyen et al., 2022; Lin et al., 2023). According to Cyril Eze et al. (2013), firms must foster adequate trust and openness to encourage knowledge sharing, as well as have a clear organizational vision and goals. Employees that are more confident in the organization are more inclined to share their knowledge (Chan and Chow, 2008).

According to research (Chang and Chuang, 2011; Lin, 2007), this reciprocity is a potent inducer of information sharing. Mutual knowledge-sharing relationships encourage knowledge-sharing behavior, and people may be more inclined to share their important information as a result (Lin, 2007). Uzzi and Lancaster (2003) claimed that embedded relationships and private information transmission have a substantial positive association. So, it is proved that along with the personal factors, interpersonal factors are also very necessary to share knowledge and through knowledge organizations can get competitive advantage (Sahibzada and Mumtaz, 2023).

Another finding of this study indicates that knowledge technology has a positive and significant effect on the knowledge sharing (H6). This relationship is also proved in previous research (Eze et al.,2013; Yepes & Lopez, 2023). The fast growth of knowledge technology offers individuals new ways to share knowledge in organizations while offering specialized goods and

services (Ahmed et al., 2019; Tseng and Huang, 2011). The way information is produced, disseminated, and shared across a range of contexts is changing because of the emergence of social media platforms like “Facebook, LinkedIn, and Instagram” as well as electronic medias like “weblogs, Zoom, Microsoft Teams, and Skype” (Ahmed et al., 2019). So, the organizations can share the knowledge by proper using the knowledge technology sources in the organization and it is also need of today’s fast paced era. IT SMEs operate in a variety of industries, including software development, IT services, e-commerce, and digital marketing, boosting both domestic economic activity and international competitiveness. Despite the potential growth trajectory, IT SMEs in Pakistan still face significant barriers to access capital, trained human resources, infrastructure, and regulatory framework (Khan et al., 2019). In addition, the rapidly changing nature of the IT industry requires continuous learning, innovation and knowledge sharing to remain competitive in the global marketplace. So, to survive in this technological era the employees should have a knowledge to generate new innovative ideas to get competitive advantage.

The other finding of this study is that knowledge sharing has a positive and significant effect on employee performance (H7). These findings are also in line with the results of previous research (Rohim and Budhiasa, 2019; Kuzu and Ozilhan, 2013). Din and Haron, (2012) describe, in order to learn, solve problems, and develop oneself, it is essential for people to share their knowledge with others. Knowledge sharing in the workplace is dependent on both technical and behavioral factors. Businesses must provide welcoming settings and incentive/reward programs to motivate participants to share their expertise actively and positively. Knowledge is more valuable than data and information since it is situated closer to the activity (as opposed to the latter), which boosts worker productivity (Diamantidis & Chatzoglou, 2019).

The result of this study indicates that knowledge sharing mediates the relation among all the variables Most of the studies are in favor of mediating relation of them (Fauzi et al., 2021; Helm et al., 2020; Eze et al., 2013; Jawadi et al., 2012; Nguyen et al., 2019). This relation was not study before in IT SMEs of Pakistan so, on changing the context of the study the results can also be changed. From the results we can indicate that personal factors only have a direct effect on knowledge sharing and also supporting the indirect effects. So, these results will also help the other researchers while conducting the research on Knowledge Sharing.

The results indicate that clan culture acting as a moderator between the relationship of motivation and knowledge sharing, H9a, reciprocity and knowledge sharing, H9b, and interpersonal trust and knowledge sharing H9c. But not acting as a moderator between reciprocity and knowledge sharing H9d, social ties and knowledge sharing H9e, and knowledge technology and knowledge sharing H9f. The moderating results of clan culture were not studied before among these relationships, clan culture was acting as a moderator in previous studies (Rohim and Budhiasa, 2019; Lee et al 2022) but not among these variables relationships. Clan culture is defined as a culture of mutual help and coherence (Cameron and Quinn, 2022). Strong team solidarity and support, internal communication, a sense of collaboration, and employee appreciation are all examples of this (Naranjo-Valencia et al., 2017). Companies that wish to foster a knowledge-sharing culture must encourage and inspire their staff to collaborate in order to generate new information within the organization. Durmusoglu et al. (2014) define "organizational clan culture as the process through which new knowledge is developed, distributed, and legitimized inside the organization". The table of the studied where clan culture is used as a moderator is present in Appendix. So, these moderating results of clan culture in the context of IT SMEs of Pakistan are novel and these results will also help the practitioners and researchers.

