EXAMINING THE INFLUENCE OF KNOWLEDGE LEADERSHIP BEHAVIORS ON THE ENABLERS OF KNOWLEDGE MANAGEMENT IN SMALL AND MEDIUM-SIZED COMPANIES

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Abstract

Purpose

The purpose of this study is to examine the interactions between two knowledge leadership behaviors as identified by Lakshman & Rai (2019) and four organizational cultural elements as identified as knowledge management enablers by Lee & Choi (2003), within the unique environment of a small- to medium-sized enterprise (SME). Knowledge management is a key driver in the financial success and long-term sustainability of a small business. The goal of this study was to understand if there is a relationship between the leadership behaviors and the knowledge management enablers to provide SME leaders with important evidence to support their efforts to adopt knowledge management practices within their company.

Methodology

This was a quantitative exploratory multi-variant study using a survey instrument that reused a combination of questions from two previous questionnaires. The questions were tested for content validity by a team of three experts and through the use of a pilot study to test for understandability and ease of use. The instrument was also tested for reliability using Cronbach's alpha. The reliability coefficients ranged from 0.79 to 0.84 confirming the internal consistency of the survey instrument. The data were analyzed using multiple linear regression with two independent variables and four dependent variables. The independent variables were the two leadership behaviors – role modeling (RM) and creating a climate that supports learning (CC). The four dependent variables were the organizational cultural traits known as knowledge management enablers – employee trust (T), collaboration (C), organizational learning (L), and IT support (IT).

Findings

The results of the analysis indicate that there is a statistically significant relationship between the leadership behavior of creating a climate that supports learning (CC) and employee trust (T), collaboration (C), organizational learning (L), and IT support (IT). There is also a statistically significant relationship between role modeling (RM) and IT support (IT), however, no statistically significant relationship exists between the other three cultural elements in this context. The most interesting finding is the compelling evidence that creating a climate that supports learning is an important positive predictor of the four cultural elements that are known to support the successful adoption of knowledge management practices in SMEs.

Practical Implications and Value

The results of this study provide clear evidence to SME owners and managers regarding the leadership behaviors they should implement to ensure that they can develop and benefit from successful knowledge management practices in their organization.

Acknowledgments

This endeavor would not have been realized without the support of many people starting with my dissertation committee led by Dr. Yi Yang. Dr. Yang gave her unwavering support throughout my entire doctoral journey, through all the ups and downs. Dr. Yeurong Sweetland provided clearheaded guidance throughout the challenging analysis and was able to steer me through to the end result. And Dr. Dawn Snyder never hesitated to give me her feedback, and most generously, her unwavering optimism, by talking me off the ledge more than once. Despite the many challenges, we finally made it. I also must thank my family for their support, endurance, and for listening to me when I needed an outlet. Additionally, I must acknowledge my professional contacts who endured many messages and pleas for help during the data collection period, and for those who responded to my messages and reached out to their contacts to encourage them to complete the survey. This has been a challenging, but rewarding and exciting experience, and I am grateful to my entire "village" for their support.

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Chapter 1: Introduction

Background

Knowledge has been defined as a critical asset in driving economic growth since the early 2000s (Wyckoff, 2013), and many companies have invested resources in developing and managing their knowledge (Shrafat, 2018). With the advent of the new publication, *The Journal of Knowledge Management,* in September 1997, business leaders recognized the impact and importance of knowledge management as a field of study and practice. In his introductory article in the first publication of the journal, Dr. Karl Wiig, CEO of the Knowledge Resources Institute and co-founder of the International Knowledge Management Network, explained that "knowledge management…is broad, multi-dimensional and covers most aspects of the enterprise's activities" (Wiig, 1997, p. 6). However, as Wong & Aspinall (2005) noted in their study on the critical success factors required for the adoption of knowledge management in SMEs, much of the research to date was focused on large companies, and smaller companies had been left out of the drive towards strategic knowledge management implementation (Wong & Aspinwall, 2005).

Research has shown a significant positive impact on a business that manages its knowledge well. Seow et al (2006) found that successful knowledge management is linked to corporate sustainability in the context of good business sense that leads to reduced waste, reduced pollution, and other activities that lead to financial savings (Seow, et al., 2006), while Gray (2000) noted that "knowledge management can enhance the effectiveness of teams (Gray, 2000, p. 175). Other research has focused on the direct impact that knowledge management has on the financial health of the business and has provided clear evidence that intellectual capital has a direct effect on competitiveness and financial sustainability (Dias Jordao & de Almeida,

2017). However, unlike large companies with the resources to develop, build, and maintain complex and expensive knowledge management systems, small businesses rely on less formalized means to capture and transfer knowledge (Camuffo & Comacchio, 2005). While it has been shown that transparency, information sharing, and knowledge management have a positive impact on the financial sustainability of companies (Andreeva, Schiuma, & Kianto, 2012), the extent to which the influences of leadership impact these practices in small businesses are not universally understood.

Over the past 50 years, a myriad of academic papers and studies have examined the elements of organizational culture that impact business performance (Acar & Acar, 2012; Abu-Jarad, Yusof, & Nikbin, 2010; Yildirim & Birinci, 2013). Knowledge creation and the adoption of successful knowledge management drive aspects of organizational culture (Rai, 2011; Aliyu, Rogo, & Mahmood, 2015; Tseng, 2010; Nold, 2012). Research has provided empirical evidence identifying elements of organizational culture that drive success, innovation, and positive financial outcomes (Stok, Markic, Bertoncelj, & Mesko, 2010; Brettel, Chomik, & Flatten, 2015; Szczepańska-Woszczyna, 2014; Tseng, 2010; Yildirim & Birinci, 2013).

Organizational culture, in turn, is strongly influenced by leadership behaviors (Sarros, Gray, & Densten, 2002). The definition of leadership has been a consistent philosophical question throughout history, but the debate over leadership in business, driven by the founder of modern management Peter Drucker in the 1950s, has helped consolidate leadership theories in regards to their impact on organizational culture (Mango, 2018; Cohen W. A., 2009).

The adoption of new cultural behaviors and organization-wide practices such as knowledge management requires clear and effective leadership. Transformation leadership principles, in particular, have been shown to influence organizational culture directly, and many

studies have developed empirical evidence to quantify the impact that leadership behavior has on organizational cultures such as strong positive relationships between leadership and culture (Sarros, Gray, & Densten, 2002), organizational effectiveness as measured by the quality of service (Klein, Wallis, & Cooke, 2013), and success factors such as employee satisfaction and achievement (Kwantes & Boglarsky, 2007).

Problem Statement

Small and medium-sized enterprises (SMEs) face numerous unique challenges to ensure they grow and remain competitive in their fields. While it has been shown that KM can play a significant role in ensuring competitive advantage in all sizes of companies (Lee & Choi, 2003), many SMEs struggle to have clarity on an effective approach that ensures success (Alavi & Leidner, 1999). Leadership can often play a more significant role in an SME than in a larger organization where influence can be diluted among many more people (Shrafat, 2018); however, leadership behaviors that support the successful implementation of knowledge management have not been examined for SMEs. This research clarifies the relationship between key leadership behaviors and organizational culture concerning the adoption of knowledge management practices in SMEs by investigating the influence of two critical knowledge leadership behaviors on four key cultural elements known as knowledge management enablers.

Purpose

This research investigates the impact of specific leadership behaviors on developing the organizational cultural elements necessary for the successful adoption of knowledge management in small and medium-sized businesses. Given that KM is already proven to give companies of all sizes a competitive advantage in their market (Alavi & Leidner, 1999), this study aims to give clarity to founders, owners, and leaders of SMEs on leadership behaviors that

create an organizational culture that is conducive to the adoption of KM practices. This study does not re-examine which leadership behaviors or cultural elements of an organization influence the adoption of knowledge management in SMEs but extends the research to understand the relationship between them.

Research Question

The research investigated whether there is a meaningful relationship between two essential knowledge leadership behaviors and four recognized knowledge management enablers focusing on SMEs. Holsapple & Jones (2005) defined knowledge leadership behaviors as creating an environment conducive to the successful implementation of knowledge management. Lakshman and Rai (2019) applied Holsapple & Jones's leadership types and developed a four-dimensional model of knowledge leadership behaviors that directly impact an organization's performance (Lakshman & Rai, 2019). This study focuses on two knowledge leadership behaviors and explores the impact on four key knowledge management enablers.

The primary research question is: what are the impacts of two knowledge leadership behaviors – role modeling (RM) and creating a climate that supports learning (CC) – on four knowledge management enablers – trust (T), collaboration (C), learning (L), and IT support (IT), and does the length of time in a company affect these results. The study used a questionnaire to gather data from employees, managers, and leaders within SMEs to identify and measure the relationships among these critical variables.

In this study, the independent variables are role modeling (RM) and creating a climate that supports organizational learning (CC). The dependent variables are trust (T), collaboration (C), learning (L), and IT support (IT).

Significance

Focusing on investigating the influence of two specific leadership behaviors on the development of organizational cultural elements that are known to result in the adoption of knowledge management practices provides small business leaders with valuable and practical insight. This study informs small business leaders on critical aspects of their organizational environment that support the successful adoption of knowledge management and thus capitalize on its known benefits. This study extends the research of leadership behavior and organizational culture as they apply to knowledge management practices in the small business environment.

Definitions

Knowledge Management

As Girard & Girard (2015) identify in their article summarizing the multitude of descriptions about knowledge management, the definition of knowledge management varies by industry sector and the reader's perspective on how knowledge management is employed. It is generally accepted that knowledge management is about harnessing the intellectual assets held by individuals inside an organization, sharing them freely, and exploiting them for innovation purposes and competitive advantage (Girard & Girard, 2015).

Knowledge Leadership

Knowledge leadership is defined as “establishing conditions that enable and facilitate fruitful conduct of KM” and “being a catalyst through such traits as inspiring, mentoring, setting examples, engendering trust and respect, instilling a cohesive and creative culture, establishing a vision, listening, learning, teaching, and knowledge sharing.” (Holsapple & Jones, 2005, p. 13). This research explores two leadership behaviors defined by Lakshman & Rai (2019) in their empirical study of middle managers:

> Creating a climate that supports learning: encouraging a confidential atmosphere that facilitates the open exchange of views and ideas; promoting the transfer of knowledge between colleagues; supporting open discussions to identify and solve problems; encouraging decision-making based on information shared and gathered.
>
> Role modeling: having enthusiasm in the role; committing to change; gathering information to support decision-making; developing individual professional skills. (pp. 19-20)

Knowledge Management Enablers

Knowledge management enablers are influencing factors in the culture and organizational mechanisms that foster knowledge (Lee & Choi, 2003). In their seminal study, Lee & Choi focused on knowledge management enablers that explain the specific elements of organizational culture that influence the adoption of knowledge management. Their research provides a framework to investigate behaviors in an organization that are directly linked to KM. For this research, four of Lee & Choi's enablers were investigated. Their definitions are:

> Trust: the degree of reciprocal faith in others' intentions, behaviors, and skills towards organizational goals.
>
> Collaboration: the degree of active support and help in organizations.
>
> Learning: the degree of opportunity, variety, satisfaction, and encouragement for learning and development in organizations.
>
> IT support the degree of IT support for collaborative work, for communication, for searching and accessing, for simulation and prediction, and for systematic storage. (p. 222)

Small and Medium-Sized Enterprises (SME)

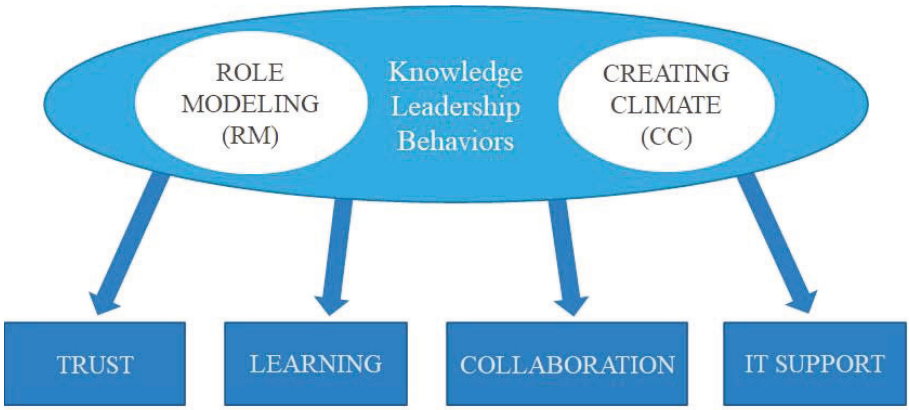
For this study, SMEs are defined as privately-owned businesses that have been in business for more than three years with more than four and less than 250 full-time employees and with a maximum annual revenue of less than 40M (Loecher, 2000). By using this definition, this research avoided input from early startup companies that tend to have specific cultural elements that focus on disruption and explosive growth (Harris, 2016) and do not fit the objectives of this research.

Theoretical Framework

This research builds on previous theories by examining the relationships between knowledge management activities as defined in the knowledge chain model by Holsapple & Jones (2005) and further detailed in the analysis of knowledge leadership behavior by Lakshman & Rai (2019), knowledge management enablers as developed by Lee & Choi (2003), and critical success factors of the adoption of knowledge management in SMEs as identified by Wong (2005). The research focuses on the repeating and overlapping elements that were well-defined in these studies, which are: trust, collaboration, learning, and IT support, and their relationship to two key knowledge leadership behaviors that have been repetitively cited as critical to success: role modeling and creating a climate that supports organizational learning and knowledge management.

Figure 1

Research Model



Knowledge Management Enablers

Assumptions, Limitations & Delimitations

Assumptions

As this is new research based on the previous literature, it is assumed that the previous literature provides an accurate description of the research undertaken, including the interpretation of survey data and analytical results. It is also assumed that the participants answered the questionnaire freely and honestly and were not deceptive, inaccurate, or ideological in their responses.

Limitations

The foremost limitation of this study is the lack of an evidentiary link between creating an environment that supports the successful adoption of KM and the actual observable adoption of KM practices. This study relies on previous literature that relates knowledge leadership behaviors with the successful adoption of KM and, in separate cases, the organizational cultural elements that ensure the successful adoption of KM. This study stops short of relating knowledge leadership behaviors or organizational culture to the proven outcome of successful KM adoption. It is recommended that future research continue the work by measuring the same results that were identified for this study against the observable level of adoption of KM in SMEs.

Delimitations

This study was limited to privately owned SMEs. Respondents were required to be current or previous owners or employees of an SME.

