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[Unpacking the Influence of Clan Culture on Knowledge Sharing in Small and Medium Enterprises: Antecedents and Outcomes]

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ABSTRACT

Purpose: Knowledge has emerged as one of the most valuable assets for organizations in recent times. Sharing of such knowledge promotes organizational performance. Drawing on the knowledge-based view theory, this study investigates the antecedents of Knowledge Sharing (KS) on Employee Performance among technology related SMEs, and Clan Culture is used as a moderator in the current study. **Design/ Methodology/Approach:** Data were gathered from Pakistan through snowball sampling, focusing on professionals employed in the Information Technology based SMEs. A total of 451 valid responses were analyzed using SPSS and smart PLS. **Findings:** The findings reveal a significant positive relation of all the KS antecedents (Motivation, Self-efficacy, Interpersonal Trust) with KS, and KS has a significant positive relation with Employee Performance. Additionally, Clan Culture moderates the relationship between Motivation and KS, Self-efficacy and KS and Interpersonal Trust and KS respectively. **Originality/Value:** The novelty of this study is in its comprehensive model, which integrates all the crucial KS antecedents of KS at one place, which previously remain un-tested in totality. Furthermore, the introduction of Clan Culture as a moderator adds fresh insights to the literature. Additionally, the hi-tech sector SMEs like IT based SMEs in Pakistan, are under-researched, thereby filling such gap.

Keywords: Knowledge Sharing Antecedents (Motivation, Self-efficacy, Interpersonal Trust), Knowledge Sharing, Employee Performance, Clan Culture, Hi-tech SMEs, KBV Theory.

Introduction

Effective management of knowledge is pivotal in a knowledge-based economy, garnering significant attention from scholars and practitioners alike over recent decades. Education is widely recognized as indispensable in both contemporary business and the creative industries (Manfredi Latilla et al., 2018). The proficient utilization of knowledge resources is a decisive factor for success and for economic advancement in this knowledge-driven economy. Unlike tangible assets, such as property, capital, and infrastructure, a firm's competency and competitive edge predominantly stems from its human capital, the intellectual wealth encompassing technological proficiency, managerial acumen, and reservoirs of knowledge (Nguyen et al., 2021; Le and Lei, 2019). A survey of Fortune 500 organizations found that the annual cost of lost information, primarily due to knowledge management failure, is $31.5 billion (Wang and Noe, 2010). Thus, it is imperative that this knowledge be shared and preserved, according to (Wang et al. 2014; Asrar-ul-Haq and Anwar, 2016), since organizations can sustain their competitive advantages over time by utilizing knowledge as a valuable resource.

Knowledge Sharing (KS), according to Xiaojun and Venkatesh (2017), is the exchange of information amongst members of an organization. Organizations' long-term success depends on their knowledge as one of their key resources. Researchers have studied different types of knowledge categorized according to context, process, and application (Sergieva and Andreeva, 2016). While research on KS and Employee Performance (EP) in Pakistani Small and Medium Sized Enterprises (SMEs) is limited

(Massaro et al., 2016), Anand and Dalmasso (2020) found that both KS and EP in Pakistani IT SMEs positively impact the expansion of SMEs and the country's economy. SMEs are typically seen as growth engines because they can lead a country's transition to a knowledge-based economy and because they may be vital to the creation of employment, innovation, and overall economic expansion. Over 90% of all organizations in Pakistan are SMEs, and they contribute to nearly 40% of the nation's GDP, according to the Small and Medium Enterprises Development Authority (SMEDA, 2021). Additionally, they employ over 80% of the workforce that is not in agriculture, highlighting the vital function they play in creating employment and alleviating poverty (World Bank, 2019). The IT based SMEs in Pakistan, which is a creative industry, has witnessed significantly growth, in terms of skills, internet penetration etc., due to favorable government regulations (Pakistan Software Export Board, 2020). These IT based SMEs operate in various IT domains, thereby boosting domestic economy and international competitiveness. Such IT based SMEs in Pakistan symbolizes the country's transformation to a knowledge-based economy, where technology and innovation drive economic growth.

In a knowledge-based economy, KS is essential for SMEs since it may help them improve their competitiveness, innovation, and performance. To remain competitive in a knowledge-based economy in an environment of fast change, organizations need to make the most use of their resources, particularly those that are valuable, distinct, and unmatched, like knowledge and expertise (Barney, 2002). Since information is essential for long-term competitiveness, it becomes necessary to share, conserve, and prioritize it. (Asrar-ul-Haq and Anwar, 2016; Wang et al., 2014). There are certain issues which impede SME competitiveness, thereby limiting SME capacity to innovate and react to changing market conditions. Issues, such as limited access to technology and poor IT infrastructure impede the smooth transmission of information, especially in smaller organizations, having limited resources (Ali et al., 2017). Additionally, structural and cultural problems like collectivist culture and hierarchical structures impede open communication and diminish employee cooperation, which breeds fear of information sharing and hinders productivity in the fast-paced and competitive SME contexts (Aamir et al., 2019). SMEs have challenges in staying competitive and innovative in the fast-evolving IT industry due to the inefficiencies in knowledge transfer procedures and information silos caused by the absence of formal knowledge management systems within their workforce (Ali et al., 2017). To address such challenges, tailored strategies must be developed considering the unique context and constraints in mind for superior KS.

Knowledge Sharing (KS) plays a pivotal role in enhancing the Employee Performance as KS helps in effective decision making (Cabrera and Cabrera, 2002), fostering innovation and exchange of ideas with one another facilitating creativity and innovation (Nonaka and Takeuchi, 1995). Additionally, such creativity and innovation lead to employee growth and development and enhance Employee Performance and competitiveness, thus leading to organizational competitiveness (Lin, 2007). KS also plays a pivotal role in solving problems (Alavi and Leidner 2001), strengthens the organizational culture and cohesion (Nahapiet and Ghoshal, 1998), builds social capital and fosters a positive organizational culture characterized by openness, transparency,

and mutual respect. Another important aspect for superior KS is linked with organizational context, especially the Clan Culture (CC), which provides a conducive environment to make KS happen effectively. CC affects the relationship between the antecedents of KS and KS. CC refers to a work environment where employees have strong interpersonal ties, sense of belonging, collaboration and open communication (Liu et al., 2023). Furthermore, the establishment of a culture that values information sharing is greatly influenced by the organizational leaders. (Khatri et al., 2023).

The gap was reached with the help of systematic literature review (SLR) process, using keywords of "antecedents of knowledge sharing" from the year (2011-2023) on Scopus Database. Consequently, 188 articles were obtained and reviewed using the literature matrix. After several review rounds, a total of 77 articles were shortlisted, containing the antecedents of KS. Moreover, frequency tables were created and antecedents having frequency more than 6 were shortlisted. Thus, three highly important antecedents of KS, Interpersonal Trust (18 frequency), Motivation (9 frequency), and Self-efficacy (7 frequency), were selected. Interpersonal Trust, Motivation, and Self-efficacy were researched separately in previous research as antecedent of KS (Wu et al., 2023; Fauzi et al., 2021; Nguyen et al., 2022; Chang et al., 2018; Yepes & Lopez, 2023). CC is rarely studied as a moderator between antecedents of KS and KS, however, organization culture was suggested to be used as a moderator between the antecedents of KS (such as, Knowledge Technology, Self-efficacy and Reciprocity) and KS (Yepes & Lopez, 2023). The novelty of this research lies in its comprehensive model, which combines all the important KS antecedents at one place and has never been investigated in totality earlier. Moreover, adding Clan Culture as a moderator between antecedents of KS and KS will offer fresh perspectives, which was never tested earlier. Appendix III contains a table of studies that utilize CC as a moderator. This clearly indicates that CC was not employed as a moderator among the variables in this research, which is a gap that this study intends to fill. Additionally, there is a research deficit concerning SMEs, particularly those in Pakistan's high-tech sector, which this study aims to fill.

Drawing on the Knowledge Based View (KBV) theory, according to which, knowledge is a resource that can enhance employees' creativity and innovation capabilities, or Employee Performance (EP), and when EP improves, it improves organizational performance (Grant, 1996; Seleim and Khalil, 2007 & Sahibzada and Mumtaz, 2023). In light with KBV theory, it becomes critical to understand the cause and effects of KS for a better understanding of KS dynamics within the Pakistani IT based SMEs and provide ways to gain competitiveness via enhanced EP. This study provides a thorough understanding of the variables driving KS and its consequences for organizational success, thus providing significant insights for both academics and practitioners interested in SMEs. Also, it is critical to investigate the link between KS and EP in Pakistani IT based SMEs for performance gains. So, this study presents a holistic approach for organizational effectiveness among Pakistani IT based SMEs using KE.

Theoretical Background and Hypotheses Development

Knowledge Based View (KBV)

Sustainable competitive advantage in organizations is achieved via rare, inimitable, and

valuable resources (Grant, 1996). Among important resources, knowledge is a key resource through which employee creativity and innovation capability can be enhanced (Grant, 1996). Simply, organizational performance is linked directly with Employee Performance (Grant, 1996; Seleim and Khalil, 2007 & Sahibzada and Mumtaz, 2023). Using KBV, the current research focuses on key elements for Employee Performance. The antecedents of Knowledge Sharing used in this research (Interpersonal Trust, Motivation and Self-efficacy), according to the KBV theory, are critical for knowledge sharing, thus responsible for increased Employee Performance. Trust is a critical component of the KBV because trust fosters a psychologically secure workplace in which the workforce 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 contribute to enhanced performance via developing trust among each other. Self-efficacy and Motivation are also important in KBV. Individuals who believe in their capacity to give and share their knowledge possess greater Self-efficacy. Also, 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, 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). Moreover, Clan Culture (CC) which is used as a moderator in current research, develops a friendly and cooperative atmosphere where KS is valued and actively fostered (Cameron and Quinn, 2022). Additionally, organizations can increase EP via CC, thereby improving the social and cultural elements which affect KS behaviors. Drawing on these arguments, the KBV entirely explains the model for current research.