The other moderator used in this study was knowledge-oriented leadership which is also used to fill the previous gaps in the research so the results of the moderating relationship of knowledge-oriented leadership are also novel. The results indicate that knowledge-oriented leadership is acting as a moderator among motivation and knowledge sharing H10a, Interpersonal trust and knowledge sharing H10c, and self-efficacy and Knowledge sharing H10b. By analyzing the moderating influence of knowledge-oriented leadership, which has already been investigated as the precursor to knowledge sharing (Shariq et al., 2019), this study has made a contribution. Le & Nguyen (2023) note that there is a dearth of literature on knowledge-oriented leadership and recommend that future studies examine its impact on knowledge sharing. So, these moderating results of knowledge-oriented leadership in the context of IT SMEs of Pakistan are novel and these results will also help the practitioners and researchers.

5.3 Summary of Discussion

This chapter provide the detail information on the findings and results of this study which concluded that all the antecedents are positively impact on the knowledge sharing and also supported by the previous literature and knowledge sharing have the positive impact on the employee performance. Knowledge sharing also mediates the relation between all antecedents and the employee performance and clan culture and knowledge-oriented leadership moderates the relation between motivation, self-efficacy and interpersonal trust. These all hypotheses are also supported by previous literature separately in this chapter.

CHAPTER 6

CONCLUSIONS

6.1 Introduction

This chapter concluded the whole thesis. This chapter includes theoretical and practical implications, limitations of this research, future directions for this research and finally the conclusion section which provides the complete overview of the thesis.

6.2 Theoretical Implications

This study builds on the current theoretical framework of knowledge sharing by including factors such as interpersonal trust, self-efficacy, social ties, reciprocity, motivation, and knowledge technology. By investigating the connections between these indicators and knowledge sharing, the study adds to a better understanding of the variables influencing knowledge sharing behaviors among employees in IT SMEs. According to Khan and Nazir (2022), SMEs in Pakistan are developing nowadays, and IT SMEs may get a competitive advantage by employing technology efficiently, and by sharing information, SMEs can improve employee performance and gain a competitive advantage (Wu et al., 2023)

The proposed conceptual model is explained using knowledge-based view theory in this work. By employing this theoretical framework, the research adds to the progress of knowledge management theory and gives a thorough understanding of how knowledge sharing affects employee performance. By putting forth elements based on an in-depth analysis of knowledge sharing literature, the suggested conceptual model expands the theoretical underpinnings of knowledge sharing. The study contributes to the body of information regarding knowledge management and worker performance. This research's proposed model is novel to investigate. This model has never been explored in previous research. The moderators, clan culture and knowledge-oriented leadership are also new to study among these variables. There is lack of studies present on SMEs of Pakistan, especially the IT SMEs of Pakistan.

This study adds motivation, self-efficacy, interpersonal trust, reciprocity, social ties, and knowledge technology to the Knowledge-Based View (KBV). This examination of the influence of these factors on knowledge sharing behaviors in Pakistani SMEs provides new insights and empirical evidence that can improve and widen the KBV theory (Grant, 1996).

Most of the existing research on knowledge sharing focusses on large enterprises or settings in Western nations. This research contributes to the advancement of theoretical knowledge by investigating the expression of sharing of knowledge behaviors in small and medium-sized firms (SMEs) in a developing country like Pakistan. The process of contextualization has the potential to lead to the development of more advanced and pertinent theories that account for cultural, economic, and organizational differences (Hofstede, 2001; House et al., 2004).

This research blends organizational culture and leadership theories with the Knowledge-Based View (KBV) theory by using clan culture and knowledge-oriented leadership as moderators in the relationship between antecedents and knowledge sharing. This integration facilitates the comprehension of the conditional impacts of these moderators on knowledge sharing behaviors, providing a more complete perspective on the variables that promote or hinder knowledge sharing in small and medium-sized enterprises (Cameron & Quinn, 2011; Northouse, 2021).

The research offers actual proof of the correlation between information sharing and employee performance. The study enhances theories of organizational behavior and performance management by quantifying the link between knowledge sharing and employee productivity and organizational effectiveness. This demonstrates that knowledge sharing plays a crucial role in driving employee productivity and organizational efficiency, as supported by Organ et al. (2006) and Podsakoff et al. (2018).

The study examines how antecedents impact knowledge sharing and employee performance to discover mediating and moderating variables. Trust or technology as mediators between motivation and knowledge sharing might illuminate knowledge transfer dynamics (Baron & Kenny, 1986).

6.3 Practical Implications

The outcomes of this thesis offer a variety of managerial implications for Pakistani IT SMEs. Managers should prioritize trust, self-efficacy, social connections, reciprocity, encouraging employees, utilizing knowledge-sharing tools, and acknowledging the importance of clan culture and knowledge-based leadership. Managers may increase information sharing among employees by creating a supportive environment, providing training and tools, fostering collaboration, recognizing contributions, and using suitable technology. Consequently, employees' performance and organizational success will improve.