Organization

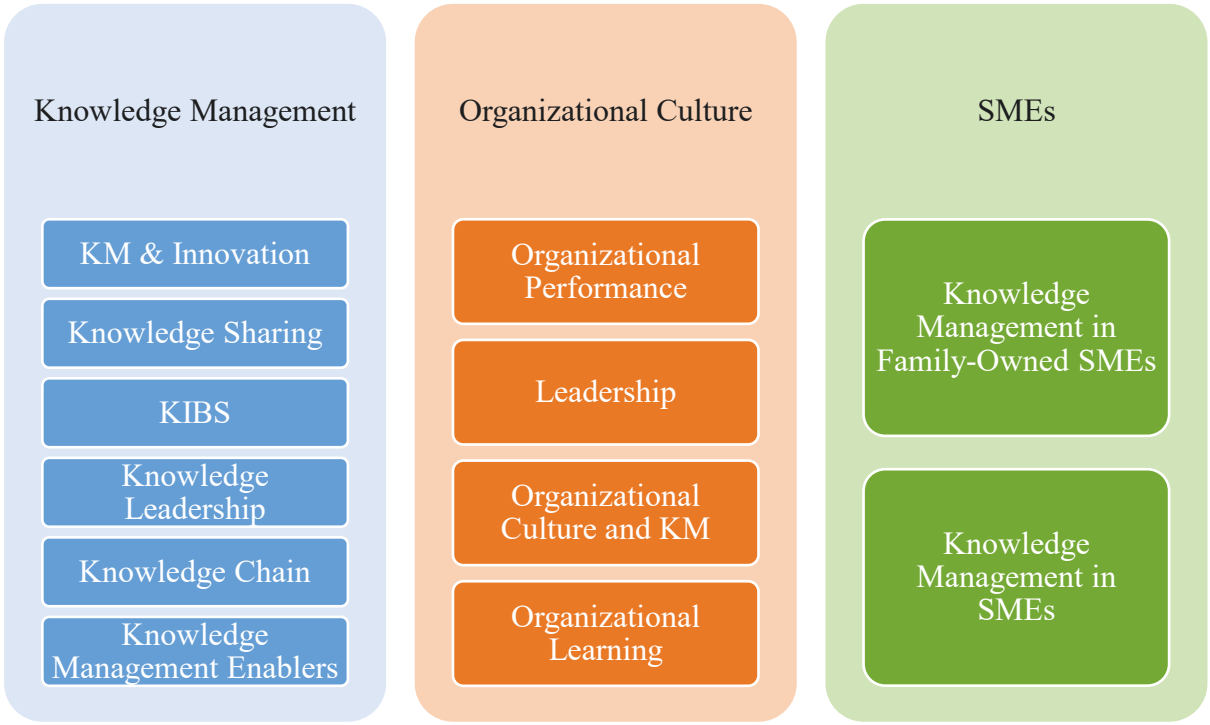
This study is presented in five chapters. Chapter 1 is an introduction to the context of the subject, the statement of the problem, the purpose and significance of the study, a definition of terms including the theoretical framework, and the assumptions and limitations of the study. Chapter 2 presents a comprehensive review of the literature leading up to this study. Chapter 3 describes the methodology used for the research. Chapter 4 presents the analysis and findings. And Chapter 5 provides conclusions with the interpretation of the analysis and recommendations for further study.

Chapter 2: Literature Review

This study spans three distinct subjects, each with its own extensive set of literature: knowledge management, organizational culture, and small- to medium-sized enterprises (SMEs). The study addressed the relationship between knowledge leadership behaviors, as identified in the literature within the field of knowledge management, and the underlying elements of organizational culture that have been shown to support the successful adoption of knowledge management practices. The research focused on SMEs, which have been under-represented in the knowledge management literature. This chapter is organized to provide a baseline for the theories and frameworks currently present in the literature, highlighting the gap that is addressed by this study's research objective.

Figure 2

Subject Areas for Literature Review



Introduction to Knowledge Management

In the late 1980s, academics, theorists, and business professionals began to study the new field of knowledge management. In a survey completed in 1989 of Fortune 50 CEOs, it was generally agreed that "knowledge is a fundamental factor behind an enterprise's success and all its activities" (Wiig, 1997, p. 6). Managing knowledge as a critical asset became a new business priority, and, in 1997, in the first edition of the *Journal of Knowledge Management*, knowledge management was described as being "broad, multi-dimensional and cover[ing] most aspects of the enterprise's activities" (Wiig, 1997, p. 6). Researchers approached the management of knowledge as a new area of study, expanding beyond the broad generalized theory of the value of knowledge itself and the narrow focus on technology and data management (Davenport, 1997). There was agreement that knowledge should be treated as an asset and that the management of knowledge required a series of conscious and tangible activities within the business such as knowledge capture, knowledge storage, investment in technology, and engagement by people (Davenport, 1997). Knowledge management was "recognized as a valuable means for tapping collective intelligence and skills of employees to create greater organizational knowledge" (Brahma & Mishra, 2015, p. 43).

Within a few years, the evidence-based literature around knowledge management and its offshoots was growing at an exponential rate. Knowledge management was being discussed as a primary competitive advantage driving the need for infrastructure and technology to support fully integrated knowledge management systems (Alavi & Leidner, 1999). Promoting the ability of a good knowledge management system (KMS) to reduce time and resources for businesses became a primary emphasis of research studies. Delivering evidence about the effectiveness of KM and KMS in improving profitability, team dynamics, and competitive advantage became the

central focus of many studies (Gray, 2000; Bennett & Gabriel, 1999; Grover & Davenport, 2001). Many practitioners and researchers believed that a consulting company that relied entirely on the intellectual assets of its employees was at one end of the spectrum with a high need for KM, while on the other end, companies selling manufactured products on an assembly line had little need for it. This notion was soon seen as a shortsighted misunderstanding that undervalued knowledge in every type of organization (Zack, 2003).

In 2004, Powell & Snellman published their paper on the knowledge economy, defining it as "production and services based on knowledge-intensive activities" and stating that the new economy had a "greater reliance on intellectual capabilities than on physical inputs or natural resources" (Powell & Snellman, 2004, p. 199). At the same time, many researchers started focusing on gathering evidence to prove the link between knowledge management and competitive advantage in different industries and across the globe; an endeavor that continues to this day (Salojärvi, Furu, & Sveiby, 2005; Camuffo & Comacchio, 2005; Andreeva, Schiuma, & Kianto, 2012; Inkinen, 2016; Dias Jordao & de Almeida, 2017). These studies were the basis of what is understood today about the value of knowledge management practices in business.

Despite this work over the past thirty years, a firm definition of knowledge management remains elusive. In 2015, Girard & Girard published a compendium of definitions of knowledge management from 1993 to 2015 and organized them by industry. The result is a fascinating list of various definitions for KM that clearly illustrate the differing priorities by sector. The authors conclude with these two overarching definitions based on their analysis of over thirty different versions:

- Knowledge management is the process of creating, sharing, using, and managing the knowledge and information of an organization.

- Knowledge management is the management process of creating, sharing, and using organizational information and knowledge.

(Girard & Girard, 2015, p. 14)

Knowledge Management, Innovation, and Organizational Performance

A subset of knowledge management literature focuses on defining and measuring the relationship between successful knowledge management and business innovation. In their study of strategic knowledge management and innovation, López-Nicolás & Meroño-Cerdán (2011) note that the mere act of collecting and storing information does not constitute a compelling competitive advantage (López-Nicolás & Merono-Cerdan, 2011). In the business world, where almost every element is designated as an asset or a liability, intellectual capital is highly valued (Buenechear-Elberdin, 2017). Knowledge and knowledge management are closely linked to intellectual assets as they have been shown to contribute to the competitive advantage of the business.

Organizational performance, financial success, and innovation have been studied and empirically tied to successful knowledge management (Abubakar, Elrehail, Alatailat, & Elci, 2019; Sundiman, 2018; Lopes, Scavarda, Hofmeister, Thome, & Vaccaro, 2017). Measuring innovation has proven to be a more elusive task due to its abstract nature and variety of definitions; therefore, many researchers resort to using performance indices, such as sales or the number of clients, to determine innovation and success (Grillo, Ferreira, Marques, & Ferreira, 2018). Similarly, measures to indicate successful knowledge management vary from business to business and industry to industry. Researchers have focused on demonstrating the value that KM contributes to the organization by measuring tangible business outcomes and performance indicators (Heisig, et al., 2016). In their examination of research needs in KM and business

outcomes, the authors interviewed over two hundred and twenty experts in thirty-eight countries. They found a lack of clarity in understanding how engagement in KM contributes directly to value creation in a business (Heisig, et al., 2016). The authors detail the extensive need for further research that directly links KM to business performance across industries to assure the legitimacy of the practice and integration of KM into strategic decision-making at the highest levels (Heisig, et al., 2016).

Knowledge Sharing

Knowledge sharing is the practice of extracting knowledge from individuals and making it available to the broader organization (Li, Liu, & Liu, 2016). Many organizations have focused on designing and building the extensive integrated technology infrastructure to capture and disseminate knowledge. However, employee resistance to using these systems is one of the significant reasons frequently cited for KM failure in organizations (Li, Liu, & Liu, 2016). Knowledge sharing is a critical aspect of organizational learning, based on the premise that knowledge needs to be shared among employees to facilitate personal and organizational empowerment (Heisig, et al., 2016). It has been shown that enjoyment in helping others and support from upper management have contributed to better knowledge sharing within an organization (Lin, 2007). At the same time, the fear of losing a unique piece of knowledge, fear of change, and social pressures have been shown to contribute to its resistance (Li, Liu, & Liu, 2016).

The focus on knowledge sharing in the literature overlaps closely with a discussion around cultural issues and norms that examines employee motivations and behavior. It is clear that a technology infrastructure alone is not sufficient for a viable KM intervention. Training and employee engagement are also required. In their examination of socio-technical enablers on

knowledge sharing, Choi et al. (2008) found a technology-centric approach puts too much emphasis on the repository of explicit knowledge, while a human-centric approach misses the opportunity to capture and store knowledge that is exchanged informally and through social interaction. The authors concluded that "a balanced combination of the two approaches leads to better KM strategies" (Choi, Kang, & Lee, 2008, p. 751).

In their literature review of knowledge creation and knowledge transfer, Kumar and Ganesh (2009) explain that a firm's ability to fulfill its purpose relies on its ability to "bring together specialized knowledge from different sources…an outcome of which is the manifestation of organizational capabilities" (Kumar & Ganesh, 2009, p. 161). The authors examined terminology in the literature and determined that knowledge transfer most often refers to the combination of knowledge sharing and knowledge re-use, but also relies on the initial knowledge creation in an organization. Additionally, as a term, it is often used interchangeably with knowledge sharing (Kumar & Ganesh, 2009). While Laitinen, Pawlowski, and Senoo (2015) take the examination of behavioral influences on knowledge sharing further by identifying national cultural factors such as the individual, the organization, trust, and willingness to share, to measure resistance or openness to knowledge sharing within a group (Laitinen, Pawlowski, & Senoo, August 2015).

Knowledge sharing and knowledge transfer also lead to a discussion about transparency within an organization. In their examination of the ethics of information transparency, the authors suggest that "transparency tends to be used to refer to forms of information visibility", which in turn refers to "the possibility of accessing information, intentions or behaviors that have been intentionally revealed" (Turilli & Floridi, 2009, p. 105). Knowledge acquisition is a critical activity for any business. The sharing of it within the organization has implications for

competitive advantage and organizational performance (Holsapple, Jones, & Leonard, 2015). However, the external release of the same information can be risky for an organization, and, therefore, its management requires careful administration and strategic decision-making (Turilli & Floridi, 2009).

For this study, knowledge leadership behaviors and organizational cultural elements were examined to discover how strongly they are related and whether the leadership practices encourage and ensure strong knowledge sharing capabilities throughout the organization. One of the known factors that contribute to the failure of knowledge management strategies is the lack of attention given to implementing strong knowledge sharing practices among employees and stakeholders (Li, Liu, & Liu, 2016; Heisig, et al., 2016). Therefore, it is important to include the theories and frameworks about knowledge sharing in this review.

Knowledge-Intensive Business Services (KIBS)

Certain organizations are uniquely dependent on how well they manage their knowledge. Knowledge-intensive businesses are those which produce or sell nothing other than their knowledge and insights. Some firms, most notably those known as management consultancies, rely almost entirely on their ability to acquire, store, analyze, and transfer knowledge to their clients. In 1999, it was noted that the consulting industry's business model was being forced to change due to the emergence of integrated knowledge management practices and that companies needed to update their operating procedures to remain competitive. It was determined that the importance of knowledge management as a new strategic activity within the business would result in a shake-out of the industry that would decide which firms would remain and be able to maintain their competitive advantage through their adoption of successful KM practices (Sarvary, 1999).

An early study in 2002 of management consultancies in Denmark found that they had universally invested heavily in technology and infrastructure to facilitate the knowledge capture process. However, they had not all implemented an explicit knowledge management strategy to engage their employees in regular knowledge-sharing activities (Muñoz, 2002). In this study, it was shown that investment in technology alone does not guarantee successful knowledge management (Muñoz, 2002).

Ten years later, the field of knowledge management was better understood and KMS was widely implemented across industries. Research about KM and KIBS was focusing on more specialized areas, such as identifying organizational procedures and behaviors that defined the success of KM specifically within KIBS (Zieba, 2014). As was seen in other industries, the KIBS sector's success was determined not only by how well they implemented technology to support KM within the business but also by how well they engaged their human resources and organizational learning functions to support positive attitudes toward KM within the business (Zieba, 2014).

Within the KIBS sector, there should be a clear understanding of which leadership behaviors positively impact knowledge management (Merat & Bo, 2013). As the creation and dissemination of knowledge within a company rely exclusively on its employees' engagement, leadership behaviors directly influence the employees' contribution to KM practices. The importance of understanding leadership models to ensure successful KM in KIBS is therefore clear (Merat & Bo, 2013). This study addresses leadership behaviors and their impact on the business culture that supports integrated knowledge management practices which are especially important to KIBS.

Knowledge Leadership

Early on in the study of knowledge management as a critical business activity, it became apparent that "leadership is a key influence on the conduct and outcomes of knowledge management in organizations and economies" (Amidon & Macnamara, 2004, p. 539). In their chapter about leadership in the *Handbook of Knowledge Management 1*, the authors proposed that leadership is evolving from theoretical frameworks of management to on-the-job evolution of behaviors that require leaders to account for their performance. Within this context, leadership in a knowledge-based economy develops into a practice that requires engagement, behavioral change, and measurable impact (Amidon & Macnamara, 2004).

The concept and definition of leadership itself continue to evolve, and leadership methods are still being discussed and debated. A comprehensive definition of leadership was presented by Winston & Patterson (2006):

> A leader is one or more people who selects, equips, trains, and influences one or more follower(s) who have diverse gifts, abilities, and skills and focuses the follower(s) on the organization's mission and objectives, causing the follower(s) to willingly and enthusiastically expend spiritual, emotional, and physical energy in a concerted, coordinated effort to achieve the organizational mission and objectives.
>
> (Winston & Patterson, 2006, p. 7)

In 2007, Lakshman began a multi-step research journey examining leadership in the context of organizational knowledge, searching for a measurable relationship between leadership behaviors with a positive influence on knowledge management and organizational performance. The author started with a grounded theory approach to the role of leaders in knowledge management developed from analyzing the language used by thirty-seven CEOs in interviews

with *Harvard Business Review*. The study concluded that leadership behaviors regarding information and knowledge sharing were significantly linked to knowledge management and organizational effectiveness (Lakshman, 2007).