Motivation and Knowledge Sharing

Motivation is defined as the readiness to go to considerable lengths to achieve the company's goals, if 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). Motivation is a key success factor for Knowledge Sharing (Nooshinfard and Nemati-Anaraki, 2014). Moreover, Knowledge Sharing is defined as the degree to which exchange of information takes place amongst members of an organization (Xiaojun and Venkatesh, 2017). Extant research argues that motivated individuals feel happier at their jobs, and are more likely to engage in idea discussion, information exchange, and experience sharing with their coworkers (Fathi et al., 2011). Simply, when individuals are motivated, they engage in Knowledge Sharing (Paulin and Suneson, 2012). Zooming in, Motivation can come from intrinsic and extrinsic factors, and both factors are linked with higher levels of Knowledge Sharing (Nguyen et al., 2019). However, intrinsic Motivation has a stronger effect on Knowledge Sharing than extrinsic Motivation (Nguyen et al., 2019). Apart from internal reasons for employee Motivation, companies must also understand the extrinsic Motivation process. In this context, Nguyen et al., (2019) argue that for individuals to share knowledge more effectively, organizations must provide tailored incentives. 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. Building on the above arguments, there is a positive association among Motivation and Knowledge Sharing (Azizi et al., 2023; Akhavan et al., 2013; Nooshinfard and Nemati-Anaraki, 2014), so this study hypothesizes a positive relationship, thereby:

H1: Motivation positively influences Knowledge Sharing.

Self- Efficacy and Knowledge Sharing

Self-efficacy is the degree of confidence in one's ability to carry out a task (Bandura, 1977). Whereas, Knowledge Sharing is defined as the degree to which exchange of information takes place amongst members of an organization (Xiaojun and Venkatesh, 2017). Individuals with personal confidence in their ability to reach an intended goal via independent effort are emphasized as well as those who are prepared to begin a task because of their belief that they can complete it (Maddux, 2016). Both Kaewchur and Phusavat (2016) and Othman and Skaik (2014) have acknowledged that Self-efficacy acts as a major predictor of information sharing and observed that Self-efficacy has significantly positive impact on knowledge sharing. Researchers particularly focus on self-efficiency with more interest in its roles towards Knowledge Sharing (Lai & Hsieh, 2013). Chen & Hung (2010) pointed out that Self-efficacy is the belief that people can complete a task that somehow will be useful to others. Self-efficacy was found to have a positive and significant effect on Knowledge Sharing (Bilginoglu and Yozgat, 2018; Castaneda et al., 2016; Chen and Hung, 2010). A person with high Self-efficacy may feel quite confident when answering questions, especially new ones (Wasko & Faraj 2000). Research suggests that people with high Self-efficacy are also strongly driven by themselves (Hsu et al. 2007; Bock & Kim 2002). As a result, they are more likely to share their knowledge and experiences (Lin 2007). Building on the above arguments, there is a positive association among Self-efficacy and Knowledge Sharing (Bilginoglu and Yozgat, 2018; Castaneda et al., 2016; Kaewchur and Phusavat, 2016; Othman and Skaik, 2014; Chen and Hung, 2010), so this study hypothesizes a positive relationship, thereby:

H2: Self-efficacy positively influences Knowledge Sharing.

Interpersonal Trust and Knowledge Sharing

Trust among organizational members is considered as important drivers of Knowledge Sharing in organizations. Interpersonal Trust is defined as one party's willingness to be vulnerable (Cyril Eze et al., 2013). Originally, this definition comes from Mayer et al., 1995, who defines trust as "willingness to be vulnerable to the actions of another party based on the expectation that the other will perform a particular act important to the truster, irrespective of the ability to monitor or control the other party". Whereas Knowledge Sharing is defined as the degree to which exchange of information takes place amongst members of an organization (Xiaojun and Venkatesh, 2017). According to Rutten et al. (2016), there is a strong correlation between trust and knowledge exchange, where a higher degree of trust encourages more knowledge sharing, and vice versa. Additionally, a higher degree of trust amongst coworkers would encourage them to exchange knowledge amongst themselves (Chan & Chow, 2008). 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, according to another perspective, individuals will not share information if it is seen to be useful and valuable because they are afraid of losing prospective rewards (Bakker et al., 2006; Chowdhury, 2005). Researchers divide knowledge into tacit and explicit knowledge. Tacit knowledge may be transmitted with an elevated level of affect-based trust, whereas explicit knowledge requires a prominent 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. Building on the above arguments, there is a positive association among Interpersonal Trust and Knowledge Sharing (Rutten et al., 2016; Cyril Eze et al., 2013; Staples & Webster, 2008), so this study hypothesizes a positive relationship, thereby:

H3: Interpersonal Trust positively influences Knowledge Sharing.

Knowledge Sharing and Employee Performance

Knowledge Sharing is defined as the degree to which exchange of information takes place among members of an organization (Xiaojun and Venkatesh, 2017). 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). Whereas Employee Performance is defined as the degree to which the employee productivity matches the organizational performance standards (Diamantidis & Chatzoglou, 2019). According to Atatsi et al., (2019), a variety of factors, such as employee Motivation, employee satisfaction, and human resources management processes such as employee training, compensation, and performance evaluations, exert an effect on Employee Performance. Additionally, extra-role performance, tasks performed in connection with the job's demands, and anticipated tasks performed are all suitable criteria to assess an employee's performance. In short, sharing knowledge allows both implicit as well as explicit knowledge to be created, utilized, and shared, that is how it is essential for Employee Performance (Pelealu, 2022). Building on the above arguments, there is a positive association among Knowledge Sharing and Employee Performance (Pelealu, 2022; Rohim & Budhiasa, 2019; Kuzu & Özilhan, 2014), so this study hypothesizes a positive relationship, thereby:

H4: Knowledge Sharing positively influences Employee Performance.

Mediating Role of Knowledge Sharing

Knowledge Sharing among employees inside an organization is facilitated via multiple antecedents (i.e. Motivation, Self-efficacy, and Interpersonal Trust). It is unclear how these antecedents of Knowledge Sharing affect Employee Performance individually. Through knowledge sharing, such antecedents enhance the effectiveness of Employee Performance, however the exact effect is unclear. Considering this, we argue that Knowledge Sharing serves as a mediator and an enabler of Employee Performance. Therefore,

H5a: Knowledge Sharing mediates the relation between Motivation and Employee Performance.
H5b: Knowledge Sharing mediates the relation between Self-efficacy and Employee Performance.
H5c: Knowledge Sharing mediates the relation between Interpersonal Trust and Employee Performance.

Moderating Role of Clan Culture

This research defines Clan Culture as the degree to which an organization culture values mutual support and coherence (Cameron and Quinn, 2022). Clan Culture has remarkable team harmony and support, internal communication, a sense of collaboration, and employee appreciation (Naranjo-Valencia et al., 2017). Moreover, Clan Culture encourages participation and engagement, which is linked with positive emotions among employees in the company, such Motivation encourages Knowledge Sharing (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). Additionally, Clan Culture is a family-like culture which 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 to generate the latest information within the organization. Durmusoglu et al. (2014) terms Clan Culture as a process, via which fresh knowledge is created, circulated, and legitimized in the organization. Moreover, Clan Culture supports participation and involvement, and is associated with positive employee attitudes, such as of employee mutual trust, and encourages information sharing behavior (Hartnell et al., 2011). Moreover, Self-efficacy and Knowledge Sharing 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). Considering this, we argue that Clan Culture serves as a moderator between antecedents of Knowledge Sharing (i.e. Motivation, Self-efficacy, and Interpersonal Trust) and Knowledge Sharing. Therefore,

H6a: Clan Culture moderates the relation between Motivation and Knowledge Sharing.
H6b: Clan Culture moderates the relation between Self-efficacy and Knowledge Sharing.
H6c: Clan Culture moderates the relation between Interpersonal Trust and Knowledge Sharing.

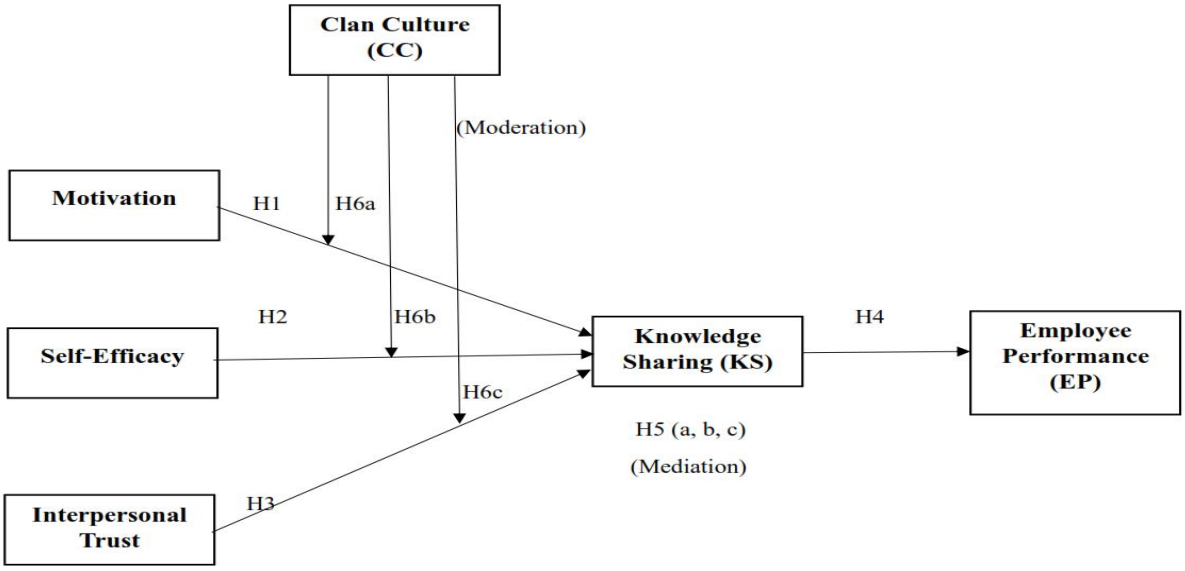


Fig. 1. Hypothesized Research Model.