Understanding the link between information sharing and employee performance may help organizations design interventions and activities to boost overall performance. Managers may encourage employee growth and productivity by supporting knowledge sharing behaviors and cultivating a supportive organizational culture.

The study focuses on the possible moderators of clan culture and knowledge-based leadership. Organizations may utilize these lessons to improve their leadership practices and build a culture of information sharing. This might include providing leaders with training and assistance to help them develop knowledge-based leadership skills, as well as creating a collaborative and supportive workplace atmosphere. This research findings can inform human resource management practices within IT SMEs by highlighting the importance of individual-level factors such as motivation, self-efficacy, and interpersonal trust in driving knowledge sharing behaviors. Practical implications for recruitment, training, and performance management can enable SMEs to identify, develop, and retain employees who are inclined to engage in knowledge sharing activities, thereby maximizing the benefits of knowledge sharing for organizational success. By focusing on the moderating influence of knowledge-oriented leadership, can provide practical insights into the leadership behaviors and practices that build a culture of information sharing. Recommendations for building knowledge-oriented leadership abilities and behaviors can enable leaders in IT SMEs to successfully promote and encourage information sharing activities, hence promoting organizational innovation and competitiveness. Understanding the role of clan culture as a moderator may help organizations foster a collaborative and supportive work atmosphere that

encourages knowledge sharing. Practical advice for cultivating a clan culture, such as encouraging cooperation, trust, and open communication, can assist SMEs in strengthening social relationships among employees and instill a sense of belonging, hence improving information sharing behaviors and overall organizational performance.

By promoting knowledge sharing and collaboration among employees, this research can contribute to fostering a culture of continuous learning and innovation within IT SMEs. Practical recommendations for leveraging knowledge sharing platforms, communities of practice, and cross-functional collaboration can enable SMEs to harness the collective expertise and creativity of their workforce, leading to enhanced innovation capabilities and sustainable growth and in this way, they can get competitive advantage.

Motivating employees is crucial since it affects knowledge sharing. SMEs should implement recognition programs, performance-based incentives, and a supportive environment that encourages information exchange (Deci & Ryan, 2000). Self-efficacy is important because targeted training and development, mentorship, and frequent feedback may boost employees' confidence (Bandura, 1997).

Trusting each other in the workplace is also important. Trust may be built via openness, open communication, and teamwork. Leaders and supervisors must be trustworthy and honest to foster open communication (Dirks & Ferrin, 2001). Encourage reciprocity to increase information exchange. Implementing rules and procedures that encourage reciprocal behaviours, such as collaborative projects and knowledge-sharing platforms, can help SMEs foster a culture of mutual benefit (Blau, 1964).

Improving employee connections improves knowledge transfer. Team-building activities and collaborative workspaces can help SMEs enhance communication and information sharing (Nahapiet & Ghoshal, 1998). Allocating resources to establish effective knowledge management systems and collaborative tools helps streamline information sharing and retrieval. To properly benefit from new technologies, staff must be trained and comfortable with them (Alavi & Leidner, 2001).

Creating a family clan culture in the company improves knowledge exchange. Frequent social events, open communication rules, and incorporating everyone in decision-making may foster a sense of belonging and strong organizational commitment (Cameron & Quinn, 2011). Knowledge-oriented leadership, which prioritizes knowledge management, moderates. Leaders should support and promote knowledge-sharing (Nonaka & Takeuchi, 1995). Understanding the relationship between knowledge sharing and employee performance allows SMEs to build treatments that use knowledge sharing to increase performance. Standard performance metrics can assess these changes (Davenport & Prusak, 1998).

6.4 Limitations and Future Directions

This research focuses on the emerging cand very important concepts, which are receiving attention at the current point, but this research was not without its limitations.

First of all, in this research the antecedents were used (motivation, self-efficacy, interpersonal trust, reciprocity, social ties and knowledge technology), on the basis of the SLR conducted on the knowledge sharing from the year 2011 to 2023. The future researchers can expand the time period of the SLR like they can conduct SLR of more than 12 years because this study was limited to the 12 years studies on the knowledge sharing, and they might get the different antecedents with higher frequencies, and they can use those antecedents in their model.

In this research, knowledge sharing acts as a mediator among the antecedents of knowledge sharing and employee performance. The future researchers can use other mediators regarding knowledge sharing.

In this research employee performance was used as an outcome in future studies, this whole model study can also be done on the organizational level with the outcome of organization performance. Knowledge based view theory is used in this research to explain the whole model, other theories that can explain the whole model can also be used in future research.

Clan culture and knowledge-oriented leadership are used as moderators in this study. In future they can also be used as the antecedents of knowledge sharing. And other moderators can be used regardless of clan culture and knowledge-oriented leadership.