Subsequently, Lakshman (2009) conducted additional research using impartial, external respondents to analyze the *HBR* CEO interviews. This secondary stage of examination resulted in empirical evidence demonstrating the relationships between knowledge leadership behaviors and tangible measures of organizational performance such as earnings per share and organizational effectiveness (Lakshman, 2009). In their study focusing on addressing resistance to the adoption of KMS in organizations, the authors showed that leadership was a key predictor of the perceived ease of use of KMS, therefore greatly influencing its adoption at every level of the organization (Kuo & Lee, 2011). Donate & Pablo (2015) added empirical evidence showing that while KM itself is key to innovation, knowledge-oriented leadership is critical to its implementation and success (Donate & Pablo, 2015).

In 2019, Lakshman followed up his research on knowledge leadership by developing an operationalized concept of leadership behaviors about knowledge management and empirically verifying it (Lakshman & Rai, 2019). The objective was to create a deeper understanding of leadership behaviors that have a validated impact on implementing knowledge management in an organization. The authors developed a "comprehensive multi-level model of leadership influence on organizational learning and…empirically validating its relationship with knowledge sharing and subsequent innovation" (Lakshman & Rai, 2019, p. 2). This research is critical to understanding the importance of leadership behaviors in the adoption of KM within organizations.

Knowledge leadership is a focal point of this study. This research examines the relationship between critical leadership behaviors in knowledge management and their impact on important cultural elements that enable the adoption of knowledge management practices in small companies. The frameworks and theories behind knowledge management enablers are addressed in a later section of this literature review.

Knowledge Leadership Behaviors

For this study, two key knowledge leadership behaviors were included in the analysis. According to Holsapple & Jones (2005), knowledge leadership means "establishing conditions that enable and facilitate fruitful conduct of KM" (Holsapple & Jones, 2005, p. 5). The two leadership behaviors that are central to this research were identified and discussed in Lakshman & Rai (2019) based on their empirical analysis of the influence of knowledge leadership on innovation in business. They are role modeling and creating a climate that supports learning.

Role Modeling

"Role models are often seen as a way of motivating individuals to perform novel behaviors and inspire them to set ambitious goals" (Morgenroth, Ryan, & Peters, 2015, p. 1). According to Lakshman & Rai (2019), this dimension of leadership behavior directly influences employee participation through several components leading to a "critical mass of individual behaviors" that function to support and influence the organization's culture:

- Leading by example
- Continuous learning
- Interest
- Use of knowledge
- Commitment to change

(Lakshman & Rai, 2019, p. 9)

Creating a climate that supports learning

This leadership behavior aims to create an environment of sharing, iterative exchange of information to address challenges and solve problems, and the common practice of listening and being open to feedback. “The degree to which people ask for advice and help from each other and the extent to which they learn from mistakes and failures together is directly dependent on the presence of a favorable learning environment” (Lakshman & Rai, 2019, p. 8). It has been shown that leaders that fully comprehend the value of knowledge as an asset to the business are motivated to create a cultural environment that incorporates inherent knowledge sharing, knowledge storage, and knowledge reuse behavior throughout its entire structure (Park & Kim, 2018; Pan & Scarbrough, 1998).

Knowledge Chain

In the late 1990s, Holsapple began a series of studies to classify the factors that influence successful knowledge management. In the first publication, he developed a framework for analysis that organized elements into environmental, managerial, and resource categories, each with a distinct impact on the successful adoption of KM within an organization (Holsapple & Joshi, 2000). In 2000, Holsapple and Singh presented their Knowledge Chain Model at the Third Annual Conference of the Southern Association for Information Systems (Holsapple & Singh, 2000), equating activities for knowledge management with Porter’s Value Chain (Porter & Millar, 1985). Porter’s work was focused on explaining and developing competitive advantage in business, and Holsapple applied the same framework to the activities required for successful knowledge management (Holsapple & Singh, 2000).

Figure 3
Porter's Value Chain

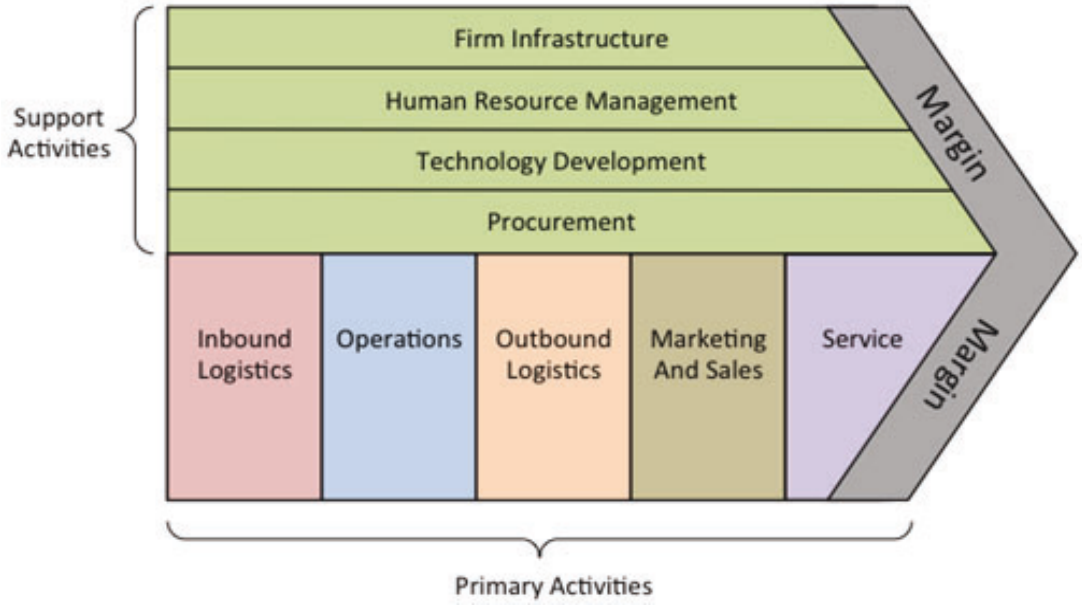
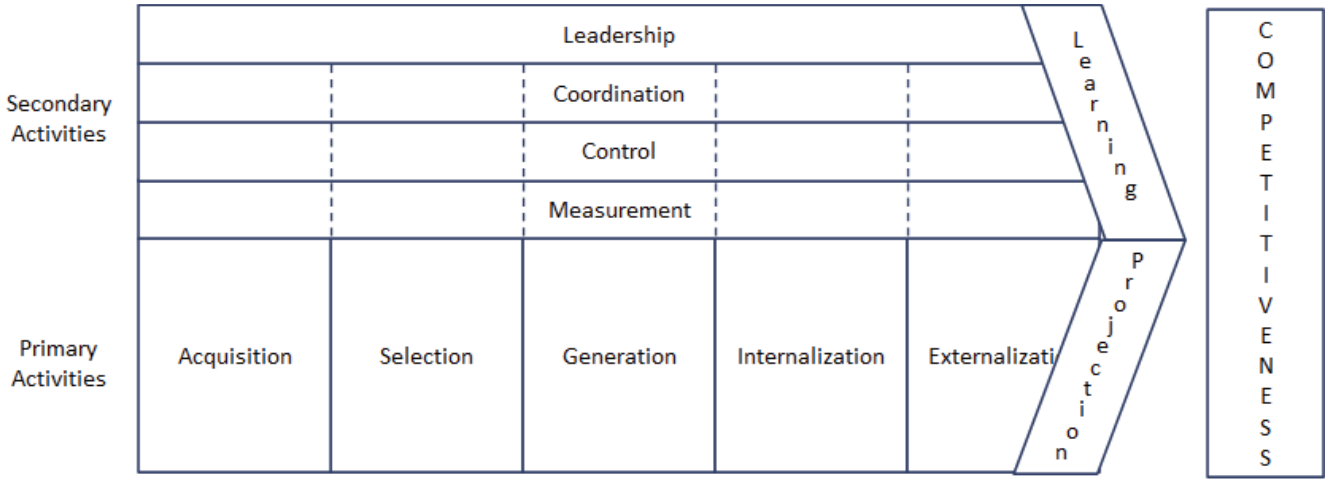


Figure 4
The Knowledge Chain



In 2001, the authors published their detailed explanation of the five primary activities and four secondary activities that comprised the knowledge chain model (Holsapple & Singh, 2001). In 2004 and 2005, Holsapple completed the publications about the model with in-depth explanations of the primary activities and secondary activities, still using the same framework and language as Porter's Value Chain (Holsapple & Jones, 2004; Holsapple & Jones, 2005).

To solidify the concepts and terminology, Holsapple published an ontology of knowledge management in 2004 to "serve as a common language for discourse around knowledge management…[and] suggest issues that deserve investigation" (Holsapple & Joshi, 2004, p. 89). According to the authors, the ontology was required to ensure a standardized method to discuss and think about how knowledge assets are used within an organization because in "a domain that lacks commitment to a particular ontology, it is hard to share and re-use knowledge" (Holsapple & Joshi, 2004, p. 90).

For the first time, the knowledge chain presented a clear structure for discussion and research around knowledge management and allowed researchers to use a common language and framework to base future studies. This research includes elements from this work, in particular, definitions and theories developed by Holsapple and his collaborators focused on knowledge leadership.

Knowledge Management Enablers

In 2003, Lee & Choi published their foundational study on knowledge management enablers (Lee & Choi, 2003). Their work has been cited in more than three thousand publications. It was one of the first to comprehensively identify and measure the organizational factors that enable the adoption of successful knowledge management. Their model identifies seven organizational enablers of knowledge management: collaboration, trust, learning, centralization, formalization, t-shaped skills, and information technology support. Their study provided empirical evidence of the relationship of the seven enablers to successful knowledge management and organizational performance (Lee & Choi, 2003).

Subsequent research and case studies have been built from Lee & Choi's work, verifying and providing different levels of detail and empirical evidence about knowledge management

enablers in organizations. Yeh, Lai, & Ho identified additional factors to support the successful adoption of KM in their 2006 study, including "establishing a dedicated unit for implementing knowledge management" and "forming a culture of sharing" (Yeh, Lai, & Ho, 2006, p. 793). Over the years since Lee & Choi's publication, multiple studies have provided additional empirical evidence that validates their concept of linking organizational culture and technology variables to the successful adoption of knowledge management (Allameh, Zare, & Davoodi, 2011; Alavi, Kayworth, & Leidner, 2005; Kulkarni, Ravindran, & Freeze, 2006; Wong, 2005; Migdadi, 2009).

The knowledge management enablers developed by Lee & Choi have been used hundreds of times as the basis for deeper research into knowledge management behaviors and practices, and for this study, their work is just as indispensable. This study built on their analysis to examine the relationship between four of their knowledge management enablers and two of the knowledge leadership behaviors identified by Lakshman & Rai (2019).

Commonly cited KM Enablers

This study focused on four knowledge management enablers as defined by Lee & Cho (2005). The four elements to be included in the research are trust, collaboration, learning, and IT support. The decision to select and study these four elements is based on the repeated use of these critical factors related to organizational culture in the knowledge management literature, as detailed below.

Trust

Throughout the literature about organizational culture, as it relates to knowledge management, trust is mentioned as one of the most important elements that drive success. Trust in leadership and between coworkers leads to behavior inherent to successful knowledge

management such as knowledge sharing, transparency, strong communication, the extent to which coworkers depend and care about each other's interests, a sense of fairness and integrity, honesty, and openness (Park & Kim, 2018; Pan & Scarbrough, 1998; Wong & Aspinwall, 2005; Shrafat, 2018; Allameh, Zare, & Davoodi, 2011). "Higher levels of trust will further lead to stronger interpersonal cohesion and loyalty, thus boosting internal collaboration and knowledge exchange across different functional boundaries" (Brettel, Chomik, & Flatten, 2015, p. 872).

Collaboration

Likewise, a well-integrated organizational culture that emphasizes and rewards collaboration lends itself to the successful adoption of knowledge management practices. As with trust, collaboration is an inherent cultural element discussed throughout the knowledge management literature and is almost universally embedded in the various perspectives of organizational culture (Wong & Aspinwall, 2005; Migdadi, 2009; Shrafat, 2018; Esposito, Evangelista, Lauro, & Raffa, 2009; Anantatmula, 2009). "A collaboration environment provides opportunities for knowledgeable people to share knowledge openly and have successful knowledge management programs" (Allameh, Zare, & Davoodi, 2011, p. 1217).

Learning

Lee & Choi (2003) defined organizational learning as "the acquisition of new knowledge by people who are able and willing to apply that knowledge in making decisions or influencing others" (Lee & Choi, 2003, p. 191). The degree to which an organization invests in learning and development, and facilitates its employees and leaders to engage in continuous learning, is another repetitive feature in the knowledge management literature (Anantatmula, 2009; Abdi, et al., 2018; Lakshman & Rai, 2019; Migdadi, 2009). "[O]rganizational learning can play a significant role in acquiring, disseminating and using knowledge to adapt to a changing external

environment" (Park & Kim, 2018, p. 1408). As such, it is a critical aspect of the adoption of knowledge management in companies.

IT Support

The implementation of good knowledge management practices is often confused with the installation of a knowledge management system (KMS). KMS refers almost exclusively to the technology that facilitates the extraction, storage, and dissemination of knowledge throughout the organization, and usually does not incorporate the cultural aspects that need to exist to ensure its adoption. "A technology will be used well if, and only if, the functions of that technology can support the user's needs" (Kuo & Lee, 2011, p. 116). Much of the literature around knowledge management focuses on the challenges of designing an appropriate KMS and, more importantly, facilitating the use of the new technology throughout the organization (Kuo & Lee, 2011; Shrafat, 2018; Massaro, Handley, Bagnoli, & Dumay, 2016). "Due to employees actively or passively refusing to use a knowledge management system, many knowledge management initiatives fail at the very beginning" (Li, Liu, & Liu, 2016, p. 189). Support for IT adoption is, therefore, a critical factor of successful knowledge management cited throughout the literature.

Summary

The field of knowledge management has been extensively developed and dissected over the past 20 years. The research question for this study focuses on investigating the influence of leadership behaviors on the critical cultural enablers that support successful knowledge management adoption. The relationship between the knowledge management enablers, as identified by Lee & Choi (2004), and knowledge leadership behaviors, as identified by Lakshman & Rai (2019), provide a central foundation of this study.

Introduction to Organizational Culture

The study of culture in organizations has spanned decades and various theories and revisions. However, defining measurements that can be useful to explain concepts and compare factors is not as prevalent. In 1990, Hofstede et al. published a seminal study that identified six dimensions of organizational sociology factors that explained and measured the culture of twenty organizations. The researchers found that the differences in culture "resided mainly at the level of practices as perceived by members" (Hofstede, Neuijen, Ohayv, & Sanders, 1990, p. 286). The authors noted that organizational culture as a construct is "(1) holistic, (2) historically determined, (3) related to anthropological concepts, (4) socially constructed, (5) soft, and (6) difficult to change" (Hofstede, Neuijen, Ohayv, & Sanders, 1990, p. 286). The outcomes of the study confirmed the assumption that the shared values of its members represent the core of an organization's culture.

In general, an organization's culture "allows its members to frame events in a similar fashion and provides the stability an organization needs to survive" (Martin, 2006). Understanding how organizational culture affects an organization's success, growth, and decision-making process becomes important when examining behavior within the organization. Many researchers focused on developing a useful and repeatable instrument for measurement. However, a review in 2002 found that "no instrument covers with precision and exhaustiveness" the core dimensions of organizational culture (Delobbe, Haccoun, & Vandenberghe, 2002, p. 2). In 2014, Ghosh & Srivastava returned to the challenge of creating an operationalized measurement scale for organizational culture, to link its elements to organizational performance and success. The authors found that the weaknesses in prior efforts lay in the discrepancies in the

theoretical frameworks of culture and the tendency to focus on a narrow perspective of culture (Ghosh & Srivastava, 2014).