Research Methodology

Context of the Study

Pakistan has over 5 million SMEs responsible for 40% GDP and 25% exports (SMEDA, 2021). The SME sector employs the second largest proportion of workforce in Pakistan, after agriculture (State Bank of Pakistan, 2022). Among these SMEs, the IT sector is on an exports growth trajectory in Pakistan, and has increased 50% in 5 years (SMEDA, 2021). In the IT sector SMEs, Knowledge Sharing is important, so the current study is interested to find important antecedents and outcomes of Knowledge Sharing in the Pakistani IT sector SMEs. This research focuses on the IT sector Pakistani SMEs.

Instrument

A 6-item scale was adapted from Cyril Eze et al., (2013) to measure Interpersonal Trust. Interpersonal Trust is defined as one party's willingness to be vulnerable (Cyril Eze et al., 2013). Sample items 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 6-item scale of *Motivation* was adapted from Cyril Eze et al., (2013). Motivation is defined as the readiness to go to considerable lengths to achieve the company's goals, if 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. Sample items 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 3-item scale of *Clan Culture* was adapted from Khatami et al., (2020). Clan Culture is the degree to which an organization culture values mutual support and coherence (Cameron and Quinn, 2022). A sample item 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). Knowledge Sharing is the degree to which exchange of information takes place amongst members of an organization (Xiaojun and Venkatesh, 2017). A sample item includes "I frequently share my knowledge with my colleagues in this organization."

A 6-item scale of *Self-efficacy* was adapted from Bock et.al., (2005). Self-efficacy is the degree of confidence in one's ability to carry out a task (Bandura, 1977). A sample item includes "When sharing knowledge, I feel confident in my ability and knowledge to help colleagues to solve their problems."

A 3-item scale of *Employee Performance* was adapted from (Guan & Frenkel, 2019). Employee Performance is the degree to which the employee productivity matches the organizational performance standards (Diamantidis & Chatzoglou, 2019). A sample item includes "I adequately complete assigned duties". All 46 items were responded to using a five-point Likert scale with anchors ranging from (1) strongly disagree to (5) strongly agree.

Furthermore, the questionnaire was pretested before the data collection to eliminate any issues in the questionnaire, which can tamper the research results (Kock et.al., 2021). The pretesting was conducted with 5 respondents to correct the questionnaire understanding. Three statements of the questionnaire, which were confusing to the respondent, were rephrased. After these corrections, the questionnaire became suitable for data collection.

Sampling And Data Collection

The research uses positivist philosophy, and is based on survey strategy. The research is based on individual level of analysis, and uses deductive methods. A quantitative approach is employed for data collection in this research. Snowball sampling was used for data collection, which is a widely used sampling technique, when it is difficult to approach respondents and they are best located through referral networks (Babbie, 2007; Cooper and Schinder, 2011). Data in the current research is collected from IT professionals working in various IT based Pakistani SMEs in different cities of Pakistan. A total of 700 questionnaires were distributed in the IT based SMEs in different cities of Pakistan. This data was personally collected via visiting the SMEs. The unit of analysis for this research is individual level, enabling data collection from individuals working the IT based Pakistani SMEs at executive, managerial or non-managerial levels. Out of these 700 questionnaires, 570 questionnaires were received from which 119 were incomplete responses, which were discarded during the screening process. So, a total of 451 valid responses were used for the data analysis, indicating a 65% response. According to the (Kahsey and Kwena (2022), a response rate of over 50% is considered as sufficient for valid results of a survey study. SPSS was used to interpret the demographics, surprisingly, population of male employees (70.5%) were far more than the female (29.5%), and most respondents (76.7%) were 29 years or less in age, having a bachelor's degree (71.6%), and (23.7%) with a master's degree. Data was collected from 59 different SMEs from 6 different cities in Pakistan such as, Karachi (15.7%), Rawalpindi (11.1 %), Islamabad (29.5 %), Lahore (16%), Faisalabad (13.7%) and Sahiwal (14 %) respectively. Data was gathered from the employees at different levels, however mostly from non-managerial staff (55.4 %.) in

these SMEs. Most of the respondents (62.3%) had less than 2 years of experience, (26.6%) had 2 to 5 year work experience, (7.8%) having 6 to 10 years' experience, and (3.1 %) had 11 years or above experience in their current organizations. **Table I** exhibits the demographic profile of the respondents.

Table I -Demographic profile of the respondents (n = 451)

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%
Designation	Executive	104	23.1%
	Managerial	97	21.5%
	Non-Managerial	250	55.4%
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%

Power Analysis

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 research to achieve 80% statistical power for a medium effect (0.15) at a level of 5% for the proposed structural framework. Power analysis indicates that a minimum sample size of 153 is needed for this study; hence, the sample size utilized in this study (n = 451) is significantly larger than the minimum and consistent with other general rules of thumb (Haier et el., 2010; Kline 2005; Barclay et al., 1995).

Common Method Bias

There was still a possibility of common method bias when considering the self-reported data collection and reporting (Poadsakof et al., 2003). Procedural and statistical approaches were both employed to prevent such common method bias. For example, participants were given explicit instructions during data collection, and procedural approaches guaranteed participant anonymity and confidentiality (Reio et al., 2010). For every respondent to complete the questionnaire with an equal amount of work, questionnaire was also designed to be straightforward and easy to understand (Shuck et

al., 2014; Reio et al., 2010). To statistically prevent common method bias, this research employed the Harmon one-factor test (Harman, 1967). Exploratory factor analysis was used for all of the items from the six latent constructs. The result indicated that the chance that the maximum variance could be explained by a single factor was approximately 21.8%. This indicates that no single factor accounts for more than 40% of the variation, indicating that common method bias was not a problem in this research (Babin et al., 2016).

Data Analysis And Results

Partial least square structure equation modeling (PLS-SEM) software and SPSS is used for data analysis. Smart PLS-SEM is used to predict the incremental nature of this study, such as Clan Culture and knowledge-oriented leadership acting as moderators among the antecedents of Knowledge Sharing and Knowledge Sharing (Richter et al., 2016; Nitzl et al., 2016) and to predict dependent variables (Hair et al., 2017). Smart PLS 3.2.9 is used in two stages, first for the measurement model (i.e. internal consistency reliability, convergent validity, discriminant validity, and multicollinearity) and second for the structural model (i.e. R^2, and f^2) (Hair et al., 2017; Ramayah et al., 2018). The majority of HRM and social science research uses PLS-SEM for analysis (Ringle et al., 2020). Moreover, SPSS was used for data entry, missing values, and demographic analysis.

Internal Consistency Reliability

Internal consistency reliability is used to measure the relationship between items and their latent constructs (Hair et al., 2014; Ramayah et al., 2018), and measures "the degree to which the items reflect the latent constructs." Composite reliability (CR) is used to assess internal consistency (Hair et al., 2017). The CR of the measurement model must be more than 0.7 for it to be judged good (Richter et al., 2016; Ringle et al., 2018). For each of the constructs used in this research, the CR value is above 0.7, i.e. for Clan Culture (0.948), Employee Performance (0.891), Knowledge Sharing (0.876), Motivation (0.858), Self-efficacy (0.914), and Interpersonal Trust (0.881), thus fulfilling the internal consistency reliability criteria.

Convergent Validity

Convergent validity (CV) is the degree to which one measure has positive correlations with other measures of the same construct (Hair et al., 2017, p. 112). The item outer loadings must be higher than 0.6 (Chin et al., 1998), but to obtain satisfactory results, the average variance extracted (AVE) score must be equal to or more than 0.5 (Avkiran, 2017). The result of CV indicates that all the indicators have satisfactory loadings except MOT1, MOT2 and MOT3 and were deleted. The other low loadings indicators were not deleted because their construct's AVE > 0.5 after deleting lowest loading items. **Table II** presents the AVE for Clan Culture (0.858), Employee Performance (0.731), Knowledge Sharing (0.704), Motivation (0.716), Self-efficacy (0.680), and Interpersonal Trust (0.559). Moreover, the Cronbach alpha value for all the constructs should exceed 0.7 (Hair et al., 2014), and in this research, the Cronbach alpha value exceeds 0.7 for all constructs as presented in **Table II.**

Discriminant Validity

Discriminant validity (DV) is the degree to which a construct is truly different from other constructs used in the same study (Hair et al., 2014, p. 104). The heterotrait-monotrait

ratio (HTMT) criterion employed in this research is widely considered among the most conservative when compared to alternative techniques of DV evaluation (Henseler et.al., 2015), and is the "ratio of the between-trait correlations to the within-trait correlation" (Hair et al., 2017, p. 118). Additionally, HTMT value should not exceed 0.90 (Gold et al., 2001; Teo et al., 2008). This research compiled with the HTMT criteria as illustrated in **Table III**.