This research was conduct in the context of IT SMEs of Pakistan. Future studies can be conducted in the different context. This study was cross-sectional, the future research can be longitudinal. The data gathered from the employee level whether they were on executive, managerial and non-managerial level in future specific or one of the levels can be used to collect data. Non-probability convenience sampling technique was used to collect data. Future researchers can gather data by using different techniques or also the combination of techniques.

6.5 Conclusion

The aim of this study is to study the impact of different antecedents of knowledge sharing, and knowledge sharing impact on the employee performance in the IT SMEs of Pakistan. The theoretical model used in this research was developed through the systematic literature review done by using the keyword “antecedents of knowledge sharing” on Scopus database. The moderators, clan culture and knowledge-oriented leadership would also be used to enhance the relation among the antecedents of knowledge sharing and knowledge sharing, and in this way the IT SMEs of Pakistan will have some knowledge as valuable, rare, and inimitable resource to get the competitive advantage.

Knowledge based view theory is used to explain the whole model used in this research. A quantitative approach is employed to collect data. Non-probability convenience sampling technique is used to collect data from the IT professionals working in the IT SMEs of Pakistan. Because generalization of outcomes is expected, the proposed research is based on objective ontology and positivist epistemology. The study's approach will be deductive, and due to time constraints, the research design is cross-sectional. Sample size is calculated using G*power software and data will be analyzed using “SPSS” and “PLS” software. Research ethics also be followed during data collection.

The result of this research indicates that all antecedents have a positive and significant relation with the knowledge sharing and knowledge sharing also have a positive and significant effect on the employee's performance. Knowledge sharing acting as a mediator among all the relations except the mediation relation between motivation and employee performance and mediation relation between reciprocity and employee performance. This research will also have theoretical and practical contributions. Clan culture also supports the moderating relation between motivation and knowledge sharing, self-efficacy and knowledge sharing and interpersonal trust and knowledge sharing. Knowledge oriented leadership also supports the moderating relationship among motivation and knowledge sharing, interpersonal trust and knowledge sharing and social ties and knowledge sharing.

6.6 Summary of Conclusions

This chapter is about the conclusion of the whole thesis. This chapter provides information regarding the theoretical contributions of this research, practical contributions of this research, limitations and future directions of this research and at the end the whole conclusion of the thesis is explained.

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APPENDIX-A

FREQUENCY TABLE OF ANTECEDENTS OF KNOWLEDGE SHARING FROM SLR (2011-2023)

Antecedents	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**Frequency**
Psychological Empowerment									+		+			2
Motivation		+	+	+	+		+	+	+	+	+			9
Individualized Consideration											+			1
Awareness of coopetition benefits												+		1
Direct collaboration												+		1
Interpersonal Trust		+	+ , +	+	+		+	+ , +	+ , + , + , +	+ , + , +	+	+	+	18
Perceived team members' valuable contributions										+				1
Community Identification				+								+		2
Idealized influence							+	+						2
Openness to experience						+	+	+						3
Conscientiousness						+	+	+						3
Agreeableness						+	+							2
Neuroticism							+							1

Organizational Culture					+	+				+				3
Authentic Leadership									+					1
Reciprocity								+	+ , +			+ , + , +		6
Social Ties	+				+		+	+				+ , +		6
Knowledge Technology			+ , +		+				+ , +	+	+		+	8
Cultural Diversity Management										+				1
Affective Commitment				+					+					2
Knowledge Acquisition										+				1
External search												+		1
Organizational Support					+			+				+		3
Performance Appraisal								+						1
Recruitment and selection								+						1
Subjective wellbeing							+							1
Sharing Vision					+		+	+						3
Shared goals										+				1
Hope										+				1
Core self-evaluation										+				1
Subjective Happiness												+		1
Usage frequency of online reviews												+		1
Use of social media platforms													+	1
Transformational leadership					+	+		+			+	+		5
Self-efficacy			+		+			+ , + , +	+			+		7

Opportunity								+					+	2
Cultural Intelligence								+						1
Absorptive capacity								+						1
Perceived usefulness												+		1
Creative leadership							+							1
Attitude					+						+	+		3
Perceived social norms												+		1
Job autonomy				+								+		2
Knowledge oriented leadership									+					1
Ethical climate													+	1
Altruism			+					+					+	3
Extroversion								+						1
Identity								+						1
Reputation												+		1
social capital (Structural, relational and Cognitive)					+		+	+					+	4
Workplace friendship											+			1
Proactiveness market orientation											+			1
Organizational learning								+						1
Reward			+					+	+					3
Psychological safety											+			1
Tolerance											+			1
Respect to people											+			1
Suitable working environment											+			1
Ability													+	1
Commitment													+	1
Flow experience		+												1

Psychological contract					+	+								2
Personal Outcome expectations						+								1
Organization structure			+						+					2
Communication between staff			+											1
Dependence				+	+ , +									3
Homophily							+							1
Perceived behavioral control		+												1
Knowledge sharing intention		+					+		+					3
Training				+		+								2
Management support				+		+			+					3
Internal locus of control							+							1
External locus of control							+							1
Emotional Intelligence						+								1
Inflexible organization structure						+								1
organization learning culture						+								1
Corporate governance				+										1
Market orientation				+										1
Subjective norms					+									1
Empowering leadership	+		+											2
Learning orientation	+													1
Ethical leadership													+ , +	2
Well-being oriented management													+	1
Intellectual Capital													+	1

Psychological safety													+	1
High commitment HR practices												+		1
Ambidextrous Leadership													+	1

Note: Variables are highlighted green which are selected for this study.