Further unique perspectives of organizational culture focus on different types of organizations such as family-owned businesses or companies experiencing hypergrowth. Compared with others, family-owned businesses encompass unique cultural aspects. The addition of the emotional family connection, and the complications that are inherent within them, can permeate the culture of a family-owned business. In his research Aronoff (2004) found that for these businesses, success requires "a unique culture of values and meaning [to] provide motivation beyond money" (Aronoff, 2004, p. 59).

For fast-growing companies, the rapid addition of new employees, products, and operational needs risk obliterating the culture as was envisioned by the founders of the business. In such situations, "unintended behaviors are learned throughout the organization, and company values and beliefs are diluted over time" (Valencia, 2019, p. 2). The author suggests that these types of organizations require a deliberate, managed approach to ensure the development of a well-designed and well-managed learning process to make certain that new employees integrate into the company's culture rather than lose their values to personal perspectives and understanding (Valencia, 2019).

This research aims to link foundational concepts of organizational culture to known knowledge management and knowledge leadership behaviors, especially within small- and medium-sized businesses.

Organization Effectiveness and Performance

The study of organizational culture as a source of competitive advantage in business dates back to at least the 1980s. Barney (1986) set out to define which organizational cultural

attributes generate sustained improved financial performance and therefore could be defined as a source of competitive advantage. The researcher suggested that companies with stronger financial performance "typically are characterized by a strong set of core managerial values" (Barney, 1986, p. 656) and that the success of large multinational companies reflects the success of developing and managing their organizational culture.

Throughout the decades, the focus on determining the link between organizational culture and performance has been a controversial subject and resulted in many inconsistencies in findings due to the multitude of definitions of both "financial performance" and "organizational culture". In their review of the literature, Weinzimmer et al. (1998) concluded that inconsistencies in definitions have led to a lack of consensus in the literature that needed to be addressed if the study of organizational performance was to be of value in the future (Weinzimmer, Nystrom, & Freeman, 1998).

In 2004, Carmeli & Tishler published a study that addressed the lack of empirical evidence between independent organizational elements and organizational performance (Carmeli & Tishler, 2004). Their research has been cited by over a thousand subsequent studies as it provided a foundational perspective on intangible organizational elements such as managerial capabilities and organizational culture with a direct impact on organizational performance measures. The authors acknowledged that the "task of coordinating and balancing the development of organizational elements with investment constraints in the effort to maximize performance is quite complex," and they recommended, "disaggregating the organization into discrete elements, as in Porter's value chain" (Carmeli & Tishler, 2004, p. 1272).

More recently, Abu-Jarad et al. (2010) published a review on culture-performance literature, including studies on the definition and measurement of organizational culture and the

definition, conceptualization, and measurement of organizational performance. They discovered that between 1990 and 2007, more than 7600 companies had been referenced in more than 60 studies in 26 countries showing a strong relationship between culture and business performance (Abu-Jarad, Yusof, & Nikbin, 2010). Additional studies with research focused on the elements of organizational culture and organizational performance produced empirical evidence showing strong correlations between these two critical elements of business management (Bertoncelj, Markič, Štok, & Meško, 2010; Acar & Acar, 2012; Szczepańska-Woszczyna, 2014). A recent review of literature on organizational culture and performance confirmed that empirical evidence continues to be produced validating the positive relationship between these two critical areas and, taking it one step further, showed that a "lack of cultural integration…was a primary cause of failure in corporate groups" (Pathiranage, Jayatilake, & Abeysekera, 2020).

In young companies or companies experiencing hypergrowth, organizational culture exerts an even more powerful influence. The OECD (2016) characterizes high-growth enterprises as important contributors to job and wealth creation, and while they typically represent only 2% to 6% of businesses globally, they contribute disproportionally to job and wealth creation (OECD, 2016). Cordes et al. (2010) examined the evolution of a company's culture during periods of growth and found that for businesses to evolve with changing market conditions and innovation, they must rely on "cooperative" employees, specifying that "cooperative behavior involves actions that go beyond the call of duty" (Cordes, Richerson, & Schwesinger, 2010, p. 466) implying that such employees are extending extra effort beyond what is expected of them. This leads to greater cooperation which "fosters team spirit, morale, and cohesiveness," enhancing an organization's ability to adapt to changes in its dynamic environment. The competitive advantage of organizations is based on a corporate culture of

cooperation that is a result of the effort voluntarily spent by its employees that identify with its mission and goals (Cordes, Richerson, & Schwesinger, 2010). Brettel et al. (2015) also showed that organizational culture could have a direct and positive impact on the entrepreneurial orientation of a company (Brettel, Chomik, & Flatten, 2015), leading to growth and innovation.

As good knowledge management practices are a known contributor to organizational performance, this research focuses on the cultural and leadership aspects of the organization that contribute to good knowledge management practices, specifically for SMEs, which have been under-represented in the literature to date.

Leadership

In their study focusing on an employee's organizational commitment, Steyrer, Schiffinger & Lang (2008) defined commitment as "the relative strength of an individual's identification with and involvement in a particular organization" (Steyrer, Schiffinger, & Lang, 2008, p. 364). Their study confirmed that most leadership dimensions had a statistically significant relationship with employees' organizational commitment, which in turn had beneficial effects on company performance (Steyrer, Schiffinger, & Lang, 2008). In 2002, Sarros et al. published a study of almost 2000 managers that revealed a positive relationship between leadership and organizational culture (Sarros, Gray, & Densten, 2002). Their objective was to answer the question of what comes first, leadership or culture. They acknowledged that there already existed irrefutable evidence that "strong organizational cultures are associated with strong and competent leadership" and that "[l]eaders in these cultures are role models who espouse organizational goals and encourage employee commitment to the organization's purpose and vision" (Sarros, Gray, & Densten, 2002, pp. 2-3). Their findings indicated that leadership behavior was a far more accurate predictor of organizational culture than culture was of

leadership. They concluded that their evidence validated earlier literature that showed that leaders determine the emotional climate of organizations (Sarros, Gray, & Densten, 2002).

The influential relationship between leadership and organizational culture has been confirmed in several studies since the early 2000s. In Kwantes & Boglarsky (2007), the authors identified employee fulfillment and satisfaction as aspects of organizational culture which are positively related to leadership (Kwantes & Boglarsky, 2007). Klein et al. (2013) took the research one step further and showed that organizational effectiveness is related to organizational culture, which is itself related to the type of leadership styles (Klein, Wallis, & Cooke, 2013). Their results validated the hypotheses that "the leadership skills of managers and supervisors are critical factors in the creation and reinforcement of cultural norms" and that "cultural norms influence quality, and support the general proposition that culture matters" to the success of the business (Klein, Wallis, & Cooke, 2013, p. 251). Yildirim & Brinici (2013) agreed, stating that "corporate culture and leadership come up as major factors in the success of organizational transformation…as they have a great influence on organizational structures, processes, and hence the performance of companies" (Yildirim & Birinci, 2013, p. 71).

Within the literature on SMEs and leadership, there has been an attempt to identify the key leadership attributes necessary to ensure the successful transition from start-up to big business. Wasserman (2017) studied the effect of founder control on value creation and concluded that the inherent need for a founder to grow the human and social capital of the business would result in a challenge to the centralized control of the founder. The author found that start-ups that were able to evolve beyond the centralized control of the founder generated greater organizational and shareholder value (Wasserman, 2017). Madanchain & Taherdoost (2018) based their study of leadership in SMEs on the understanding that literature had

previously validated the theory that leadership is a critically important factor in organizational performance and creating a culture of value (Madanchian & Taherdoost, 2018).

Another important aspect of examining the influence of organizational culture on a company's performance and success is to understand the characteristics of the decision-making process. In their study of the strategic decision-making process in SMEs, Musso & Francioni (2012) found that the behavior of leadership and the decision-makers are influenced by several different factors. These include competencies, such as rationality, gut feel, and experience; personality characteristics, such as the need for achievement and attitude towards risk; and socio-demographic characteristics, such as education and exposure to a wider world (Musso & Francioni, 2012).

In his research to identify the key leadership attributes that ensured successful growth, (Cambanis, 2017) included the establishment of a strong collaborative organizational culture as a critical measurement. His research found that "letting go" and "establishing collaboration and a strong organizational culture" were critical aspects of the role of the leader. The author included a quote from one leader/respondent who said, "Culture is everything. I mean, you get the culture wrong, everything goes wrong. If you get the culture right, you can fix anything" (Cambanis, 2017, p. 75).

In 2011, Birasnav et al. examined the literature on transformational leadership, knowledge management, and human capital to understand the relationship between them. They concluded that "transformational leaders have the potential to affect their employee's perception of human capital benefits…[and] have the greatest potential to augment these benefits through involving them in the KM process, establishing organizational culture, and encouraging communication among employees" (Birasnav, Rangnekar, & Dalpati, 2011). Muchiri &

Kiambati (2015) took the framework of transformational leadership and applied it to the relationship between leadership, knowledge management, and the influence of the societal culture in which the organization functions. Their research confirmed the influence of leadership on successful knowledge management and firm performance and also showed that the societal culture's influence on types of leadership styles also played a significant role (Muchiri & Kiambati, 2015). In 2018, Le & Lei contributed to this area by researching the aspect of trust in connection to knowledge-sharing under transformational leadership. They confirmed that trust is a mediator between the transformational leader and the knowledge-sharing process (Le & Lei, 2018).

The literature around leadership has more recently intersected with the literature on knowledge management, especially with regard to the transformational leadership model. This research expands on this body of evidence to illustrate the leadership behaviors that influence the key knowledge management enablers in the culture to ensure the successful implementation of KM practices.

Organizational Culture and Knowledge Management

The study of organizational culture and knowledge management has accelerated since the early 2000s. In 2003, Lawson published her doctoral dissertation examining the relationship between organizational culture and knowledge management. Her work has been cited in dozens of subsequent research projects as a foundational study demonstrating a positive correlation between organizational culture and knowledge management (Lawson, 2003). In 2005, Alavi, Kayworth & Leidner published their case study exploring the relationship between organizational culture and knowledge management. In presenting their hypothesis, the authors cited previous literature concluding that "values orientations such as trust and collaboration will

lead to a greater willingness among firm members to share insights and expertise with one another" (Alavi, Kayworth, & Leidner, 2005, p. 196). Their case study concluded that KM was significantly influenced by organizational culture, and they presented several implications that management should be aware of when attempting to introduce KM practices into the organization. They determined that "managers must give close attention to developing the proper social environment to facilitate effective knowledge-related behaviors" (Alavi, Kayworth, & Leidner, 2005, p. 218).

Over the subsequent ten years, the relationship between organizational culture and knowledge management was still being explored. Rai (2011) proposed an overarching theoretical framework to explain the effects of organizational culture on knowledge management (Rai, 2011). Chang and Lin (2015) published their survey on specific intentions at the employee level that have implications on the successful adoption of KM practices in the organization. Their research showed that "results- and job-oriented cultures have positive effects on employee intention in the KM process, whereas a tightly controlled culture has negative effects" (Chang & Lin, 2015). In 2011, Wang, Su & Yang proposed that the type of organizational culture that is fostered has a significant impact on the knowledge creation process, specifically regarding hierarchy, openness, and collectivism (Wang, Su, & Yang, 2011). Subsequently, in 2017, Paliszkiewicz, Svanadze & Jikia investigated which of the different elements of knowledge management (acquisition, storage, sharing, and re-use) is most significantly related to the culture of the organization. The authors found that the sharing or diffusion of knowledge was the most influenced by the organization's culture (Paliszkiewicz, Svanadze, & Jikia, 2017).

Identifying the elements of organizational culture that have a critical influence on the adoption of KMS has been the focus of many researchers, and factors such as knowledge sharing

rituals and protocols, employee reward systems, trust, and leadership have shown to be cultural imperatives required to ensure success (Alam, Abdullah, Ishak, & Zain, 2009; Marulanda Echeverry, Lopez Trujillo, & Castellanos Galeano, 2016). “Cultural expectations influence knowledge sharing activities, for example, what knowledge should be shared and what should not be, how flexible and quick the exchange of knowledge through formal communication channels is and what knowledge is to be considered important, and what knowledge should be prevented from spreading across the organization” (Shrafat, 2018, p. 241).

Given that the relationship between organizational culture and successful knowledge management was confirmed in the literature, the next level of research focused on the effect of organizational culture and KM on the ability of companies to compete and perform well. Investigating these three constructs, Tseng (2010) found that the organizational culture and knowledge conversion factors in a company had a positive effect on corporate performance. Subsequent studies focusing on individual industries or particular aspects of a company’s structure also found evidence that organizational culture and knowledge management are positively correlated to an organization’s performance (Abdi, et al., 2018; Rhodes, Hung, Lok, Lien, & Wu, 2008; Zheng, Yang, & McLean, 2010).

Other studies focused on the relationship between organizational culture, knowledge management, and leadership practices. According to Nguyen & Mohamed (2011), “…it is essential to articulate how organizational culture and leadership styles affect an organization’s ability to create and apply knowledge” (Nguyen & Mohamed, 2011, p. 207). Their research focused on the impact of different leadership styles in SMEs and their effect on knowledge management. They found that the success of KM depended on how leadership behaviors are aligned with the current culture to reinforce KM practices (Nguyen & Mohamed, 2011).

Likewise, Peyman et al. (2014) found that certain types of leadership that foster a culture of collaboration and innovation have a greater impact on successful knowledge management (Peyman, Zahedi, Dastyari, & Abasaltian, 2014).

Organizational culture and knowledge management are being looked at simultaneously in the more recent literature, as it has become clear that the cultural aspects are key drivers of the success of KM practices within an organization. This study expands on this research and cross-analyze organizational culture with knowledge leadership behaviors to examine their relationship.

Organizational Learning

"Organizational learning refers to the study of the learning processes of and within organizations" (Easterby-Smith & Lyles, 2011, p. 3). The ability of an organization to train and engage its employees in all aspects of the knowledge management cycle is a critical success factor that has been well documented (Holsapple & Joshi, 2000; Wong, 2005; Allameh, Zare, & Davoodi, 2011; Lee & Choi, 2003). Successful knowledge management is demonstrated in an organization's ability to build learning processes that engage employees and ensure vital knowledge is captured, stored, shared, and re-used. "It is of critical importance that organizations promote effective communication, openness, and transparency to integrate learning" (Anantatmula, 2009, p. 238).

Akhtar et al. (2011) defined organizational learning as "a transformational process through which different stakeholders contribute their learning experiences both individually and collectively to attain organizational goals" (Akhtar, Arif, Rubi, & Naveed, 2011, p. 327). Their research into the constructs that add up to organizational learning showed a positive empirical relationship between organizational learning and the performance of the organization. This

theory has been confirmed in other research; however, “this relationship may not hold at all times, and in all settings” (Easterby-Smith & Lyles, 2011, p. 15). Nevertheless, “there is no doubt about the value of knowledge and learning in improving organizational competence” (Allameh, Zare, & Davoodi, 2011, p. 1211).