Table II - Measurement Model Assessment

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		0.880		
	EP3		0.826		
Interpersonal Trust	IPT1	0.836	0.826	0.881	0.559
	IPT2		0.762		
	IPT3		0.815		
	IPT4		0.747		
	IPT5		0.799		
	IPT6		0.482		
Knowledge Sharing	KS1	0.791	0.859	0.876	0.703
	KS2		0.847		
	KS3		0.809		
Motivation	MOT1	0.744	*Deleted	0.716	0.609
	MOT2		*Deleted		
	MOT3		*Deleted		
	MOT4		0.901		
	MOT5		0.923		
	MOT6		0.925		
Self-efficacy	SE1	0.882	0.820	0.914	0.680
	SE2		0.811		
	SE3		0.844		
	SE4		0.827		
	SE5		0.821		

Note: *MOT 1, *MOT 2 and *MOT3 items are deleted due to weaker loadings. Loadings of these items were MOT1 (0.200), MOT 2 (0.297), MOT 3 (-0.006).

Table III - Discriminant Validity

	Clan Culture	Employee Performance	Interpersonal Trust	Knowledge Sharing	Motivation	Self-efficacy
Clan Culture						
Employee	0.077					

Performance					
Interpersonal Trust	0.146	0.532			
Knowledge Sharing	0.192	0.488	0.638		
Motivation	0.142	0.091	0.185	0.224	
Self-efficacy	0.073	0.706	0.51	0.568	0.088

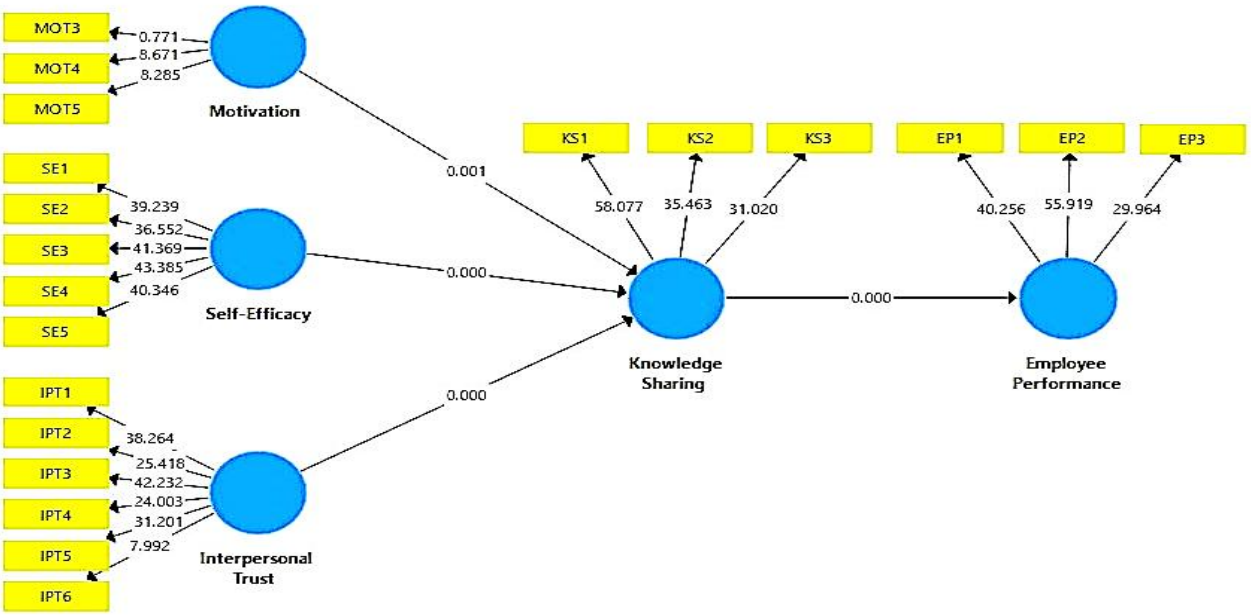
Note: HTMT ratio (good if < 0.90)

Multicollinearity

The variance inflation factor (VIF) determines multicollinearity, with a VIF value >10 indicates multicollinearity (Burns and Burns, 2008), and up to 5 as per Hair et al. (2014). In this research, all the VIF values are < 5.0, so there are no multicollinearity issues.

Structural Model

The structural model analysis investigates the causal link among constructs and demonstrates the relationships between the variables (Ibrahim et al., 2021). Bootstrapping (one-tailed) with 5,000 subsamples was used for the direct effect variables, whereas the two-tail test was used for mediators in the model. Also, the p-value, T statistics, and path coefficient are used to determine the relationship significance. The p-value < 0.05 indicates a significant relationship (Respati et al., 2021). Moreover, T-statistics > 1.645 for one tail test, and > 1.96 for two tailed tests, is acceptable for a positive and significant relationship (Marliyah et al., 2022; Hair et al., 2014). Furthermore, Unegbu et al. (2022) argue that path co-efficient (β) ranging from



5.624, β= 0.309), IPT and KS sharing have a positive and significant relationship (p-value = 0.000, t-value = 7.613, β= 0.387). The relation between Knowledge Sharing and Employee Performance shows a positive and significant relation (p-value = 0.000, t-value = 7.289, β= 0.400). So, the direct effect hypotheses, from H1 to H4, all show positive and significant results, and are supported.

This research supports the mediating effect hypotheses, H5a to H5c, that Knowledge

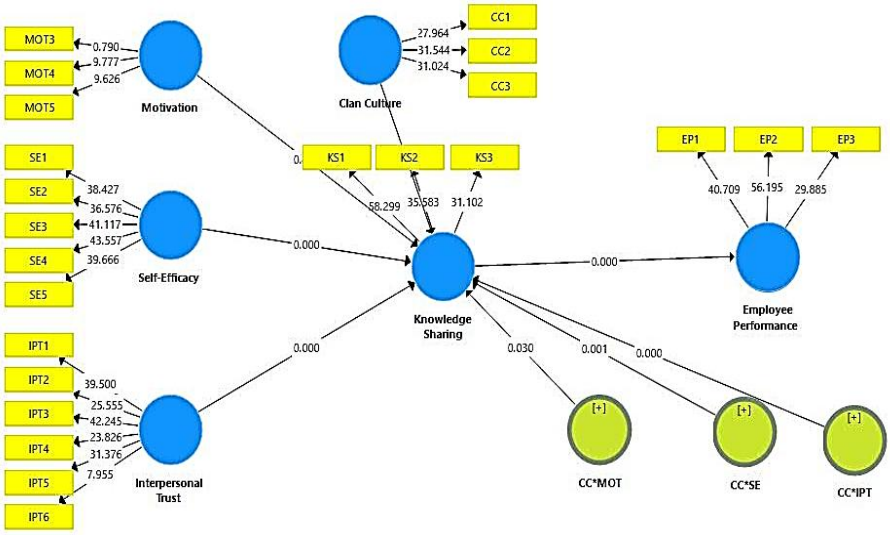
Sharing mediates between Motivation and Employee Performance (p-value = 0.02, t-value = 3.046, β= 0.047). Moreover, Knowledge Sharing also mediates between Self-efficacy and Employee Performance (p-value = 0.000, t-value = 3.559, β= 0.124). Additionally, Knowledge Sharing mediates between Interpersonal Trust and Employee Performance (p-value = 0.000, t-value = 5.708, β = 0.155).

The structural model assessment reveals that Clan Culture moderates between Motivation and Knowledge Sharing (p-value = 0.030, t-value = 1.859, β = 0.092), Self-efficacy and Knowledge Sharing (p-value = 0.001, t-value = 3.00, β = 0.145), and Interpersonal Trust and Knowledge Sharing (p-value = 0.000, t-value = 3.737, β = 0.174), thereby supporting the hypotheses H6a to H6c.

Table IV - Structural Model Assessment: Hypotheses Results

	Hypothesis	Beta	STDEV	t-value	p-value	Result
	Direct Effect					
H1	MOT -> KS	0.117	0.036	3.207	0.001	Supported
H2	SE -> KS	0.309	0.055	5.624	0.000	Supported
H3	IPT -> KS	0.387	0.051	7.613	0.000	Supported
H4	KS -> EP	0.400	0.055	7.289	0.000	Supported
	Mediating effect					
H5a	MOT -> KS -> EP	0.047	0.015	3.046	0.002	Supported
H5b	SE -> KS -> EP	0.124	0.035	3.559	0.000	Supported
H5c	IPT -> KS -> EP	0.155	0.027	5.708	0.000	Supported
	Moderating effect					
H6a	MOT * CC -> KS	0.092	0.049	1.859	0.030	Supported
H6b	SE * CC -> KS	0.145	0.048	3.000	0.001	Supported
H6c	IPT * CC -> KS	0.174	0.047	3.737	0.000	Supported

Note: p-value < 0.05, t-value > 1.645 for one tail test and t-value > 1.96 for two tail tests are acceptable for significant results.



Co-efficient of Determination and Effect Size

The structural model evaluation tests the causal links between the constructs using path coefficients, coefficients of determination (R^2), and effect size (f^2) (Chin, 1998; Hair et al., 2017). R^2 measures the model's overall prediction accuracy (Hair et al., 2014). Cohen (1988) advises that R^2 values of 0.26, 0.13, and 0.02 indicate significant, moderate, and weak results, respectively. **Table V** presents the co-efficient of determination (R^2).

Table V - Co-efficient of determination (R^2)

Constructs	R^2	R^2 after moderation of Clan Culture	Results
EP	0.16	0.16	Moderate
KS	0.373	0.447	Substantial

In moderation analysis, the R^2 change becomes a prominent issue. As such, first look at the R^2 change from the main effect model. If you recall, the previous R^2 for the main effect model the R^2 value of EP was 0.16 and KS was 0.373, now in the interaction effect model, the R^2 value of EP remained same, but the KS R^2 value increased to 0.447. In some cases, introducing a moderating effect might lead to an increase in the R^2 value if the interaction term significantly improves the model's ability to explain variance in the dependent variable. This indicates that the moderating effect enhances the predictive power of the model beyond what can be accounted for by the main effects alone (Ramayah et. Al., 2018). So, this proves the moderation of Clan Culture in this model.