APPENDIX-B

STUDIED ARTICLES FOR MODERATING ROLE OF CLAN CULTURE

Study/Year	Moderator (Yes/No)	Relation	Link/Doi
Impact of Organizational Culture on Individual Work Performance with National Culture of Cross-Strait Enterprises as a Moderator (2022)	No	CC → Individual work performance	https://doi.org/10.3390/su14116897
The Relationship Between Market Culture, Clan Culture, Benevolent Leadership, Work Engagement, and Job Performance: Leader's Dark Triad as a Moderator (2022)	No		https://doi.org/10.1177/00332941221121564
The Effects of Generational Involvement as Moderator Between Clan Culture and Entrepreneurship Orientation in Universitas Ciputra Family Business (2021)	No	cc → Entrepreneurial orientation	https://www.majcafe.com/wp-content/uploads/2021/09/Vol-27-S1-Paper-1.pdf
Making sense of climate: A meta-analytic extension of the competing values framework (2020)	No	cc → Job Performance	https://sci-hub.hkvisa.net/10.1177/2041386620914707
Organizational culture as moderator in the relationship between organizational reward on knowledge sharing and employee performance (2019)	Yes	Rumeneration → KS ↑ Clan culture	https://doi.org/10.1108/JMD-07-2018-0190

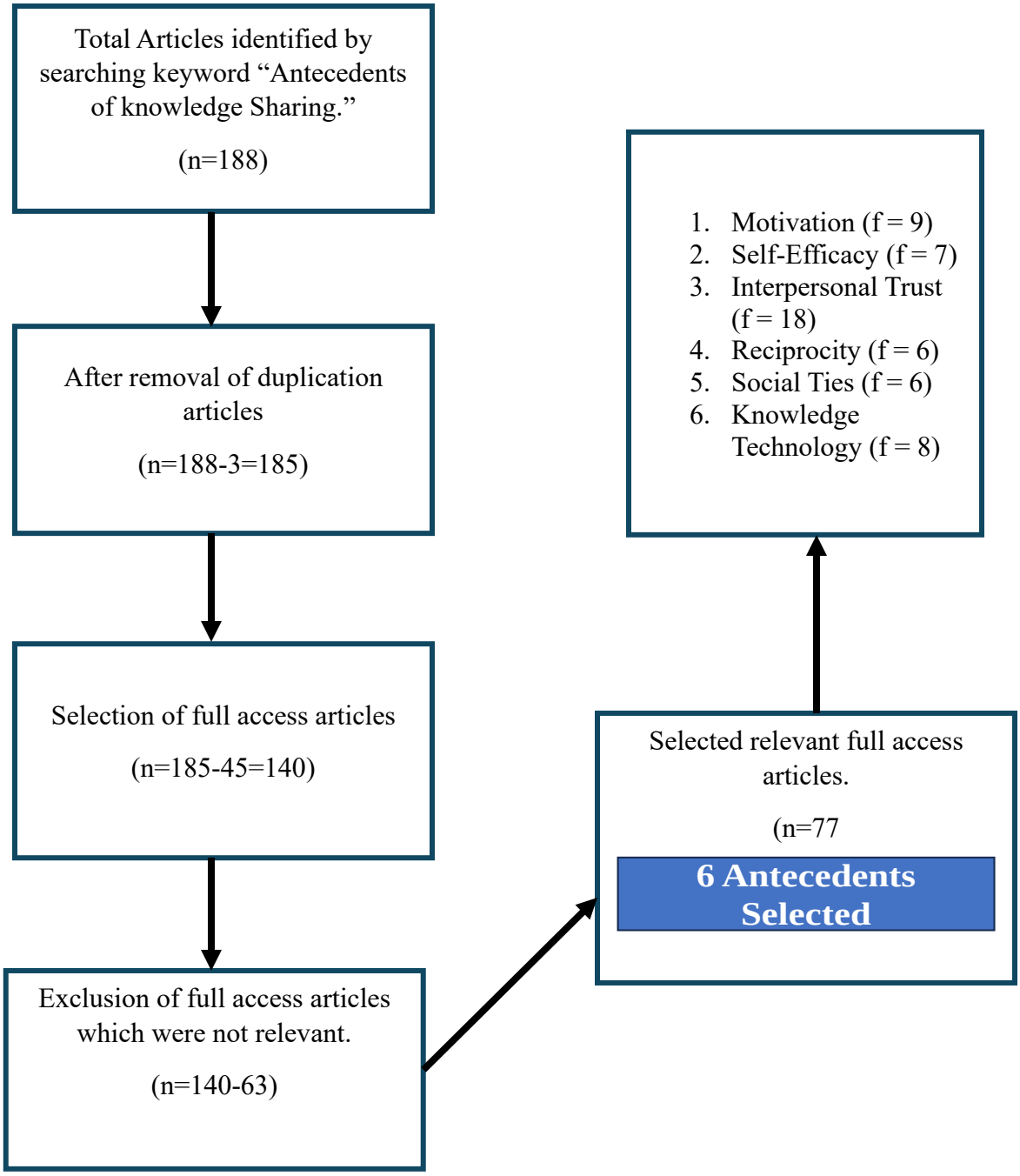
Impact of perceived organizational culture and learning on organizational identification (2014).	No	CC → Organization Identification	https://doi.org/10.1108/IJCoMA-01-2012-0003
An Exploratory Model of Interpersonal Cohesiveness in New Product Development Teams (2010)	No	CC → Interpersonal Cohesiveness	https://doi.org/10.1111/j.1540-5885.2010.00710.x
The Relationships Between Adhocracy and Clan Cultures and Tacit Oriented KM Strategy (2005)	No	CC → Tacit Oriented Knowledge management strategy	https://doi.org/10.1300/J482v10n03_04
The effect of succession on corporate governance reform under the Chinese clan culture context (2022)	Yes	Succession → Governance Reform CC → Governance Reform	https://doi.org/10.1108/CCSM-06-2021-0106
The influence of clan culture and supervisor support on Korean female managers' subjective career success: mediating role of leadership competencies (2021).	No	CC → LC → SCS LC:Leadership Competencies SCS: Subjective Career success	https://doi.org/10.1108/ICT-08-2021-0059
Competing value framework model of organizational culture and job performance? An examination of the mediating role of HPHR practices (2022)	No	CC → HPHR → JP -High performance human resource practices -Job Performance	10.1504/IJSOM.2022.123069
The influence of clan culture on business performance in Asian private-owned enterprises: The case of China (2021)	No	CC → FP CC → SP FP:Financial Performance SP:Social Performance	https://doi.org/10.1016/j.indmarman.2021.09.009