In smaller businesses, organizational development and learning processes are even more important as the impact of knowledge leaving the organization has a relatively greater effect on the ability of the organization to maintain performance and compete successfully (Anantatmula, 2009). Geldenhuys & Cilliers (2012) focused their research on organizational learning in SMEs because existing literature was based on the dynamics and needs of larger corporations, which “regularly renders it non-applicable to small firms” (Geldenhuys & Cilliers, 2012).

In 2013, Cochran addressed the same challenge in her dissertation, focusing on a strategy for organizational learning in small businesses. The objective of the study was to “explore and identify strategies that increased organizational learning within the business acumen and subsequently aided SME leaders in sustaining competitive economic status” (Cochran, 2013, p. iv). The study resulted in distinct recommendations to improve organizational learning capacity in SMEs, including creating an organizational structure that promotes face-to-face communication to promote rapid and easy knowledge exchange; building a working environment that provides resources to promote creativity and learning; and providing opportunities to learn external to the organization (Cochran, 2013). From this research, it is clear that organizational learning is a critical function of knowledge management within organizations of all sizes, but that solutions should be adjusted to the particular characteristics of the organization.

Learning and development are critical aspects of successful knowledge management, and without behavioral change within organizations, KM has been known to fail. This research

enlarges the literature on this topic by relating a commitment to organizational learning with key knowledge leadership behaviors.

Summary

The field of organizational culture has a long history, and the examination of all aspects of human behavior regarding functioning as a unified organization is a diverse and broad discipline. For this study, the focus is on the elements of organizational culture that are related to the successful implementation of knowledge management, given that KM is a relatively new addition to the pressures and priorities of businesses of all sizes. It is clear from the literature that successful KM cannot exist without an integrated program of learning and cultural norms that support critical aspects such as knowledge sharing. For this research, the backbone of organizational culture, learning, and leadership are foundational elements that support the need for a greater understanding of the influence of leadership behaviors on critical elements of organizational culture that support the successful adoption of knowledge management practices.

Introduction to Small to Medium-Sized Enterprises (SMEs)

While it may seem a simple task, classifying a company as an SME can, itself, be controversial. The debate about how to define size, growth, impact, and success dominates the literature. In 2000, Loecher detailed the different perspectives on what defines an SME and attempted to create one acceptable definition for the term. After examining the different viewpoints, the author's final definition included the following criteria: less than 250 employees; maximum of 40M€ in annual revenue; and privately owned and managed by employees or their families (Loecher, 2000). This definition conforms with other published sources, in particular in global economics journals like ones published by the OECD (OECD, 2016), and was used for this study.

From an organizational culture perspective, it is also important to differentiate between SMEs and startups. The "idea behind a startup is the determination to grow quickly in a competitive industry" (Harris, 2016). SMEs are considered more structured, with a long-term view of growth and profitability, and "are more likely to stay local, working towards coasting along at a sustained level for a long time" (Harris, 2016). This distinction is important as "[i]t has been widely recognized that the corporate culture has a profound impact on whether a company is going to gain a competitive advantage or not since it affects basic ingredients of company performance, such as leadership and innovation" (Kwiatkowski, 2016, p. 28).

Defining growth in SMEs is also a contested topic in the literature. Competing definitions of growth focus on statistics such as the numbers of employees or annual revenue or profit margins or less tangible variables such as competitive positioning. These provide a murky and fluid landscape to define and measure success in SMEs. Wiklund, Patzelt & Shepherd (2009) argue that "attitude in terms of goals, favored work tasks, expected consequences of growth, and growth intentions" are important factors to consider when attempting to measure growth in SMEs (Wiklund, Patzelt, & Shepherd, 2009, p. 367). The researchers also identify entrepreneurial orientation (EO) as a cultural construct relevant to defining and explaining growth in SMEs (Wiklund, Patzelt, & Shepherd, 2009). It is also important to note, as a cautionary measure, that Achtenhagen, Naldi, and Melin (2010) found, in their comprehensive literature review, that academics and business analysts often do not understand the same meaning when talking about "business growth," which can also influence the definition and discussion around SMEs and their success (Achtenhagen, Naldi, & Malin, 2010). In Oyeku et al. (2014), the researchers examined several different theoretical frameworks to define entrepreneurial success and concluded that "all of the influences of personality, human capital, and environment on

success have to be mediated by strategies and tactics of actions" (Oyeku, Oduyoye, Asikhia, Kabuoh, & Elemo, 2014, p. 20).

The study of SMEs and knowledge management has lagged behind the general field of knowledge management, somewhat because of the discrepancies in the definition and conflicting formularies. This study develops the research on KM for SMEs using the clear definition provided by the OECD.

Knowledge Management in Family-Owned SMEs

When studying SMEs, it is important to acknowledge a particular subset of SMEs which tend to exhibit specialized cultural characteristics. The family-owned and run organization has a particular dynamic that can create a variant of organizational culture that may not comply with common practices within SMEs (Ward & Dolan, 1998). The distinction is important because the emotional connection of a family relationship can distort from the strategic decision-making of a non-family-based organization. In particular, the dependence on a single decision-maker in the family-owned business is a prevalence that skews the organizational structure towards a single decider and away from a diffused set of middle managers and operational experts within the business (Feltham, Feltham, & Barnett, 2005). Research has estimated that 80-90% of SMEs in North America are family-owned-and-operated and they represent 40% of US GDP. These firms are unique in their operations and culture due to the family dynamic, and their culture and operating practices should therefore be studied independently.

In any transfer of organizational power, the transfer of organizational knowledge is paramount. Research shows that 30% of family-owned businesses survive to their second generation, while only 15% survive to their third (Bracci & Vagnoni, 2011). The owner-manager typically is the centralized source of organizational knowledge and controls the primary

competencies and competitive advantage of the business. In addition, family-owned leaders tend to stay in their role two to three times longer than their counterparts in non-family-owned businesses, creating a long-term monopoly on the organization's knowledge and increasing the challenge of transferring it from incumbent to successor (Bracci & Vagnoni, 2011).

It has been shown that the number of generations involved in management and decision-making has an impact on the strength of the businesses and facilitates the knowledge-sharing process (Zahra, Neubaum, & Larraneta, 2007). However, while "familial ties enhance formal and knowledge sharing within family firms," they can also generate "jealousies, rivalries, and concentration of power [which] can stifle this sharing" (Zahra, Neubaum, & Larraneta, 2007, p. 1070). Nicolson and Rao-Graham (2016) agree that the likelihood of success from one generation to another in small family businesses is lowered by the failure of these types of businesses to create adequate knowledge sharing practices (Nicolson & Rao-Graham, 2016). However, Dinath (2020), the author concluded that in many cases, knowledge management among employees at family firms was not a primary concern because of the longevity of the majority of the employees at the company. Nevertheless, the research also showed that non-family employees and a majority of the family successors were concerned about being left out of the important strategic decision-making process of the business (Dinath, 2020).

Within family-owned companies, the study of knowledge management has grown recently, given the unique aspects of these types of small companies. This research contributes to the literature by providing insights into effective leadership behaviors for SMEs, including family-owned companies.

Knowledge Management in SMEs

Whether owned by a family or privately owned by employees or investors, SMEs have particular needs when it comes to knowledge management. In their foundational paper on knowledge management for small businesses, Wong and Aspinwall (2004) acknowledged that the need for good KM practices is "an essential cornerstone for companies to develop sustainable competitive advantage" and that "small businesses do not necessarily share the same characteristics and ideals as large ones" (Wong & Aspinwall, 2004, p. 44). Their study recommended that small businesses address knowledge management in small ways, according to available resources, and through realistic strategies that deliver tangible benefits to the business. They advise against small businesses emulating large businesses by investing considerable resources in time and technology in developing knowledge management systems and procedures, but instead should "start with an area that can yield direct business benefits, has a higher degree of success, can be implemented faster, and where results can be seen quickly" (Wong & Aspinwall, 2004, p. 57).

Knowledge management in SMEs and startups has been studied from the early 2000s in the context of understanding what defines good practice for these specific types of companies and their distinctive organizational cultures. Startups are often defined as companies that have a singular purpose of seeking a profitable and repeatable business model to scale up quickly and exit through the sale or merger with a larger organization (Centobelli, Cerchione, & Esposito, 2017). Research shows that despite having scarce human and financial resources, of which most are focused on growing their business to scale, knowledge management is a key focus of startups due to its unique ability to contribute positively to the growth and success of the business (Centobelli, Cerchione, & Esposito, 2017).

As startups tend to be young organizations, business intelligence has not yet accumulated, and organizational memory has not had the necessary time to develop into a critical asset (Alici & Cengizoglu, 2017). However, KM has been shown as one of the key tools available to startups that maximize the chances that the company succeeds. It also has a substantial influence on how the organization is structured, the culture and vision developed by the young business, and can be used to shore up support from stakeholders by providing transparency and important reporting capabilities (Ahmed, Salloum, & Shaalan, 2021).

For more established SMEs, KM research has "tended to focus on processes and structures within organizations, such as knowledge transfer from tacit to explicit, organizational culture and learning, and technologies for knowledge storage and sharing to enhance productivity and sales, reduce cost, or increase innovation and quality" (Durst & Edvardsson, 2012, p. 879). However, studies are hampered by the fact that there are various definitions for SMEs that are often treated as equivalent, which can render research confusing and irrelevant to practitioners. Massaro et al. (2016) recommended that future research be focused on pragmatic results that are relevant to the various stakeholders and can show the maximum benefit of KM for SMEs (Massaro, Handley, Bagnoli, & Dumay, 2016).

The challenges around definitions that affect the research on KM in SMEs have resulted in several authors' attempts to develop a simplified taxonomy to streamline future studies (Cerchione & Esposito, 2017; Holsapple & Joshi, 2004; Kakabadse, Kakabadse, & Kouzmin, 2003). "Although there are many studies that analyze the processes of dissemination of knowledge and highlight the adoption of KM in large companies, as regards SMEs, the framework of knowledge is still fragmented" (Cerchione, Esposito, & Spadaro, 2015, p. 10211). Despite the ongoing debate, researchers have continued to study different aspects of knowledge

management from the SME perspective. “[T]here is a general consensus in relation to the fact that the benefits of KM have not been fully exploited by small firms. In fact, although there is a wide literature on KM, there is an abundance of research describing how large companies are successfully practicing KM but little contributions on the critical success factors for KM adoption in SMEs” (Esposito, Evangelista, Lauro, & Raffa, 2009, p. 939).

The literature overwhelmingly supports the thesis that KM provides a competitive advantage to SMEs. “The bottom line is that for a small business to succeed and thrive in a changing world, it must continually learn and adapt better and faster than its competitors. Knowledge management provides the tools and strategies to achieve this” (Jones & Gupta, 2008, p. 2680). More recent research has confirmed the importance of KM in SMEs by demonstrating the positive relationship between KM and organizational performance in small and medium-sized companies (Aliyu, Rogo, & Mahmood, 2015), and many researchers have focused their attention on understanding the specific motivations that engage SMEs in adopting KM practices. Among them, Wong (2005) and Wong & Aspinwall (2005) published foundational research on the critical success factors of the adoption and implementation of KM in SMEs (Wong, 2005; Wong & Aspinwall, 2005). In order of importance, the 11 factors that were identified as critical to the success of KM in SMEs were:

1) Management leadership and support
2) Culture
3) Strategy and purpose
4) Resources
5) Processes and activities
6) Training and education

7) Human resource management
8) Information technology
9) Motivational aids
10) Organizational infrastructure
11) Measurement

(Wong & Aspinwall, 2005, p. 75)

The authors compared these ranking factors with known factors of success for KM in larger companies and found that due to a general resource scarcity in smaller organizations, some factors had higher importance for SMEs than would generally be seen in larger organizations. "Consideration of resources' availability as well as their proper allocation and management are therefore of prime importance for SMEs in adopting KM" (Wong & Aspinwall, 2005, p. 76). In Migdadi (2005), the researcher expanded on the results to relate the identified critical success factors (CSF) to real-time behavior and business outcomes for SMEs. The author focused on associating the 11 CSFs with systematic knowledge activities, employee development, customer satisfaction, external relationships, and organizational success and found substantial positive relationships between them (Migdadi, 2009).

Wong & Aspinwall's research on the critical success factors for KM in SMEs is a foundational work that has been cited hundreds of times in subsequent research. This study expands on their analysis to focus on the influence of knowledge leadership behaviors on the organizational cultural environment specific to SMEs.

Summary

This research focuses on examining the extent of the influence of knowledge leadership behaviors on the critical success factors of knowledge management, specifically in SMEs. The

literature clearly shows that, until recently, SMEs have been largely excluded from the research on knowledge management. This study focuses exclusively on SMEs as the literature has shown that they have different priorities and resources, and require different approaches to ensure success in their adoption of KM.

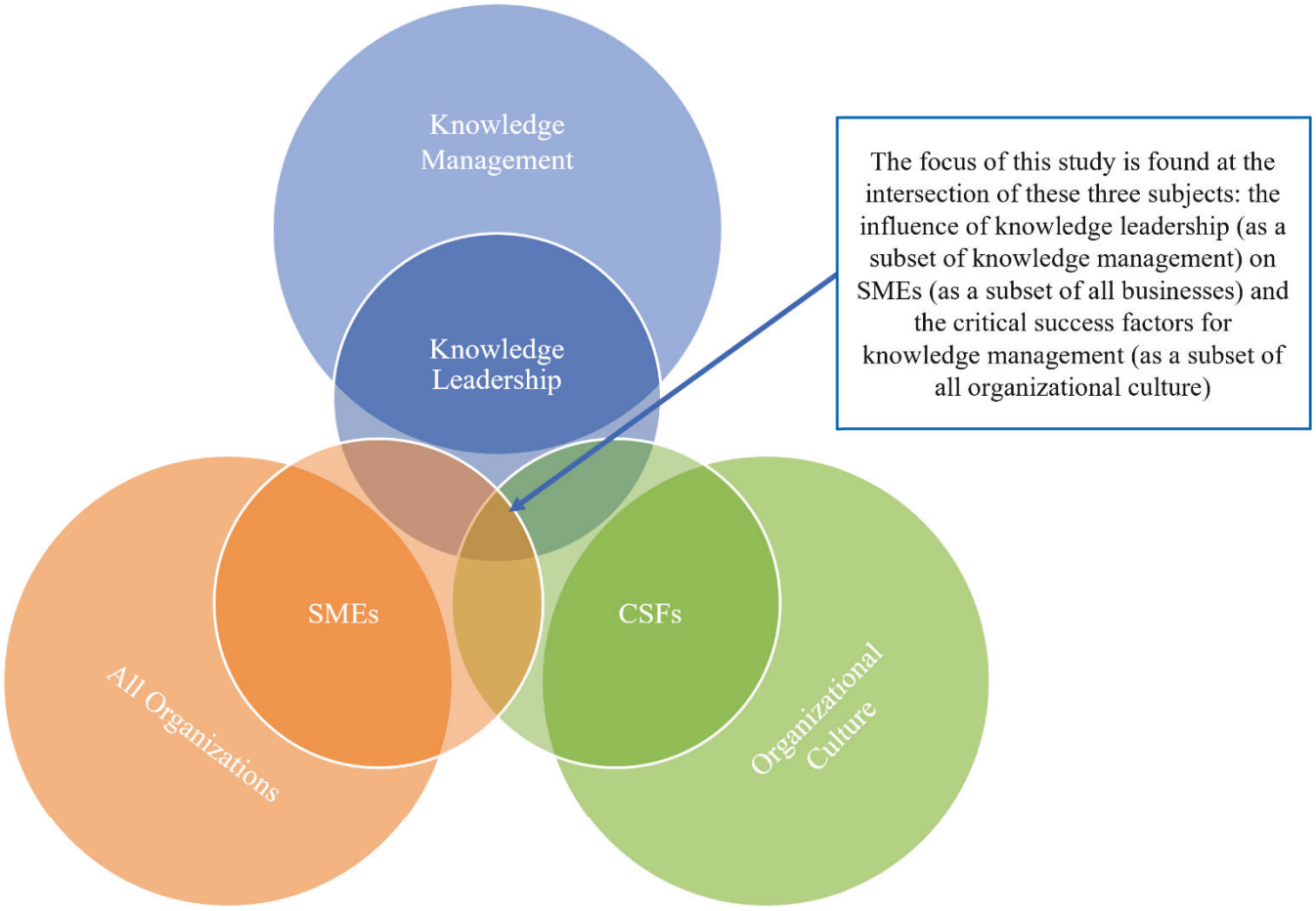
Conclusion

This chapter has reviewed the literature on the three main subject pillars of knowledge management, organizational culture, and businesses, that lay the groundwork for this study. This study focuses on the intersection between a subset of each of these subjects: knowledge leadership as a part of knowledge management; organizational cultural factors that lead to the successful adoption of knowledge management; and small- to medium-sized enterprises as a subset of all businesses. The literature on these subjects is deep and broad, and this review focused on the research that developed the foundational theories and insights that have led to the gap identified for this study.