Effect size (f^2) refers to "the change in the R^2 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^2 values of 0.02, 0.15 and 0.35 indicating significant, moderate, and weak effect sizes, respectively. **Table VI** presents Effect Size (f^2).

Table VI - Effect Size (f^2)

	EP	IPT	KS	MOT	SE	Results
EP						-
IPT			0.192			Moderate
KS	0.19					Moderate
MOT			0.022			Weak
SE			0.123			Weak

The f^2 value show the association between the variables, according to the effect size results Knowledge Sharing have moderate effect on Employee Performance, Interpersonal Trust has moderate effect on the Knowledge Sharing like they have the moderate relationship between them, and Motivation has weak association with the Knowledge Sharing likewise Self-efficacy has also a weak effect on the knowledge sharing.

Discussion

This research examines the antecedents of Knowledge Sharing and their effects on Pakistani IT SMEs, and uses variables such as Motivation, Self-efficacy, and Interpersonal Trust. Also, this study used moderating role of Clan Culture. Theoretically, this research is

based upon Knowledge-Based View Theory, which suggests that knowledge enhances employee creativity and innovation, and leads to higher organizational performance (Grant, 1996; Seleim and Khalil, 2007; Sahibzada and Mumtaz, 2023).

In this research, hypothesis H1 and H2 are supported, which suggest that individual factors such as Motivation and Self-efficacy significantly influence the Knowledge Sharing in organizations, which is in line with previous studies (i.e. Fauzi et al., 2021; Helm et al., 2020; Nguyen et al., 2019; Ali et al., 2019; Eze et al.,2013; Jawadi et al., 2012). Motivation to share knowledge enhances Employee Performance when employees share knowledge with one another, new ideas are born, leading to innovation (Ali et al., 2019) and according to the KBV theory, knowledge is a resource (Sahibzada and Mumtaz, 2023) that organizations can utilize to gain competitive advantage. Self-efficacy (SE) is defined as people's belief in their ability to achieve a goal that would benefit others and previous studies show that Self-efficacy promotes Knowledge Sharing within organizations (Chen and Hung, 2010). Additionally, sharing of knowledge elevates organizational performance and competitive advantage.

Findings of this research indicate that Interpersonal Trust has a positive and significant effect on Knowledge Sharing (H3). Also, the same was previously supported by Li et al., (2022); Baima et al., (2022); Nguyen et al., (2022); and Lin et al., (2023). According to Cyril Eze et al. (2013), firms must foster adequate trust and openness to encourage Knowledge Sharing and have clear organizational vision and goals. Moreover, employees having more confidence in the organization are more inclined to share their knowledge (Chan and Chow, 2008).

Furthermore, this research supports earlier studies that Knowledge Sharing has a positive and significant effect on Employee Performance (H4), (Rohim and Budhiasa, 2019; Kuzu and Ozilhan, 2013). Also, Din and Haron (2012) stress the significance of knowledge sharing. However, knowledge sharing is dependent on technical and behavioral factors, and businesses must provide incentives and rewards for motivation for effective knowledge sharing. Also, knowledge is more valuable than data or information, and improves employee performance (Diamantidis & Chatzoglou, 2019).

Additionally, Knowledge Sharing mediates between antecedents of Knowledge Sharing (i.e. Motivation, Self-efficacy, and Interpersonal Trust) and Employee Performance H5 (a, b, c), (Fauzi et al., 2021; Helm et al., 2020; Eze et al., 2013; Jawadi et al., 2012; Nguyen et al., 2019). Contextually, these relations were never studied in Pakistani IT based SMEs, helping future research on Knowledge Sharing.

This research reveals that Clan Culture, a culture of mutual coherence and help (Cameron and Quinn, 2022), moderates Motivation and Knowledge Sharing (H6-a), Self-efficacy and Knowledge Sharing (H6-b), and Interpersonal Trust and Knowledge Sharing (H6-c) respectively. Earlier, Clan Culture was used as a moderator in other relationships, refer Junça Silva & Coelho (2023), Wang et al., (2022), and Lee et al., (2022), Rohim and Budhiasa (2019), Rhee et al., (2018) but not among the relationships used in this research, hence adding novelty. This finding is unique, and adds value to the literature. Companies should encourage collaboration and knowledge generation to foster knowledge-sharing culture, thus adding novelty to the literature.

Theoretical Implications

Based on a theoretical framework of Knowledge Sharing, this research uses several prominent antecedents of Knowledge Sharing, including Interpersonal Trust, Self-efficacy, and Motivation. Furthermore, this research examines the relationship between such antecedents of Knowledge Sharing and their outcomes, and results offer unique perspective on Knowledge Sharing practices of IT based SME employees. Likewise, Pakistani SMEs are becoming more competitive by effective use of technology and information sharing (Khan and Nazir, 2022; Wu et al., 2023).

This research uses knowledge-based view theory to explain the research model, and enhance the knowledge management theory, via providing insights regarding how Knowledge Sharing impacts Employee Performance in SMEs. Moreover, this research contributes to the body of knowledge by providing a comprehensive framework containing the important Knowledge Sharing antecedents for SMEs.

Also, this research presents a novel framework which previously has never been studied (see Wu et al., 2023; Yepes & Lopez, 2023; Nguyen et al., 2022; Fauzi et al., 2021; Chang et al., 2018). Furthermore, this research contributes to the body of knowledge on IT based SMEs in Pakistan, and used Clan Culture as a unique moderator, which previously remained unexplored. Such gap was identified via an in-depth literature review of Knowledge Sharing and its antecedents and outcomes on Scopus database between 2011 and 2023.

Practical Implications

The research suggests that in the IT based Pakistani SMEs, the managers must prioritize trust, Self-efficacy, social links, reciprocity, Motivation, Knowledge Sharing technologies, Clan Culture and knowledge-oriented leadership. Managers using appropriate technology may improve Knowledge Sharing among staff via creating a supportive environment, offering training, encouraging cooperation, Employee Performance and organizational success. The link between Knowledge Sharing and Employee Performance can guide organizations in creating interventions to enhance performance, stimulate growth, and boost productivity through promoting Knowledge Sharing behaviors. Organizations can utilize these insights to enhance leadership practices and promote knowledge sharing, thereby requiring training and support for leaders to develop their leadership abilities.

Additionally, Clan Culture can foster a collaborative work environment, promoting knowledge sharing. Likewise, practical advice, such as cooperation, trust, and open communication, can strengthen social relationships, instill a sense of belonging, and improve information sharing behaviors and overall organizational performance. Also, the research emphasizes the role of individual-level factors like Motivation, Self-efficacy, and Interpersonal Trust in driving Knowledge Sharing behaviors in IT SMEs. Moreover, this research suggests that effective recruitment, training, and performance management can maximize the benefits of Knowledge Sharing for organizational success. Also, the research suggests that promoting Knowledge Sharing and collaboration among IT SMEs can foster a culture of continuous learning and innovation. In sum, the practical recommendations for leveraging Knowledge Sharing platforms, communities of practice, and cross-functional collaboration can enhance innovation capabilities and sustainable

growth for SMEs.

Conclusion

This study investigates the impact of Knowledge Sharing antecedents on Employee Performance in Pakistan's IT SMEs. A theoretical model was developed through a systematic literature review, with Clan Culture as a moderator. The research uses a quantitative approach, using non-probability convenience sampling technique. The results show that all three antecedents positively relate to knowledge sharing, with Knowledge Sharing acting as a mediator. Moreover, Clan Culture supports the moderating relationship between all three antecedents of Knowledge Sharing (i.e. Motivation, Self-efficacy, and Interpersonal Trust) and knowledge sharing. The research also offers theoretical and practical contributions and proposes certain limitations.

Limitations and Future Directions

This study has limits but focusses on new and significant concepts that are currently in demand. Based on 2011–2023 SLR, this study employed Motivation, Self-efficacy, and Interpersonal Trust as antecedents of Knowledge Sharing. Future research might extend this period and add more antecedents with higher frequencies. Moreover, this research explored the role of antecedents of Knowledge Sharing influencing Employee Performance, suggesting future research could explore other mediators and performance outcomes on organizational level. Similarly, this research used knowledge-based view theory to explain the model, other theories can also be used. Likewise, Clan Culture was used as moderator in this research, however, future research may use leadership or other moderators. Besides, this research focused on IT based Pakistani SMEs, using cross-sectional data, the future studies may use longitudinal data, from multiple employee levels. Moreover, this research collected data using non-probability convenience sampling technique, the future researchers may utilize different techniques or combine them, like convenience and snowball sampling.

References

Aamir, A., Raja, U., Usman, M., & Darr, W. (2019). Why Should I Share Knowledge with Others? A Cross-Cultural Examination. Journal of Knowledge Management, 23(6), 1239–1260.

Abdelwhab Ali, A., Panneer selvam, D. D. D., Paris, L., & Gunasekaran, A. (2019). Key factors influencing Knowledge Sharing practices and their relationship with organizational performance within the oil and gas industry. Journal of Knowledge Management, 23(9), 1806-1837.

Ahmed, Y.A., Ahmad, M.N., Ahmad, N. and Zakaria, N.H. (2019), Social media for knowledge-sharing: a systematic literature review, Telematics, and Informatics, 37,72-112.

Alavi, M., & Leidner, D. E. (2001). Review: Knowledge management and knowledge management systems: Conceptual foundations and research issues. MIS Quarterly, 25(1), 107-136.

Ali, M., Farooq, S., Ahmed, W., & Warraich, N. F. (2017). Exploring the Barriers to Knowledge Sharing in Pakistani Software Houses: An Empirical Study. Information Development, 33(3), 301–315.