Employee happiness and corporate social responsibility: the role of organizational culture (2021)	No	CC → ICSR → EH -Internal CSR - Employee Happiness	https://doi.org/10.1108/ER-07-2020-0343
How types of organizational culture and technological capabilities contribute to organizational learning (2021)	No	CC → OL	https://doi.org/10.1108/MRR-02-2020-0090
Ethical Leadership, Organic Organizational Cultures and Corporate Social Responsibility: An Empirical Study in Social Enterprises (2018)	No	EL → CC → CSR	https://doi.org/10.1007/s10551-017-3568-5
The moderating effect of benevolence on the impact of organizational culture on employee creativity (2018)	No	CC → Employee creativity	https://doi.org/10.1016/j.jbusres.2018.05.032
The moderating role of organizational culture on the relationship between workers' attitudes towards telework and happiness. (2022)	Yes	ATT → Happiness ↑ CC ATT: Attitude towards telework CC: Clan Culture	https://doi.org/10.1108/K-02-2022-0231 Organizational Culture used as a moderator.
High-performance work systems and firm capabilities in Korea: a fit perspective with organizational culture (2018)	Yes	HPWS → OC ↑ CC OC:Organizational Capabilitues	https://doi.org/10.1111/1744-7941.12134 Organizational culture used as a moderator.
Examining the Relationship between Civil Servant Perceptions of Organizational Culture and Job Attitudes: in the Context of the New Public Management Reform in South Korea. (2017)	No	CC → JS → commit--ment -Job satisfaction	DOI 10.1007/s11115-016-0372-0
The relationship between food heritage and clan culture: is "familiness" the missing link in SMEs? (2019	No	RCIFH → Familiness ↓ Clan culture RCIFH: Rooting in food heritage	https://doi.org/10.1108/BFJ-12-2019-0952

Connections between organisational culture and financial performance in Estonian service and production companies (2020)	No	Clan → Culture Firm Performance	10.1108/BJM-01-2019-0017
The Relationship between Organizational Culture and Small-firm Performance: Entrepreneurial Orientation as Mediator (2020)	No	CC → EO → S-FM CC: Clan Culture EO: Entrepreneurial orientattion S-FM: Small Firm Performance	10.1111/emre.12383

APPENDIX-C

SYSTEMATIC LITERAURE REVIEW FLOW CHART



APPENDIX-D

RESEARCH QUESTIONNAIRE

NUST
NATIONAL UNIVERSITY
OF SCIENCES & TECHNOLOGY

ANTECEDENTS AND OUTCOMES OF KNOWLEDGE SHARING IN SMEs OF PAKISTAN

Dear Participant,

My name is Atiqa Aslam, and I am a postgraduate student at NUST Business School Islamabad. For my thesis, I'm doing research on "Antecedents and Outcomes of Knowledge Sharing in Small and Medium Enterprises (SMEs) of Pakistan". I am inviting you to participate in this research by completing the following survey.