This literature review supports the need for a better understanding of knowledge leadership behaviors that influence the elements of organizational culture that are key enablers in the adoption of KM practices within SMEs.

Figure 5

The intersection of topics for this research



Chapter 3: Methodology

Research Design

The purpose of this research is to determine the relationship between two knowledge management leadership behaviors and four knowledge management enablers in SMEs. The knowledge leadership behaviors are role modeling (RM) and creating a climate that supports learning (CC). The four knowledge management enablers are trust (T), collaboration (C), learning (L), and IT support (IT).

This was a quantitative exploratory multi-variant study and employed a cross-sectional design to investigate the relationship between the independent variables (knowledge leadership behaviors) and the dependent variables (critical success factors for knowledge management, also known as knowledge management enablers) within SMEs. This chapter includes a description of the methods and procedures related to the research design, sampling methodology, the development and testing of the survey instrument, the protocol used to collect and analyze the data, and the assumptions and limitations of the study.

Description of Participants

The focus of this study is on small- to medium-sized enterprises (SMEs) as around the world, SMEs make up the majority of all types of businesses. For this study, the definition of an SME is a privately-owned business with 4 to 250 full-time employees that has been in business for at least three years and has a maximum annual revenue of 40M (Loecher, 2000). In Europe alone, 99.8% of all businesses are classified as SMEs (Loecher, 2000), and, as stated earlier, the knowledge management literature acknowledges that this population has been largely neglected from the research (Cerchione, Esposito, & Spadaro, 2015; Esposito, Evangelista, Lauro, & Raffa, 2009).

The target population for the survey was people who currently work in, or have previously worked in, a company that meets this definition of an SME. Participants were asked about their opinions related to coworkers, leadership, and the cultural environment, with a very limited inquiry into any personal information.

Sampling Methodology

Sampling Strategy

The number of different combinations of variables in this study required a significant number of respondents to ensure the samples of each combination would be sufficient to provide valid statistical output (Pajo, 2017). The sampling methodology was purposeful sampling with a selection of companies that meet the definition of SME as explained above. According to the literature, purposive sampling is useful "because it provides a wide range of non-probability sampling techniques for the researcher to draw on," however, it can also be "highly prone to researcher bias" (Sharma, 2017, p. 751). It is understood that by employing purposeful sampling, the population of SMEs for this study was targeted to address the primary objective of the study (Walker, 2012). These aspects are further addressed in the limitations section below.

In addition to purposive sampling, a snowballing sampling methodology was employed to collect additional respondents for the study. This methodology allows researchers to identify "hidden populations which are difficult for researchers to access" even though it can make it challenging "to determine the possible sampling error and make generalizations (i.e., statistical inferences) from the sample to the population" (Sharma, 2017, p. 752). It was hoped that by combining these two sampling strategies, a necessary number of qualified participants would be recruited to provide predictive value to the research outcomes, and by controlling for responses

from employees in the same company, any potential bias from this sampling strategy could be identified.

Sample Size

The G*Power tool was employed to determine the most appropriate sample size by calculating the necessary minimum sample (Faul, Erdfelder, Buchner, & Lang, 2009). The analysis produced by the tool was based on the selection of a linear multiple regression fixed model to identify the sample size based on the effect size, alpha level, power, and the number of variables. For this analysis, the inputs were an effect size of 0.15, an error probability of 0.05%, and the number of predictors to test being 2 out of a total of 6 variables: four dependent variables (knowledge management enablers) and three independent variables (two knowledge leadership variables). The tool returned the result of 74 for the minimum sample size required to ensure sufficient data for analysis.

Data Collection Methods

The data were collected over 6-8 weeks from the target population specified above. An initial request to personal and professional contacts was sent out via email and social media networks to solicit participants. Personal contacts, who themselves have large networks of contacts who could fit the criteria for the study, were solicited to help recruit qualified participants. Only data from participants who are currently or who had previously been employed at an SME were accepted. Their eligibility for inclusion in the study was verified by the responses to the demographic questions in the survey instrument.

Survey Instrument

This study focuses on exploring the relationship between four knowledge management enablers (dependent variables) and two knowledge leadership behaviors (independent variables).

The questions included in the instrument were from previous surveys conducted by Lee & Choi (2003) and Lakshman & Rai (2019). All questions were formulated to deliver a response on a 5-point Likert scale as it has been shown that 5-point, 7-point, and 10-point scales deliver similar statistical outputs in terms of regression analysis, kurtosis, and skewness (Dawes, 2008).

Participants received an email with a link to the Google Form where they could complete the survey. Additional requests for participation were solicited through social media posts and direct messages to professional contacts on LinkedIn. Survey completion was expected to take no more than 10-15 minutes. A copy of the questionnaire is found in Appendix I. The confidentiality of participants was assured by using coding to create anonymity in the analysis. Each respondent was instructed to read and confirm their understanding of the informed consent form on the first page of the online questionnaire. Included at the end of the questionnaire was a thank you message and a request for referrals to additional qualified participants.

The questionnaire included several demographic variables about the respondent and the company that were analyzed as summary statistics for the study and were used to identify any potential moderating factors in the analysis. They were industry type, country, number of employees, annual revenue, ownership model, age, gender, title, and length of time with the company.

Operationalization of Constructs

The variables to be used in this research were derived from studies developed by Lee & Choi (2003) and Lakshman and Rai (2019). Throughout the literature, there are several different ways that these intangible constructs can be viewed and defined. Therefore, to ensure consistency, the definitions of the variables in this research were narrowly based on the two studies cited above.

Definitions: Knowledge Management Enablers

The four knowledge management enablers were based on the operational definitions described by Lee & Choi as:

Trust:	Degree of reciprocal faith in other's intentions, behaviors, and skills toward organizational goals
Collaboration:	Degree of active support and help in organizations
Learning:	Degree of opportunity, variety, satisfaction, and encouragement for learning and development in organizations
IT Support:	Degree of IT support for collaborative work, for communication, for searching and accessing, for simulation and prediction, and systematic storage

(Lee & Choi, 2003, p. 222)

Measuring: Knowledge Management Enablers

From Lee & Choi's questionnaire, the four variables were being measured by these items:

Trust:	Our company members are generally trustworthy (TRU1)
	Our company members have reciprocal faith in other member's intentions and behaviors (TRU2)
	Our company members have reciprocal faith in others' abilities (TRU3)
	Our company members have reciprocal faith in others' behaviors to work toward organizational goals (TRU4)
	Our company members have reciprocal faith in others' decisions towards organizational interests over individual interests (TRU5)
	Our company members have relationships based on reciprocal faith (TRU6)
Collaboration:	Our organization members are satisfied by the degree of collaboration (COL1)
	Our organization members are supportive (COL2)
	Our organization members are helpful (COL3)
	There is a willingness to collaborate across organizational units within our organization (COL4)

	There is a willingness to accept responsibility for failure (COL5)
Learning:	Our company provides various formal training programs for the performance of duties (LEA1)
	Our company provides opportunities for informal individual development other than formal training such as work assignments and job rotation (LEA2)
	Our company encourages people to attend seminars, symposia, and so on (LEA3)
	Our company provides various programs such as clubs and community gatherings (LEA4)
	Our company's members are satisfied by the contents of job training or self-development programs (LEA5)
IT Support:	Our company provides IT support for collaborative works regardless of time and place (ITS1)
	Our company provides IT support for communication among organization members (ITS2)
	Our company provides IT support for searching for and accessing necessary information (ITS3)
	Our company provides IT support for simulation and prediction (ITS4)
	Our company provides IT support for systematic storing (ITS5)

(Lee & Choi, 2003, pp. 223-224)

Definitions: Knowledge Leadership Behaviors

The operational definitions of the knowledge leadership behaviors for this study were from Lakshman & Rai's empirical research and are defined as:

Role Modeling:	The leader models the attitudes and behaviors appropriate for learning, thereby motivating subordinates to follow
Creating a climate that supports learning:	The leader fosters a climate of trust and comfort conducive to learning, emphasizing a constructive approach in dealing with problems, being open to feedback, and listening to and appreciating the ideas of subordinates

(Lakshman & Rai, 2019, pp. 8-9)

Measuring: Knowledge Leadership Behaviors

From Lakshman & Rai's study, the following items were used to measure these knowledge leadership behaviors:

Role Modeling:	Is enthusiastic about his/her own work (RM1)
	Commits him/herself to changes agreed upon (RM2)
	Searches for and collects information relevant to decision-making before decisions are made (RM3)
	Develops his/her own professional skills (RM4)
Creating a climate that supports learning:	Encourages a confidential atmosphere in which it is easy to express thoughts and views openly (CC1)
	Promotes transfer and sharing of knowledge at work (CC2)
	Supports the constructive dealing with faults and problems in our cooperation (CC3)
	Encourages us to make decisions after considering all the information available (CC4)

(Lakshman & Rai, 2019, pp. 19-20)

Definition: Leader

For this study, the definition of a leader remains a broad one that encompasses everyone from the owner/founder to a director/manager in any function of the organization. According to (Winston & Patterson, 2006, p. 7), "A leader is one or more people who selects, equips, trains, and influences one or more followers." In the context of SMEs, leaders have various functional titles and are responsible for a myriad of different activities (Madanchian & Taherdoost, 2018). The objective of this study is to understand how leadership behaviors related to knowledge management influence the successful adoption of knowledge management practices throughout the organization. Therefore the designation of leader in an SME included many different roles

and titles within the organization, and the instrument was not prescriptive in deciding how to define a leader or leadership behaviors.

Reliability and Validity

The questions used in this survey instrument were from two previously tested and validated empirical studies. A pilot test to ensure that the questions are clear and well understood by the target population was employed. Pilot studies are an important step that tests the feasibility of the success of the research and whether the proposed questionnaire is appropriate and clearly understood by the target audience. They can also be used to persuade committees and funding bodies that the study is worth supporting (Teijlingen & Hundley, 2002). For this research, the pilot study gathered 14 completed surveys from qualified participants, equivalent to 10% of the sample size target, to test for face validity and to ensure the instrument was effective.

Elements in the Lee & Choi (2003) knowledge management enablers study were previously tested for reliability with Cronbach's alpha using a 0.7 cutoff. The researchers found the results for all variables were higher than the cutoff and therefore were considered reliable (Lee & Choi, 2003, p. 201). Validity was tested by correlation (convergent validity) as well as factors (discriminant validity). For convergent validity, items having correlation scores lower than 0.4 were dropped from the analysis. For discriminant validity, items with a factor loading of lower than 0.5 were removed (Lee & Choi, 2003, pp. 198-201).

For the measurements focusing on knowledge leadership behaviors developed by Lakshman and Rai (2019), the authors reported reliability scores of above 0.7 and no factor analysis scores below 0.64, indicating both strong reliability and validity (Lakshman & Rai, 2019, p. 17).

Lakshman and Rai's study was recently published and there is limited research that can add to the validity and reliability of their constructs. However, Lee & Choi's 2003 study has been cited in over 3000 articles according to Google Scholar, and the constructs defined in their work have been checked and validated many multiple times. Lin (2007) verified the reliability, convergent, and discriminant validity of the IT construct as defined by Lee & Choi (2003) and found that the measurements showed a significant correlation at the $p < 0.01$ level (Lin, 2007, p. 324). In another example, in their study examining the mediating role of knowledge management in organizational culture, structure, strategy, and organizational effectiveness, the researchers, used Lee & Choi's definitions and demonstrated construct validity using several measurement and fit models (Zheng, Yang, & McLean, 2010). A final example is in their 2011 study on knowledge management and innovation; the researchers used Lee & Choi's (2003) definitions for knowledge management strategies and were able to demonstrate reliability with Cronbach's alpha above 0.7 and scale composite reliability above 0.7 (López-Nicolás & Merono-Cerdan, 2011). Many hundreds of additional studies are available with their own validity and reliability metrics that assure that these constructs and related questions could be dependably used in the instrument for this research.

Content Validity Ratio

"Content validity is defined as the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct" (Yusoff, 2019, p. 49). Given that the questionnaire for this research is a compilation of constructs that had not been used together in previous studies, the test for content validity was necessary to ensure the legitimacy of the outcomes of this study. Therefore, a preliminary procedure was used to calculate the content validity ratio (CVR) to determine and support the validity of the instrument. This procedure

required engagement with content experts to evaluate the relevance of each question about the subject matter and research objectives. The resulting calculation determined the relevance of each question on a scale from 1 to -1, where one meant that the question has been determined as relevant by all the content experts and -1 meant that the question was misaligned with the material and determined to be irrelevant to the research by all the experts on the panel. A result of 0.49 or lower eliminated this question from the survey instrument (Lawshe, 1975).

For content validation, the minimum number of experts needed for the panel is two; however, as many as six are recommended by most literature on the subject (Yusoff, 2019). Content experts were recruited through personal contacts and contacts of this researcher's advisory committee. For this research, content experts are people with experience in knowledge management, leadership behaviors, cultural and behavioral factors, or change management in business. They had leadership experience working in an SME, providing consulting advice to an SME, or researching knowledge management in business.

Ethical Considerations

Exploratory studies are generally employed to "investigate a new thread of previously established relationships…or to gain a deeper understanding of a specific population" (Pajo, 2017, p. 89). This study focuses on the attitudes and behaviors of people in the workplace as they relate to the adoption of knowledge management procedures and practices. The personal demographics of the participants were limited to their professional profiles and did not require further exploration of their private lives or background. The research focuses narrowly on issues concerning organizational cultural dimensions and related behaviors that influence these core areas of interest and avoids probing into sensitive personal subjects.