Anand, A., & Dalmasso, A. (2020). Supervisor effects on employee Knowledge Sharing

behaviour in SMEs. Journal of the Knowledge Economy, 11, 1430-1453.

Arooj, S., & Nisar, S. A. (2023). Analysis of business management innovation of small and medium-sized enterprises of Pakistan under the new economic normal. Dinkum Journal of Economics and Managerial Innovations, 2(02), 267-273.

Asrar-ul-Haq and Anwar (2016), A systematic review of knowledge management and knowledge sharing: trends, issues, and challenges", Cogent Business &Management, 3 (1), 1-17.

Asrar-ul-Haq, M., Anwar, S., & Hassan, M. (2017). Impact of emotional intelligence on teacher′ s performance in higher education institutions of Pakistan. Future Business Journal, 3(2), 87-97.

Atatsi, E. A., Stoffers, J., & Kil, A. (2019). Factors affecting Employee Performance: a systematic literature review. Journal of Advances in Management Research, 16(3), 329-351.

Avkiran, N. K. (2017). An in-depth discussion and illustration of partial least squares structural equation modeling in health care. Health Care Management Science, 21(3), 401–408.

Azizi, N., Akhavan, P., Ahsan, A., Khatami, R., Haass, O., & Saremi, S. (2023). Influence of Motivational factors on Knowledge Sharing methods and knowledge creation process in an emerging economic context. Knowledge Management & E-Learning, 15(1), 115–132.

Baima, G., Santoro, G., Pellicelli, A. C., & Mitręga, M. (2022). Testing the antecedents of customer Knowledge Sharing on social media: a quantitative analysis on Italian consumers. International Marketing Review, 39(3), 682-705.

Bakker, A. B., Van Der Zee, K. I., Lewig, K. A., & Dollard, M. F. (2006). The relationship between the big five personality factors and burnout: A study among volunteer counselors. The Journal of social psychology, 146(1), 31-50.

Barney, J. B. (2002). Strategic management: From informed conversation to academic discipline. Academy of Management Perspectives, 16(2), 53-57.

Bilginoğlu, E., & Yozgat, U. (2018). Impact of strategic leadership on organizational performance, strategic orientation, and operational strategy. Management Science Letters, 8(12), 1331-1344.

Bock, G.W., Zmud, R.W., Kim, Y.G. and Lee, J.N. (2005), Behavioural intention formation in knowledge sharing: examining the roles of extrinsic motivators, social-psychological forces, and organizational climate, MIS Quarterly, 9 (1), 87-111.

Cabrera, A., & Cabrera, E. F. (2002). Knowledge-sharing Dilemmas. Organization Studies, 23(5), 687–710.

Cameron, K. S., Quinn, R. E., DeGraff, J., & Thakor, A. V. (2022). Competing values leadership. Edward Elgar Publishing.

Carrillo-Hermosilla, J., Del Río, P., & Könnölä, T. (2010). Diversity of eco-innovations: Reflections from selected case studies. Journal of cleaner production, 18(10-11), 1073-1083.

Castaneda, D. I., Fernández, M. and Durán, W. (2016) "Determinants of Knowledge Sharing intention and Knowledge Sharing behavior in a public organization", Knowledge Management & E-Learning, Vol 8, No. 2, pp 372-386.

Challenge Fund for SMEs. (2022, March 21). SBP.Org. Retrieved July 14, 2023, from https://www.sbp.org.pk/smefd/circulars/2022/C4-Annex-A.pdf.

Chang, I. C., Chang, C. H., Lian, J. W., & Wang, M. W. (2018). Antecedents and consequences of social networking site Knowledge Sharing by seniors: A social capital perspective. Library Hi Tech, 36(4), 651-664.

Chen, C. J., & Hung, S. W. (2010). To give or to receive? Factors influencing members' Knowledge Sharing and community promotion in professional virtual communities. Information & management, 47(4), 226-236.

Chin, W.W. (1998), The partial least squares approach to structural equation modeling in Marcoulides, G.A. (Ed.), Modern Methods for Business Research, Lawrence Erlbaum, Mahwah, NJ, 295 (2), 295-236.

Chiu, C.M., Hsu, M.H. and Wang, E.T.G. (2006), Understanding Knowledge Sharing in virtual communities: an integration of social capital and social cognitive theories, Decision Support Systems, 42 (3),1872-1888.

Chow, W. S., & Chan, L. S. (2008). Social network, social trust, and shared goals in organizational knowledge sharing. Information & management, 45(7), 458-465

Clark, L.A. and Watson, D. (1995), "Constructing validity: basic issues in objective scale development", Psychological Assessment, 7(3), 309-319.

Cohen, J. (1988), Statistical Power Analysis for the Behavioral Sciences, 2nd Ed., Lawrence Erlbaum, New Jersey.

Compta, Y., Parkkinen, L., O'Sullivan, S. S., Vandrovcova, J., Holton, J. L., Collins, C., ... & Revesz, T. (2011). Lewy-and Alzheimer-type pathologies in Parkinson's disease dementia: which is more important? Brain, 134(5), 1493-1505.

Cyril Eze, U., Guan Gan Goh, G., Yih Goh, C., & Ling Tan, T. (2013). Perspectives of SMEs on knowledge sharing. Vine, 43(2), 210-236.

Deng, H., Duan, S. X., & Wibowo, S. (2023). Digital technology driven Knowledge Sharing for job performance. Journal of Knowledge Management, 27(2), 404-425.

Diamantidis, A. D., & Chatzoglou, P. (2019). Factors affecting Employee Performance: an empirical approach. International Journal of Productivity and Performance Management, 68(1), 171-193.

Din, N., & Haron, S. (2012). Knowledge Sharing as a culture among Malaysian online social networking users. Procedia-Social and Behavioral Sciences, 50, 1043-1050.

Farooq, M. S., Salam, M., Fayolle, A., Jaafar, N., & Ayupp, K. (2018). Impact of service quality on customer satisfaction in Malaysia airlines: A PLS-SEM approach. Journal of Air Transport Management, 67, 169-180.

Farooq, S., Salim, S. S., & Ahmad, M. (2017). Impact of Cultural Dimensions on Knowledge Sharing: A Pakistani Perspective. Knowledge Management Research & Practice, 15(1), 69–79.

Fathi, A., Balcan, M. F., Ren, X., & Rehg, J. M. (2011). Combining Self Training and Active Learning for Video Segmentation. In BMVC (Vol. 29, pp. 78-1).

Faul, F., Erdfelder, E., Lang, A.G. and Buchner, A. (2007), G* power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences, Behavior Research Methods, 39(2), 175-191.

Fauzi, M. A., Martin, T., & Ravesangar, K. (2021). The influence of transformational

leadership on Malaysian students' entrepreneurial behaviour. Entrepreneurial Business and Economics Review, 9(1), 89-103.

Gold, A. H., Malhotra, A., & Segars, A. H. (2001). Knowledge management: An organizational capabilities perspective. Journal of management information systems, 18(1), 185-214.

Government of Pakistan. (2020). Prime Minister's Youth Business Loan Scheme. Retrieved from http://www.pmo.gov.pk/prime-ministers-youth-business-loan-scheme.

Granovetter, M. (1974). Granovetter replies to Gans. American Journal of Sociology, 80(2), 527-529.

Granovetter, M. S. (1973). The strength of weak ties. American journal of sociology, 78(6), 1360-1380.

Grant, R.M. (1996), Toward a knowledge-based theory of the firm", Strategic Management Journal, 17 (2). 109-122.

Guan, X., & Frenkel, S. (2019). How perceptions of training impact Employee Performance: Evidence from two Chinese manufacturing firms. Personnel review, 48(1), 163-183.

Hadjistavropoulos, T., Craig, K. D., Duck, S., Cano, A., Goubert, L., Jackson, P. L., ... & Fitzgerald, T. D. (2011). A biopsychosocial formulation of pain communication. Psychological bulletin, 137(6), 910.

Hair, J. F. Jr., Hult, G. T. M., Ringle, C. M., sarstedt, M. (2014). A primer on partial least squares structural equation modeling (PLS-SEM). Sage Publications. ISBN: 978-1-4522-1744-4. 307 pp. European Journal of Tourism Research, 6(2), 211–213.

Hair, J.F., Hult, G.T.M., Ringle, C.M. and Sarstedt, M. (2017), A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM), 2nd ed., Sage, Thousand Oaks, CA.

Harman, H.H. (1967), Modern Factor Analysis, University of Chicago Press, Chicago, IL. Harris, C. (1988), "A comparison of employee attitudes toward two performance appraisal systems", Public Personnel Management, 17 (4), 443-456.

Hartnell, C. A., Ou, A. Y., & Kinicki, A. (2011). Organizational culture and organizational effectiveness: a meta-analytic investigation of the competing values framework's theoretical suppositions. Journal of applied psychology, 96(4), 677.

Henseler, J., Ringle, C.M. and Sarstedt, M. (2015), "A new criterion for assessing discriminant validity in variance-based structural equation modeling", Journal of the Academy of Marketing Science, 43 (1),115-135.

Huang, L., Ma, M., & Wang, X. (2022). Clan Culture and risk-taking of Chinese enterprises. China Economic Review, 72, 101763.

Hussain, M. I., González, L., Souto, C., & Reigosa, M. J. (2011). Ecophysiological responses of three native herbs to phytotoxic potential of invasive Acacia melanoxylon R. Br. Agroforestry systems, 83, 149-166.

Hussain, S. T., Riaz, Y., & Rehman, U. (2020). Challenges Faced by Small and Medium Enterprises in Pakistan: A Review. Journal of Management Sciences, 7(1), 95-112.