This survey will take 10 to 12 minutes. Your responses will be kept confidential and only copies will be provided to research supervisor Dr. Asad Amjad. If you choose to participate, please respond to the survey honestly. Participation is strictly voluntary, and you may refuse anytime. The data collected will remain confidential and used solely for academic purposes.

Also note that for each completed questionnaire, we will be donating Rs.10 to Edhi Foundation to support the welfare activities.

Thank you for taking your time out in assisting me with this research. If you have any queries about this study or are interested in the results of this study, you may contact us.

Sincerely,

Atiqa Aslam
Student of MSHRM
NUST Business School, Islamabad
atiqa.mhr21nbs@student.nust.edu.pk

Supervisor
Assistant Prof. Dr. Asad Amjad
NUST Business School, Islamabad
asad.amjad@nbs.nust.edu.pk

QUESTIONNAIRE

Section 1: Demographic Information

1.	Are you working in IT based SME?	□ Yes □ No
2.	Gender	□ Male □ Female
3.	Age	□ 29 years or less □ 30-39 years □ 40-49 years □ 50 years and above
4.	Education	□ Matriculation □ Intermediate □ Bachelors □ Masters □ Ph. D or above
5.	Organization *(Please Specify)*	
6.	Designation	□ Executive □ Managerial □Non-managerial
7.	Work experience in current organization	□ Less than 2 years □ 2-5 years □ 6-10 years □ 11 years or above
8.	City of work	□ Karachi □ Rawalpindi □ Islamabad □ Lahore □ Faisalabad □ Others

Section 2: For each statement below please circle the appropriate responses:

1 = Strongly Disagree (SDA), 2 = Disagree (DA), 3 = Neutral (N), 4 = Agree (A), 5 = Strongly Agree (SA)

1.Rate the level of "Interpersonal Trust" among employees.

(Interpersonal trust is the degree of confidence and mutual reliance among employees, fostering open communication, honesty, consistency, and commitment in sharing knowledge and experiences).

	SDA (1)	**DA (2)**	**N (3)**	**A (4)**	**SA (5)**
I share my ideas, experiences, and information with my close colleagues.	1	2	3	4	5
Our work environment enhances confidence among employees to foster effective knowledge sharing.	1	2	3	4	5
I value honesty among my colleagues when it involves sharing personal work experiences.	1	2	3	4	5
Keeping promises I make to my colleagues and business associates is critical in my work engagements.	1	2	3	4	5
Employees should try to be consistent in their behavior on work related matters.	1	2	3	4	5
Truthfulness in dealing with other employees is important to me.	1	2	3	4	5

2. Rate the level of "Motivation" of employees to share knowledge.

(Motivation is the degree of internal drive that propels the willingness to share knowledge, influenced by factors such as rewards, recognition, satisfaction, and job significance).

	SDA (1)	DA (2)	N (3)	A (4)	SA (5)
Sharing knowledge may assist me in getting benefits such as promotion or rewards.	1	2	3	4	5
I like being praised by my superiors for sharing knowledge.	1	2	3	4	5
I like being appreciated by my colleagues for sharing knowledge.	1	2	3	4	5
I enjoy seeing my colleagues benefit from my knowledge sharing efforts.	1	2	3	4	5
I find sharing knowledge personally satisfying.	1	2	3	4	5
Sharing knowledge is an important part of my job.	1	2	3	4	5

3. Rate the level of "Reciprocity" among employees.

(Reciprocity is the degree to which one believes that sharing knowledge and helping others will result in receiving assistance and support in return, driven by a sense of fairness and obligation).

	SDA (1)	DA (2)	N (3)	A (4)	SA (5)
I believe that it is fair and obligatory to help others when I engage in activities because I know that other people will help me some day.	1	2	3	4	5
I believe that other people will help me when I need help if I share knowledge with others.	1	2	3	4	5
I believe that other people will answer my questions regarding specific information and knowledge in the future if I share knowledge with others.	1	2	3	4	5
I think that people will develop reciprocal beliefs on give and take based on other people's intentions and behavior.	1	2	3	4	5

4. Rate the level of "Clan Culture" of organization.

(Clan culture is the degree of substantial support from bosses and colleagues in challenging situations, harmonious relationships with management, and the level of loyalty and teamwork among its members).