At the start of the questionnaire, participants were presented with an introduction page explaining the confidential nature of the responses and were asked to consent by clicking on an "I Agree" button on the first page. Infringement of confidentiality was deemed to be unlikely, but if it did occur, potential harm to participants was considered negligible. The introduction page clearly stated that the data being collected was concerning business behaviors and practice and did not inquire into personal backgrounds or private lives. It is possible that personal cultural influences could have been uncovered in the responses that could be related to certain business practices or decision-making tendencies, but all measures were taken to ensure the confidentiality of the responses. Only aggregated findings were shared with participants which could be valuable to their future business behaviors and decision-making.

Data Analysis Procedures

This research employed hierarchical linear modeling (HLM) to determine the strength of the relationships between the independent and dependent variables and verify whether a correlation exists between them.

Independent Variables:

1. Role Modeling (RM)
2. Creating a climate that supports learning (CC)

Dependent Variables:

1. Trust (T)
2. Collaboration (C)
3. Learning (L)
4. IT Support (IT)

Steps to the Analysis

SAS Software was used to run the statistical analysis for this study. First, the data were examined to account for non-responses and outliers. Participants who did not respond to fifty percent or more of the survey were to be removed from further analysis. For the remaining surveys, mean imputation would be used to replace the missing values with the average of each

respective variable. The survey responses captured along the 5-point Likert scale were averaged to develop composite scores for the independent and dependent variables. Outliers were identified through standardized values or *z*-scores. Tabachnick & Fidell (2019) indicate that *z*-scores exceeding $\pm$ 3.29 standard deviations from the mean should be removed from further analysis. Descriptive statistics were used to examine the trends in the nominal, ordinal, and continuous-level variables. Frequencies and percentages were used for the nominal and ordinal-level variables, while means and standard deviations were used for the continuous-level variables.

The Rationale of the Analysis

Hierarchical linear modeling (HLM) was used to measure the predictive relationship between independent variables on a continuous criterion variable after controlling for random group-level effects (Pallant, 2020). In this case, the research objective is to measure the impact of four dependent variables – T, C, L, and IT – on two independent variables – RM and CC.

Data Preparation

Before analysis, the assumptions of the multiple regression were verified. The normality of the residuals was examined through the use of a normal P-P plot. If the data in the P-P scatterplot closely followed the normality trend line, the assumption of normality would be supported (Pallant, 2020). Homoscedasticity and linearity were examined through the use of a residuals scatterplot. The even distribution of residuals around a central line would indicate good linearity, while the absence of a recurring pattern in the residuals plot would indicate that the assumption of homoscedasticity was met (Field, 2013). The absence of multicollinearity would be verified with variance inflation factors (VIFs), indicating that VIFs below 10 would show that

there is a low association among the predictor variables (Stevens, 2009). These tests ensured that the assumptions needed for successful analysis are in place.

The four regression models for this analysis are:

$$Y_1 = \beta_0 + \beta_1(RM) + \beta_2(CC) + \varepsilon$$

$$Y_2 = \beta_0 + \beta_1(RM) + \beta_2(CC) + \varepsilon$$

$$Y_3 = \beta_0 + \beta_1(RM) + \beta_2(CC) + \varepsilon$$

$$Y_4 = \beta_0 + \beta_1(RM) + \beta_2(CC) + \varepsilon$$

where Y_1 is Trust (T), Y_2 is Collaboration (C), Y_3 is Learning (L), and Y_4 is IT Support (IT).

The *F* test was used to examine the predictive relationship between the dependent variables (Howell, 2013). The coefficient of determination (r^2) was used to understand how much variance in the dependent variables could be explained by the predictor variables (Pallant, 2020). The closer the r^2 is to one, the stronger the predictive value of the model. Individual *t*-tests were used to examine the predictive ability of each independent variable (Pagano, 2009). The unstandardized beta (β) was interpreted to identify how the dependent variables shift with every one-unit increase in the predictors (George & Mallery, 2020). Statistical significance was evaluated at the generally accepted level of $\alpha = .05$.

Limitations

A potential limitation of this study is the sample population, as it is drawn from the personal and professional networks of the researcher and may include one or more underlying biases that are not apparent in the data analysis. In addition, the sample population was drawn from certain industries and sectors that have a personal or professional connection to the researcher and therefore excluded large swaths of SMEs in different cultural settings.

It is also important to note that this study did not seek to re-test or recreate evidence to demonstrate that there is a link between knowledge leadership behaviors and the adoption of knowledge management practices, nor the link between knowledge management enablers and the successful implementation of knowledge management practices. This research focused on measuring the impact of the leadership behaviors on knowledge management enablers, specifically in the SME sector, and intended to build on the advice and instruction given to small business leaders on how to thoughtfully design an environment that is capable of leveraging the value of knowledge management to benefit their business.

Chapter 4: Data Collection and Analysis

Introduction

This study aimed to investigate the relationship between two leadership behaviors critical for knowledge management and four knowledge management enablers in SMEs. The research focused on understanding the influence of the knowledge leadership behaviors on the knowledge management enablers in SMEs, given that these factors have been shown in the literature to facilitate the adoption of knowledge management practices (Lee & Choi, 2003; Lakshman & Rai, 2019). The research was conducted through an online survey using Google Forms and administered via solicitations of the researcher's personal and professional contacts who owned or worked in an SME.

Pilot Studies and Adjustments to the Survey Instrument

Content Validity Ratio (CVR)

The original survey instrument for this study was a combination of two questionnaires performed in separate research studies. Since the two questionnaires had never been combined and used together, a panel of three content experts was convened to evaluate the relevance of each question about the subject matter. The questions were scored on a scale from 1 to -1 with an average result of 0.49 or lower resulting in the question being eliminated from the survey instrument (Lawshe, 1975). The results are presented in Table 1.

Table 1

Details of CVR Scores by the question as an average of responses from three experts.

	CVR Score		Expert 1	Expert 2	Expert 3
Trust					
T1	0.50		1.00	0.00	0.50
T2	1.00		1.00	1.00	1.00
T3	0.53		0.08	0.50	1.00
T4	1.00		1.00	1.00	1.00

T5	0.83		1.00	1.00	0.50
T6	0.36		0.08	0.50	0.50
Collaboration					
C1	1.00		1.00	1.00	1.00
C2	1.00		1.00	1.00	1.00
C3	0.83		1.00	0.50	1.00
C4	1.00		1.00	1.00	1.00
C5	0.19		0.08	0.00	0.50
Learning					
L1	0.83		1.00	0.50	1.00
L2	0.58		1.00	0.75	0.00
L3	0.50		1.00	1.00	-0.50
L4	0.08		0.00	0.25	0.00
L5	1.00		1.00	1.00	1.00
IT Support					
IT1	1.00		1.00	1.00	1.00
IT2	1.00		1.00	1.00	1.00
IT3	1.00		1.00	1.00	1.00
IT4	0.83		1.00	1.00	0.50
IT5	0.67		1.00	1.00	0.00
Role Modeling					
RM1	0.50		1.00	0.50	0.00
RM2	1.00		1.00	1.00	1.00
RM3	1.00		1.00	1.00	1.00
RM4	0.67		1.00	0.50	0.50
Creating a Climate that supports learning					
CC1	0.67		1.00	0.50	0.50
CC2	1.00		1.00	1.00	1.00
CC3	1.00		1.00	1.00	1.00
CC4	0.92		1.00	0.75	1.00

Three questions had results below 0.49 and were eliminated from the survey instrument:

- T6: Our company members have relationships based on reciprocal faith (CVR=0.36)
- C5: There is a willingness to accept responsibility for failure (CVR=0.19)
- L4: Our company provides various programs such as clubs and community gatherings (CVR=0.08).

Pilot Survey

Subsequently, 14 people participated in a pilot survey representing 10% of the required minimum number of respondents for the study. The participants were asked to evaluate each question for understandability, adequacy, and whether it was intuitive for the respondent to pick one clear answer over the others. The participants in the pilot and the data collected for the pilot were excluded from the final survey. Table 2 illustrates the percentage of respondents who agreed that the possible responses to each question were understandable and adequate and that they were able to identify one clear response.

Table 2

Summary of responses from pilot survey participants on the three questions of understandability, adequacy, and whether there existed one clear response to the question.

	Avg		Understandable	Adequate	1 Response
Trust					
T1	88%		86%	79%	100%
T2	79%		79%	64%	93%
T3	81%		79%	71%	93%
T4	81%		71%	79%	93%
T5	67%		64%	57%	79%
Collaboration					
C1	83%		93%	71%	86%
C2	83%		86%	79%	86%
C3	83%		86%	79%	86%
C4	100%		100%	100%	100%
Learning					
L1	98%		93%	100%	100%
L2	98%		93%	100%	100%
L3	100%		100%	100%	100%
L4	86%		86%	86%	86%
IT Support					
IT1	90%		86%	93%	93%
IT2	100%		100%	100%	100%
IT3	100%		100%	100%	100%
IT4	67%		64%	64%	71%

IT5	62%		57%	50%	79%
Role Modeling					
RM1	88%		86%	86%	93%
RM2	86%		86%	79%	93%
RM3	100%		100%	100%	100%
RM4	93%		93%	93%	93%
Creating a Climate that supports learning					
CC1	93%		93%	86%	100%
CC2	100%		100%	100%	100%
CC3	64%		64%	57%	71%
CC4	100%		100%	100%	100%

None of the questions received a score lower than 50% indicating that the possible responses to each question were understandable, adequate to address the question and that it was possible to choose one response. However, comments from the respondents made it clear that some adjustments to language were required, mainly because non-native-English speakers created the original survey questions. Using suggestions and feedback, minor adjustments to the language were implemented to add clarity for an English-speaking audience.

The adjustments were:

Demographics Section:

- Simplified language of responsibilities question to avoid confusion
- Changed “revenue” to “sales” to be more precise
- Added “mostly or fully” to “ownership model” question based on feedback

Trust Section:

- Changed “company members” to “employees”
- Adjusted “reciprocal faith’ to more common words such as “belief” or “trust”
- Added “generally” to allow for generalizations of perspective

Collaboration Section:

- Changed “company members” to “employees”
- Added “generally” to allow for generalizations of perspective
- Added “with their peers” or “of each other” to give context
- Changed “organizational units” to “roles and divisions” to accommodate smaller businesses

Learning Section:

- Changed “various” to “a variety of”
- Changed “company members” to “employees”
- Added “generally” to allow for generalizations of perspective

IT Support Section:

- Changed “collaborative works” to “work collaboratively”
- Changed “organizational members” to “employees”
- Changed “simulation and prediction” to “analysis and forecasting”
- Changed “systematic storage” to “document storage”

Role Modelling Section

- Changed “changes agreed upon” to “agreed upon actions and changes”
- Changed “the company’s leadership” to “the company’s leadership or leadership team”

Creating a Climate Section:

- Changed “the company’s leadership” to “the company’s leadership or leadership team”

- Changed “supports the construction dealing with faults and problems in our cooperation” to “supports constructive debate to resolve issues and improve cooperation”

Reliability

The internal consistency of the questionnaire was tested using Cronbach’s alpha standard of 0.7 or higher. The reliability coefficients ranged from 0.79 to 0.84 confirming the internal consistency of the survey instrument. The coefficients are presented in Table 3.

Table 3

Reliability Coefficients

Employee Trust	0.827
Employee Collaboration	0.814
Organizational Learning	0.822
IT Support	0.842
Role Modeling	0.794
Creating a Climate	0.786

Description of the Population and Sample

The target population was people who had owned or worked in an SME, defined as a business with between 4 and 250 employees and earning less than 40M in annual revenue. The primary source of respondents to the survey was professional contacts through direct emails, posts, and direct messages through the LinkedIn platform.

Data Cleaning and Coding

More than 1200 professional contacts were solicited through personalized emails and messages on the LinkedIn network. 175 people clicked on the link and completed the survey. This represented about 14% of the people solicited. To ensure the most accurate results for this research, the data was first spot-checked, cleaned up, and coded. Firstly, all responses from participants representing a company with fewer than 4 or more than 250 employees were

excluded. Then, any companies that generated more than 40M in annual revenue were excluded. This eliminated 36 completed surveys, leaving 139 completed questionnaires for the analysis.

A logic test between the number of employees and the amount of revenue generated by the company was applied and identified a few cases where respondents had incorrectly entered the information. Verification was done through publicly available records and corrections were made to the data. In addition, some of the website addresses had been overlooked, mis-entered, or the websites no longer existed or were not working. Wherever possible, the correct information was identified and entered. In addition, coding was done to convert the Title field into a category of "leader" or "staff," depending on whether the title included the word "manager" or "senior" or "director" or "chief" in it and in parallel with the short description provided by the respondent regarding their daily activities and responsibilities. Finally, the "length of time with the company" field was re-coded to have a standard measure in years, as this was a write-in field and there was inconsistency in the responses entered as some were in months and others in years.

Descriptive Statistics of Companies

Companies represented in the survey were from varied industries and ranged in size and countries of origin. Figure 6 indicates that the top three sectors represented in the study were consulting (28%), education (15%), and other services (13%). These results are a direct reflection of the author's professional experience and network. Additionally, the countries of origin represent the researcher's connections from North America and Europe, with 39% of the respondents from the USA, 29% from France, and 28% from other European countries including the UK shown in Figure 7. Figure 8 illustrates additional demographic statistics about the companies represented by the participants in the study, including that 108 respondents were

reporting on companies with 50 or fewer employees and 105 were companies with less than 10M in annual revenue. These data collected conform to the definition of small to medium-sized businesses, the primary target of this study. Figure 9 shows the different ownership models of the companies, with 67 respondents representing companies that are mostly owned by family members or employees.