Ibrahim, S., Albattat, A. R. S., & Khatibi, A. (2021). Significance of relationships between destination image, Muslim tourist satisfaction and revisit intention of Middle East Muslim tourists visiting the Maldives. Review of International Geographical Education Online, 11(10).

Kaewchur, O. and Phusavat, K. (2016), Key factors influencing knowledge sharing, International Journal of Humanities and Management Sciences (IJHMS), 44 (3), 236-237.

Kahsay, H., & Kwena, R. (2022). Effect of COVID-19 Containment Measures on the Performance of Building Construction Projects in Kigali Rwanda. Available at SSRN 4265050.

Kesting, P., & Ulhøi, J. P. (2010). Employee-driven innovation: extending the license to foster innovation. Management decision, 48(1), 65-84.

Khalique, M., Isa, A.H.M. and Shaari, J.A.N. (2021). Challenges for Pakistani SMEs in a Knowledge-Based Economy. Indus Journal of Management & Social Sciences, 5(2), 74-80.

Khan, A., Khan, M. A., & Fatima, T. (2019). Challenges Faced by Small and Medium Enterprises (SMEs) in Pakistan: An Empirical Study. Global Journal of Management And Business Research: E Marketing, 19(4), 14-22.

Khatami, F., Ferraris, A., De Bernardi, P., & Cantino, V. (2020). The relationship between food heritage and Clan Culture: is "familiness" the missing link in SMEs? British Food Journal, 123(1), 337-354.

Khatri, P., Duggal, H. K., Dutta, S., Kumari, P., Thomas, A., Brod, T., & Colimoro, L. (2023). Unveiling heterogenous knowledge-oriented leadership and knowledge acquisition based hybrid work agility of knowledge workers. Journal of Knowledge Management, 27(11), 253–278.

Kline, R.B. (2005), Principles and Practice of Structural Equation Modeling, Guilford Press.

Kline, R.B. (2011), Principles and Practice of Structural Equation Modeling, Guilford Pres, New York, NY.

Kock, F., Berbekova, A., & Assaf, A. G. (2021). Understanding and managing the threat of common method bias: Detection, prevention, and control. Tourism Management, 86, 104330.

Kumari, N., & Takahashi, Y. (2014). Meta-analytic review of the antecedents of knowledge sharing: focus on public vs. private organizations and it vs. non-it facilitation. *International Business Research*, *7*(12), 29.

Kuzu, Ö. H., & Özilhan, D. (2014). The effect of employee relationships and Knowledge Sharing on employees' performance: Empirical research on service industry. Procedia-Social and Behavioral Sciences, 109, 1370-1374.

Kwahk, K. Y., & Park, D. H. (2016). The effects of network sharing on knowledge-sharing activities and job performance in enterprise social media environments. Computers in Human Behavior, 55, 826-839.

Lai, H. and Hsieh, P. (2013), The decision to continue sharing knowledge in virtual communities: the moderating role of knowledge-sharing experience and knowledge Self-efficacy, PACIS, 1-16.

Le, P.B. and Lei, H. (2019), Determinants of innovation capability: the roles of transformational leadership, Knowledge Sharing and perceived organizational support, Journal of Knowledge Management, 23 (3) 527-547.

Lee, M. C., & Ding, A. Y. (2022). The relationship between market culture, Clan Culture, benevolent leadership, work engagement, and job performance: leader's dark triad

as a moderator. Psychological Reports, 00332941221121564.

Lepore, D., Dubbini, S., Micozzi, A. and Spigarelli, F. (2021), "Knowledge Sharing opportunities for industry 4.0 firms", Journal of the Knowledge Economy, 1-20.

Li, Z., Lin, Z., & Nie, J. (2022). How personality and social capital affect Knowledge Sharing intention in online health support groups? a person-situation perspective. International Journal of Human–Computer Interaction, 38(10), 885-896.

Lin, C. P., & Huang, T. Y. (2023). Assessing social capital and Knowledge Sharing in the high-tech industry: a moderating role of hypercompetition. Management Decision, 61(1), 120-143.

Lin, H. F. (2007). Knowledge Sharing and firm innovation capability: an empirical study. International Journal of manpower, 28(3/4), 315-332.

Liu, F., He, X., & Wang, T. (2023). In the name of the family: The effect of CEO Clan Culture background on firm internationalization. Journal of Business Research, 161, 113837.

Maddux, J.E. (2016), "Self-efficacy", in Interpersonal and Intrapersonal Expectancies, Routledge, London, pp. 41-46.

Manfredi Latilla, V., Frattini, F., Messeni Petruzzelli, A., & Berner, M. (2019). Knowledge management and knowledge transfer in arts and crafts organizations: evidence from an exploratory multiple case-study analysis. Journal of Knowledge Management, 23(7), 1335-1354.

Marliyah, M., Ridwan, M., & Sari, A. K. (2021). The Effect of E-Service Quality on Satisfaction and Its Impact on Customer Loyalty of Mobile Banking Users (Case Study of Bank Syariah Mandiri KCP Belawan). Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences, 4(2), 2717-2729.

Massaro, M., Handley, K., Bagnoli, C., & Dumay, J. (2016). Knowledge management in small and medium enterprises: a structured literature review. Journal of Knowledge management, 20(2), 258-291.

McDermott, R., & O'dell, C. (2001). Overcoming cultural barriers to sharing knowledge. Journal of knowledge management, 5(1), 76-85.

Nahapiet, J., & Ghoshal, S. (1998). Social Capital, Intellectual Capital, and Organizational Advantage. Academy of Management Review, 23(2), 242–266.

Naranjo-Valencia, J. C., Jimenez-Jimenez, D., & Sanz-Valle, R. (2017). Organizational culture and radical innovation: Does innovative behavior mediate this relationship? Creativity and Innovation Management, 26(4), 407-417.

Nazir, M. A., & Khan, M. R. (2022). Identification of roles and factors influencing the adoption of ICTs in the SMEs of Pakistan by using an extended Technology Acceptance Model (TAM). Innovation and Development, 1-27.

Nguyen, T. M., Ngo, L. V., & Gregory, G. (2022). Motivation in organizational online knowledge sharing. Journal of Knowledge Management, 26(1), 102-125.

Nguyen, T.N., Shen, C.H. and Le, P.B. (2021), Influence of transformational leadership and knowledge management on radical and incremental innovation: the moderating role of collaborative culture, Kybernetes, in press doi: 10.1108/K-12-2020-0905.

Nguyen, Tuyet-Mai, Tuan Phong Nham, Fabian Jintae Froese, and Ashish Malik. "Motivation and knowledge sharing: a meta-analysis of main and moderating effects." Journal of Knowledge Management 23, no. 5 (2019): 998-1016.

Nitzl, C., Roldan, J. L., & Cepeda, G. (2016). Mediation analysis in partial least squares path modeling: Helping researchers discuss more sophisticated models. Industrial management & data systems, 116(9), 1849-1864.

Nonaka, I., & Takeuchi, H. (1995). The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation. Oxford University Press.

Nooshinfard, F., & Nemati-Anaraki, L. (2014). Success factors of inter-organizational knowledge sharing: a proposed framework. The Electronic Library, 32(2), 239-261

Omeihe, K. O. (2021). Non-Probability Sampling. British Academy of Management.

Othman, R. and Skaik, H. (2014), Determinants of academics' Knowledge Sharing behavior in United Arab Emirates universities, Journal of Education and Vocational Research, 5 (1). 1-12.

Pelealu, D. R. (2022). The effect of knowledge management system and Knowledge Sharing on Employee Performance and loyalty. *Indonesian Interdisciplinary Journal of Sharia Economics (IIJSE)*, 5(1), 371-389.

Pakistan Software Export Board. (2020). IT Industry Overview. Retrieved from https://www.pseb.org.pk/it-industry-overview/.

Paulin, D., & Suneson, K. (2012). Knowledge transfer, Knowledge Sharing and knowledge barriers–three blurry terms in KM. Electronic Journal of Knowledge Management, 10(1), pp82-92.

Podsakof, P.M., MacKenzie, S., Lee, J. and Podsakoff, N.P. (2003), "Common method biases in behavioural research", MIS Quarterly, Vol. 30 No. 1, pp. 115-141.

Polit, D. F., Beck, C. T., & Hungler, B. P. (2001). Essentials of nursing research: methods, appraisal, and utilization (5th ed.). Philadelphia: Lippincott Williams and Wilkins.

Ramayah, T., Cheah, J., Chuah, F., Ting, H. and Memon, M.A. (2018), Partial Least Squares Structural Equation Modeling (PLS-SEM) Using Smartpls 3.0: An Updated Guide and Practical Guide to Statistical Analysis, 2nd ed., Pearson, Kuala Lumpur.

Reio, T.G.J. (2010), "The threat of common method variance bias to theory building", Human Resource Development Review, 9 (4), 405-411.

Respati, T., Irasanti, S. N., Sartika, D., Akbar, I. B., & Marzo, R. R. (2021). A nationwide survey of psychological distress among Indonesian residents during the COVID-19 pandemic. Int J Public Health Sci, 10, 119-26.

Ribeiro-Soriano, D., Roig-Tierno, N. and Mas-Verdu, F. (2019). Knowledge sharing, knowledge transfer and SMEs: evolution, antecedents, and future directions. Personnel Review, 48(6), 1637-1653.

Richter, N. F., Sinkovics, R. R., Ringle, C. M., & Schlägel, C. (2016). A critical look at the use of SEM in international business research. International marketing review, 33(3), 376-404.

Ringle, C. M., Sarstedt, M., Mitchell, R., & Gudergan, S. P. (2020). Partial least squares structural equation modeling in HRM research. The International Journal of Human Resource Management, 31(12), 1617-1643.

Rohim, A., & Budhiasa, I. G. S. (2019). Organizational culture as moderator in the relationship between organizational reward on Knowledge Sharing and Employee Performance. Journal of Management Development, 38(7), 538-560.