	SDA (1)	DA (2)	N (3)	A (4)	SA (5)
There is adequate assistance from boss and colleagues in a difficult situation.	1	2	3	4	5
There is a cordial relationship between the individuals and management in the organization.	1	2	3	4	5
There is a loyalty and teamwork relationships between members of the organization.	1	2	3	4	5

5. Rate the level of "Knowledge Sharing" among employees.

(Knowledge sharing is the degree of actively engaging in sharing one's expertise with colleagues, participating in diverse topic discussions, and collaboratively addressing intricate issues within the organization).

	SDA (1)	DA (2)	N (3)	A (4)	SA (5)
I frequently share my knowledge with my colleagues in this organization.	1	2	3	4	5
I frequently involve myself in discussions of various topics with my colleagues in this organization.	1	2	3	4	5
I frequently spend some time discussing complex problems with my colleagues in this organization.	1	2	3	4	5

6.Rate the level of "Knowledge Technology".

(Knowledge technology is the degree of integration of technological tools and systems within an organization to enhance the sharing of knowledge, thereby improving decision-making, problem-solving, and innovation).

	SDA (1)	DA (2)	N (3)	A (4)	SA (5)
There are various knowledge technology tools to facilitate knowledge sharing in this organization.	1	2	3	4	5
The knowledge technology tools available in this organization are effective.	1	2	3	4	5
I find it easy using the knowledge technology tools in this organization.	1	2	3	4	5
Knowledge technology is used frequently to share knowledge in this organization.	1	2	3	4	5
Knowledge technology plays a significant role in promoting knowledge sharing in this organization.	1	2	3	4	5
There exist knowledge repositories (database) in this organization which facilitates knowledge sharing.	1	2	3	4	5

7.Rate the level of "Social Ties" among employees.

(Social ties are the degree of close relationships, extensive interaction, personal familiarity, and frequent communication among colleagues, fostering a strong sense of connection within the organization).

	SDA (1)	DA (2)	N (3)	A (4)	SA (5)
I maintain close social relationships with my colleagues in this organization.	1	2	3	4	5
I spend a lot of time interacting with my colleagues in this organization.	1	2	3	4	5
I know my colleagues in this organization on a personal level.	1	2	3	4	5
I have frequent communication with my colleagues in this organization.	1	2	3	4	5

8. Rate the level of “Self-efficacy” of employees in knowledge sharing.

(Self-efficacy in knowledge sharing is the degree of belief in one's capacity to proficiently contribute to problem-solving, business opportunities, process enhancement, productivity, and achieving organizational performance goals).

	SDA (1)	DA (2)	N (3)	A (4)	SA (5)
When sharing knowledge, I feel confident in my ability and knowledge to help colleagues to solve their problems.	1	2	3	4	5
When sharing knowledge, I feel confident in my ability and knowledge to create new business opportunities for my organization.	1	2	3	4	5
When sharing knowledge, I feel confident in my ability and knowledge to help my organization to improve work processes.	1	2	3	4	5
When sharing knowledge, I feel confident in my ability and knowledge to help my organization to increase productivity.	1	2	3	4	5
When sharing knowledge, I feel confident in my ability and knowledge to help my organization to achieve performance objectives and outcomes.	1	2	3	4	5

9. Rate the level of “Knowledge-oriented leadership”.

(Knowledge oriented leadership is the degree through which leaders support the learning needs of the organization to achieve organizational goals).

	SDA (1)	DA (2)	N (3)	A (4)	SA (5)
Leaders in this organization are creating an environment responsible for employee behavior and teamwork.	1	2	3	4	5
Leaders in this organization are used to assuming the role of knowledge leaders, which is mainly characterized by openness, tolerance of mistakes, and mediation for the achievement of the firm's objectives.	1	2	3	4	5
Leaders in this organization promote learning from experience, tolerating mistakes up to a certain point.	1	2	3	4	5
Leaders in this organization behave as advisers, and controls are just an assessment of the accomplishment of objectives.	1	2	3	4	5
Leaders in this organization promote the acquisition of external knowledge.	1	2	3	4	5
Leaders in this organization reward employees who share and apply their knowledge.	1	2	3	4	5

10. Rate the level of “Employee Performance”.

(Employee performance is the degree of effectively meeting assigned duties, fulfilling job description responsibilities, and accomplishing expected tasks within the organization).

	SDA (1)	**DA (2)**	**N (3)**	**A (4)**	**SA (5)**
I adequately complete assign duties.	1	2	3	4	5
I fulfill responsibilities specified in the job description.	1	2	3	4	5
I perform tasks that are expected.	1	2	3	4	5