Rutten, W., Blaas-Franken, J., & Martin, H. (2016). The impact of (low) trust on

knowledge sharing. Journal of knowledge management, 20(2), 199-214.

Safdar, M., Batool, S. H., & Mahmood, K. (2021). Relationship between Self-efficacy and knowledge sharing: systematic review. Global Knowledge, Memory, and Communication, 70(3), 254-271.

Sahibzada, U. F., & Mumtaz, A. (2023). Knowledge management processes toward organizational performance–a knowledge-based view perspective: an analogy of emerging and developing economies. Business Process Management Journal, (ahead-of-print).

Seleim, A. and Khalil, O. (2007), Knowledge management and organizational performance in the Egyptian software firms, International Journal of Knowledge Management, Vol. 3 No. 4, pp. 37-66.

Sergeeva, A., & Andreeva, T. (2016). Knowledge Sharing research: Bringing context back in. Journal of Management Inquiry, 25(3), 240-261.

Shariq, S. M., Mukhtar, U., & Anwar, S. (2019). Mediating and moderating impact of goal orientation and emotional intelligence on the relationship of knowledge-oriented leadership and knowledge sharing. Journal of Knowledge Management, 23(2), 332-350.

Shuck, B., Twyford, D., Reio, T.G. and Shuck, A. (2014), "Human resource development practices and employee engagement: examining the connection with employee turnover intentions", Human Resource Development Quarterly, 25 (2), 239-269.

Small and Medium Enterprises Development Authority (SMEDA). (2021). SMEDA Profile. Retrieved from https://smeda.org/index.php/home/smeda-profile.

Staples, D. S., & Webster, J. (2008). Exploring the effects of trust, task interdependence and virtualness on Knowledge Sharing in teams. *Information systems journal*, *18*(6), 617-640.

Teo, T. S., Srivastava, S. C., & Jiang, L. I. (2008). Trust and electronic government success: An empirical study. Journal of management information systems, 25(3), 99-132.

Trade Analysis Series Information and Communication Technology (ICT) Services Sector. (2021). SMeda.org. Retrieved July 14, 2023, from https://smeda.org/index.php?option=com_phocadownload&view=category&id=168&Itemid=996.

Tubigi, M., Alshawi, S.N. and Alalwany, H. (2013), Impact of knowledge management processes onorganisational performance: a preliminary study, Proceedings of the European, Mediterranean & Middle Eastern Conference on Information Systems (EMCIS) Accepted Refereed Papers, Windsor.

Unegbu, H. C. O., Yawas, D. S., & Dan-Asabe, B. (2022). An investigation of the relationship between project performance measures and project management practices of construction projects for the construction industry in Nigeria. Journal of King Saud University-Engineering Sciences, 34(4), 240-249.

Utin, N. H., & Yosepha, S. Y. (2019). The model of Employee Performance. International Review of Management and Marketing, 9(3), 69.

Uzzi, B., & Lancaster, R. (2003). Relational embeddedness and learning: The case of bank loan managers and their clients. Management science, 49(4), 383-399.

Viollet, L., Raman, S., Cook, S., Gailey, S., Kissel, J., Haddad, Z., ... & Allen, H. (2008,

March). Defining treatment outcomes for the cardiomyopathy of dystrophin-deficiency. In NEUROLOGY (70 (11), A80-A80.

Wang, N., Yin, J., Ma, Z., & Liao, M. (2022). The influence mechanism of rewards on Knowledge Sharing behaviors in virtual communities. Journal of Knowledge Management, 26(3), 485-505.

Wang, S. and Noe, R.A. (2010), Knowledge sharing: a review and directions for future research, Human Resource Management Review, 20 (2) 115-131.

Wang, S., Noe, R.A. and Wang, Z.-M. (2014), Motivating Knowledge Sharing in knowledge management systems a quasi–Field experiment, Journal of Management, 40 (4), 978-1009.

Wensley, A., & Toulouse, N. (2020). The Role of Organizational Culture in Knowledge Sharing in SMEs: A Literature Review. Sage Open, 10(3), 1-20.

Witherspoon, C. L., Bergner, J., Cockrell, C., & Stone, D. N. (2013). Antecedents of organizational knowledge sharing: a meta-analysis and critique. Journal of Knowledge Management, 17(2), 250-277.

World Bank. (2019). Pakistan Overview. Retrieved from https://www.worldbank.org/en/country/pakistan/overview.

Wu, W. Y., Lee, L. Y., Quynh Phan, N. V., Qomariyah, A., & Nguyen, P. T. (2023). The influential factors and consequences of Knowledge Sharing for expatriates. International Journal of Emerging Markets, 18(3), 705-727.

Xiaojun and Venkatesh (2017), "A nomological network of knowledge management system use: antecedents and consequences", MISQ, Vol. 41 No. 4, pp. 1275-1306, available at: https://aisel.aisnet.org/cgi/viewcontent.cgi?article=3393&context=misq.

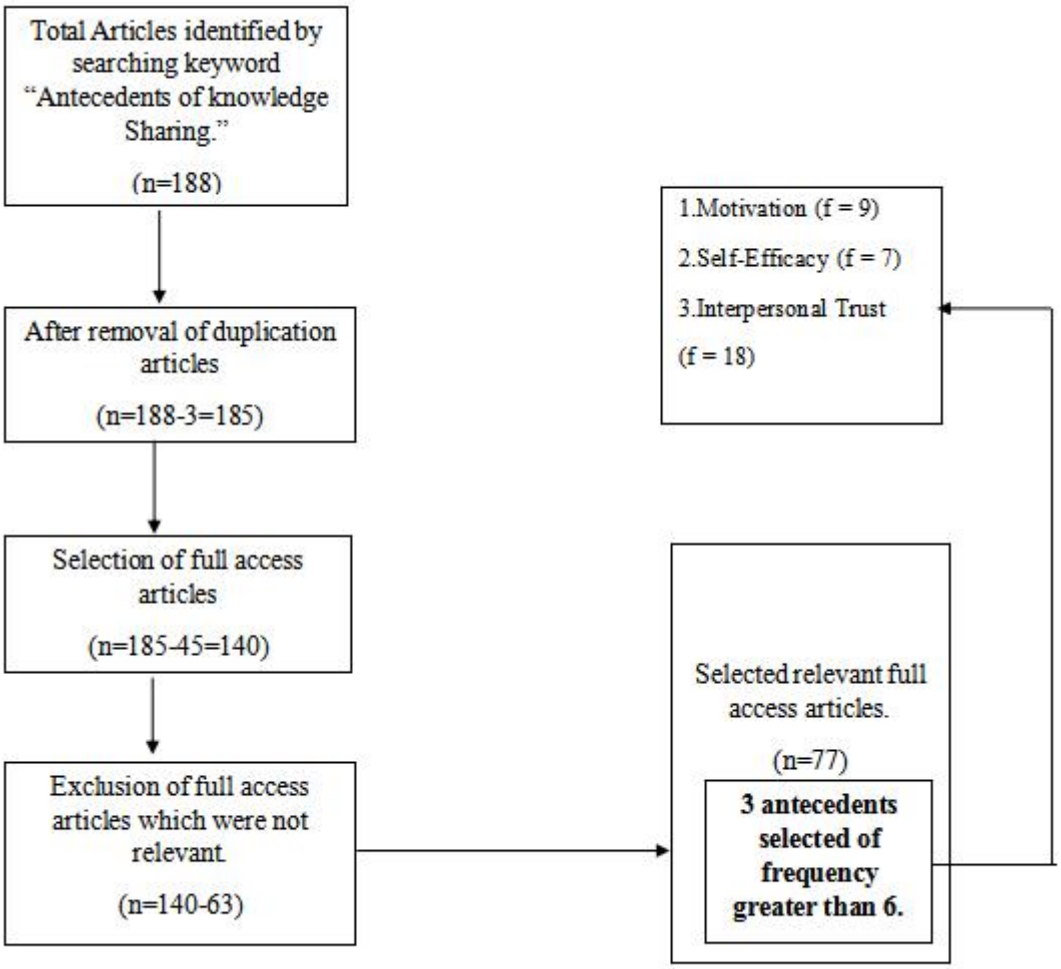
Yamin, M. A. Y. (2020). Examining the effect of organisational innovation on employee creativity and firm performance: moderating role of Knowledge Sharing between employee creativity and Employee Performance. International Journal of Business Innovation and Research, 22(3), 447-467.

Yasir, M., & Majid, A. (2018). Refining the relationship between entrepreneurial skills and start-up-behavior: The role of fear of failure and age-based self-image. Pakistan Journal of Commerce and Social Sciences (PJCSS), 12(3), 710-731.

Yepes, V., & López, S. (2023). The Knowledge Sharing Capability in Innovative Behavior: A SEM Approach from Graduate Students' Insights. International Journal of Environmental Research and Public Health, 20(2), 1284.

APPENDIX -I

SLR FLOW CHART: FLOW DIAGRAM OF SELECTED ARTICLES THROUGH SYSTEMATIC LITERATURE REVIEW DONE THROUGH SCOPUS.



APPENDIX-II

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

Note: The Selected articles are highlighted.

Antecedent	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Frequency
Motivation		+	+	+	+		+	+	+	+	+			9
Interpersonal		+	+ ,	+	+		+	+ , +	+ ,	+ , + ,	+	+	+	18
Trust			+						+ ,	+				
									+ ,					
									+					
Reciprocity								+	+ ,			+ , + ,		6
									+			+		
Social Ties	+				+		+	+				+ , +		6
Knowledge Technology			+		+				+	+	+		+	6
Transformational leadership					+	+		+			+	+		5
Self-efficacy			+		+			+ , + ,	+			+		7
								+						