Figure 6

Percentage of respondents by industry type

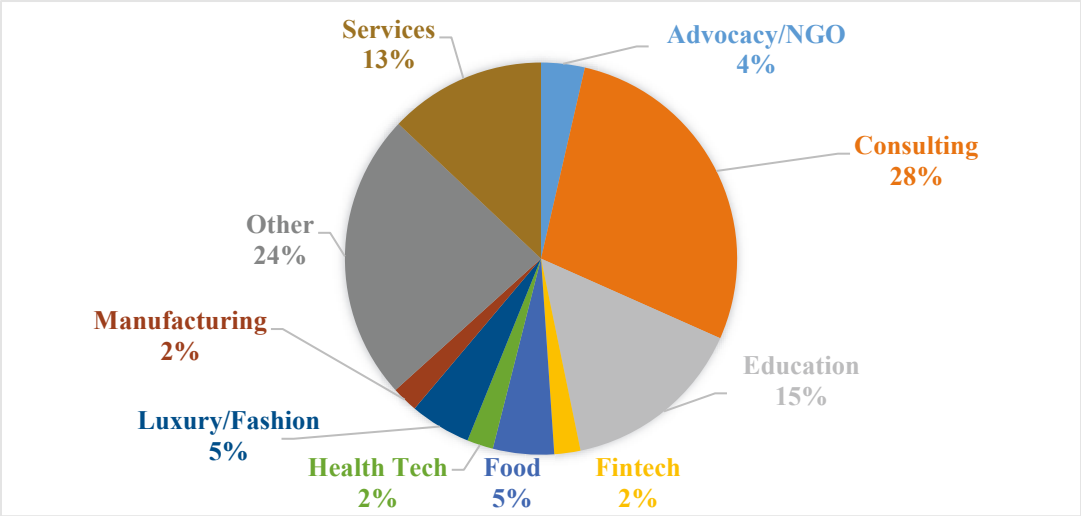


Figure 7

Percentage of respondents by country of origin

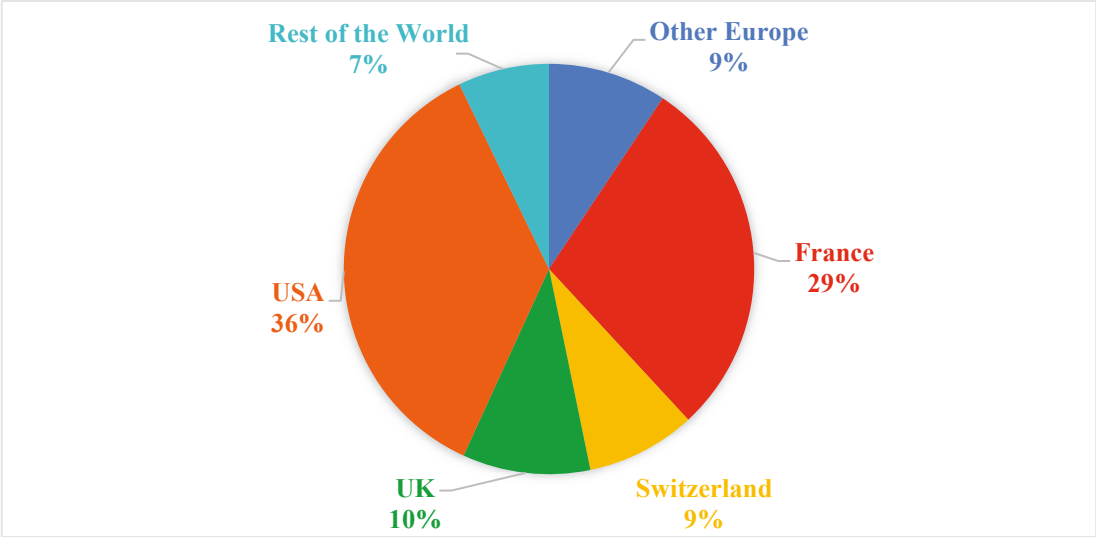


Figure 8

Company Size

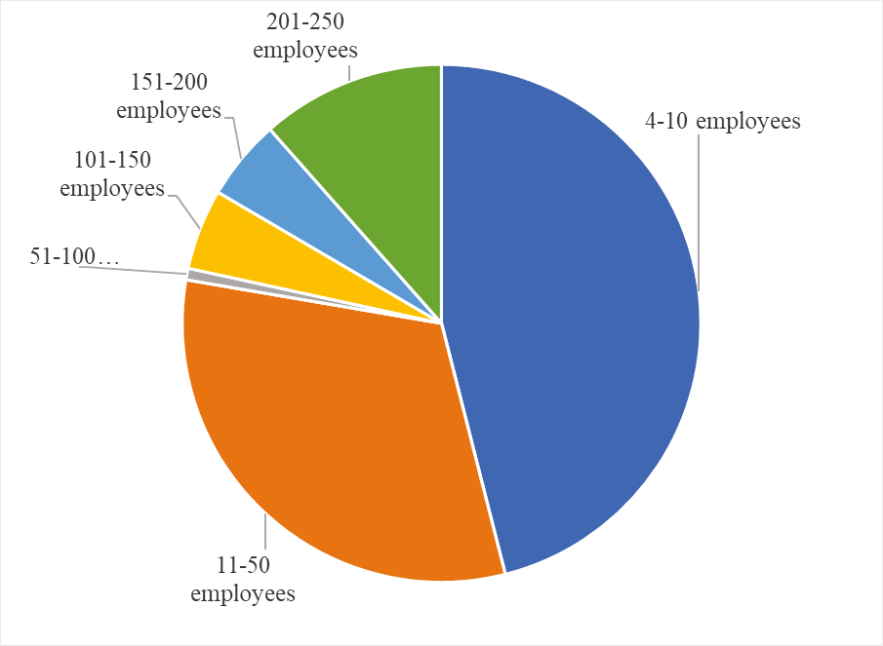


Figure 9

Company's Annual Revenue

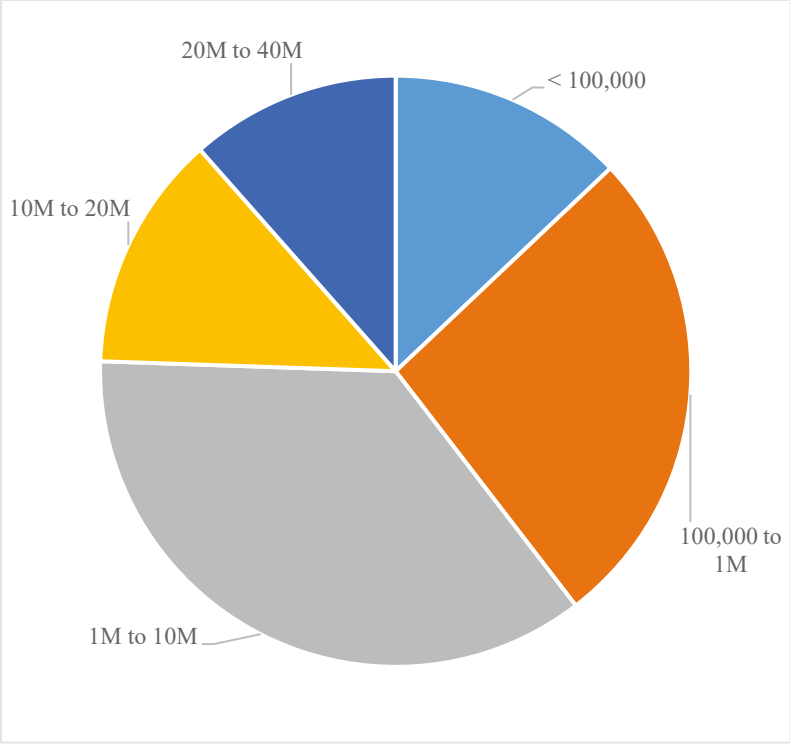
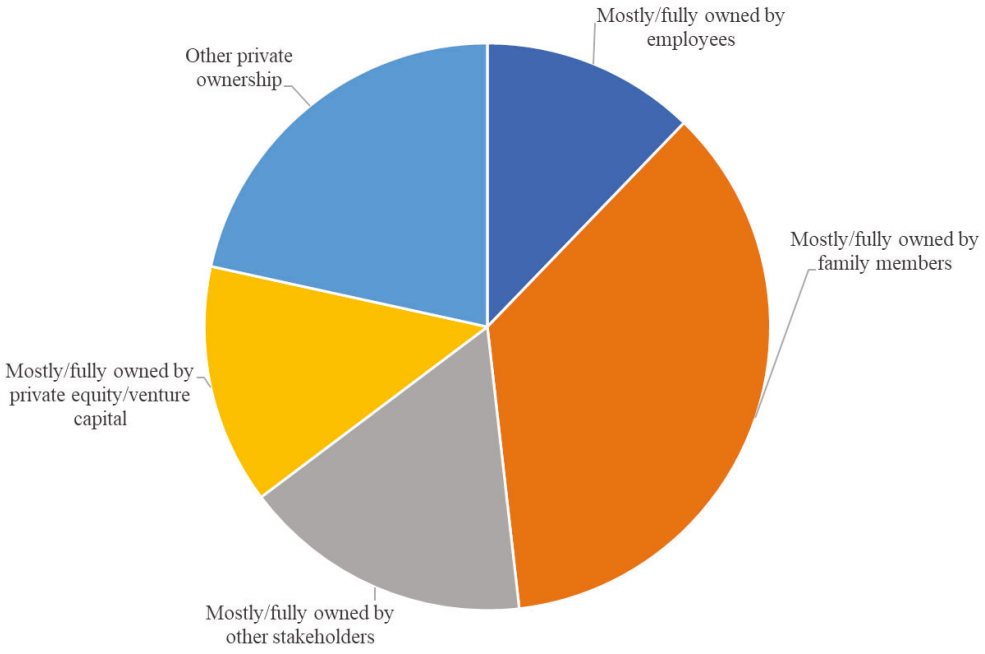


Figure 10

Company's Ownership Structure



Descriptive Statistics of Respondents

The respondents from the survey represented a varied set of demographic characteristics summarized in the figures below. The majority of respondents (57%) self-identified in a leadership role, while just under 60% of respondents (83 out of 139) were male. The most represented age group was 18-30, with 38% of respondents, and another 45% of respondents were over 40 years old. Figure 11 below shows these characteristics.

Additionally, the questionnaire asked about the length of time the respondent had been with the company. This answer was a write-in field and was recoded to standardize to years. 20 respondents had been with their company for less than a year, while the largest group of 47 respondents had been with their company for 1-2 years. However, 42 respondents to the survey had been with their companies for more than six years, bringing a robust variety of longevity to the analysis. Figure 12 illustrates these data.

Figure 11

Summary of Demographic Characteristics of Respondents

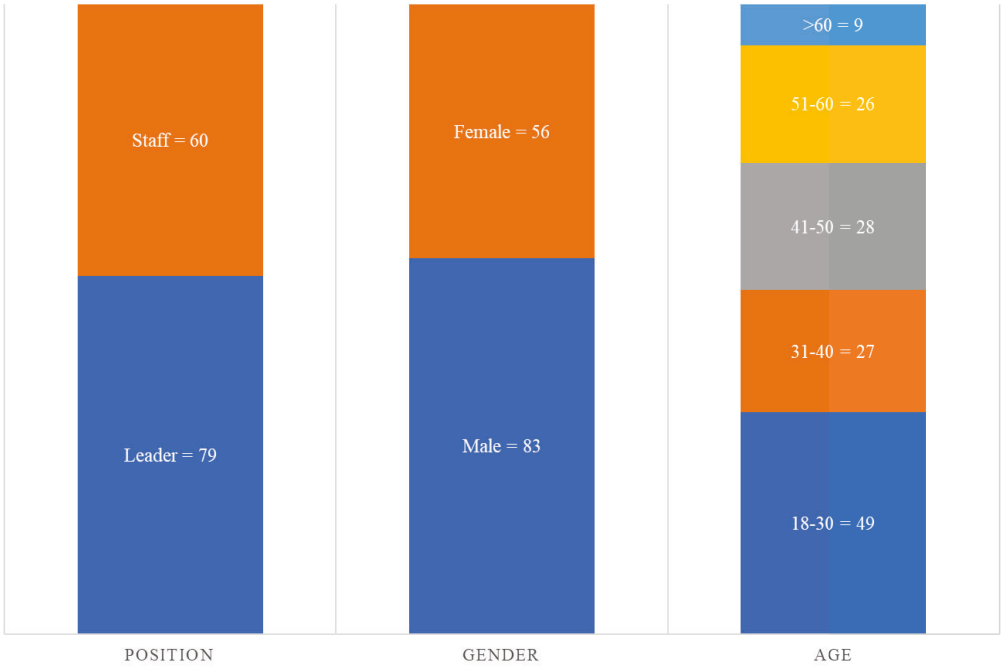
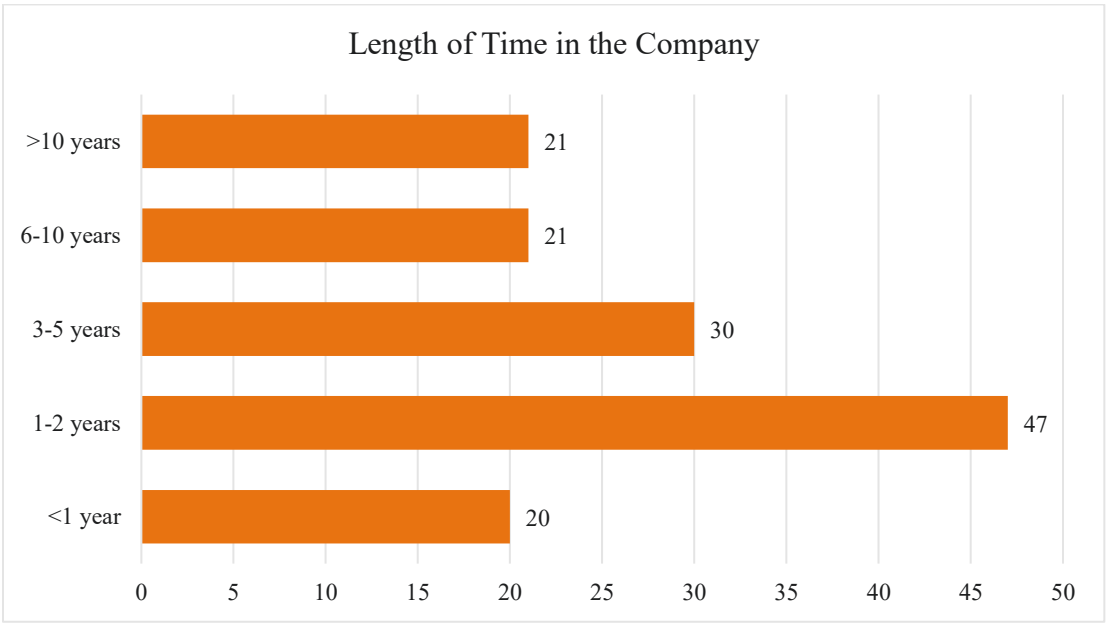


Figure 12

Summary of Longevity



Independent and Dependent Variables

The four knowledge management enablers (trust, collaboration, learning, and IT support) are the dependent variables for this analysis and the two knowledge leadership behaviors (role modeling and creating a climate that supports learning) are the independent variables. All the variables were measured on a 5-point Likert Scale with 1 being the lowest value and 5 being the highest. Table 4 presents the descriptive statistics for these variables.

Table 4

Descriptive Statistics for Independent and Dependent Variables

Variable	Minimum	Maximum	Mean	Std Dev
Trust (Avg_T)	3.0	5.0	4.29	0.56
Collaboration (Avg_C)	2.75	5.0	4.32	0.52
Learning (Avg_L)	1.0	5.0	3.22	1.02
IT Support (Avg_IT)	1.0	5.0	3.86	0.99
Role Modeling (Avg_RM)	1.75	5.0	4.17	0.74
Creating a Climate (Avg_CC)	1.5	5.0	4.07	0.87

Each of the variables had a maximum value of 5.0, the top of the Likert Scale, with varying values of the minimum and standard deviations ranging from 0.52 for collaboration to 1.02 for learning. Trust had the highest low score at only 3.0, while both Learning and IT Support had low scores matching the lowest possible value on the Likert Scale.

Details of Analysis and Results

Regression analysis predicts or explains the strength of the relationship between variables (Ott & Longnecker, 2001). A series of assumptions were run to ensure normality and fitness for the regression model.

Assumptions Testing

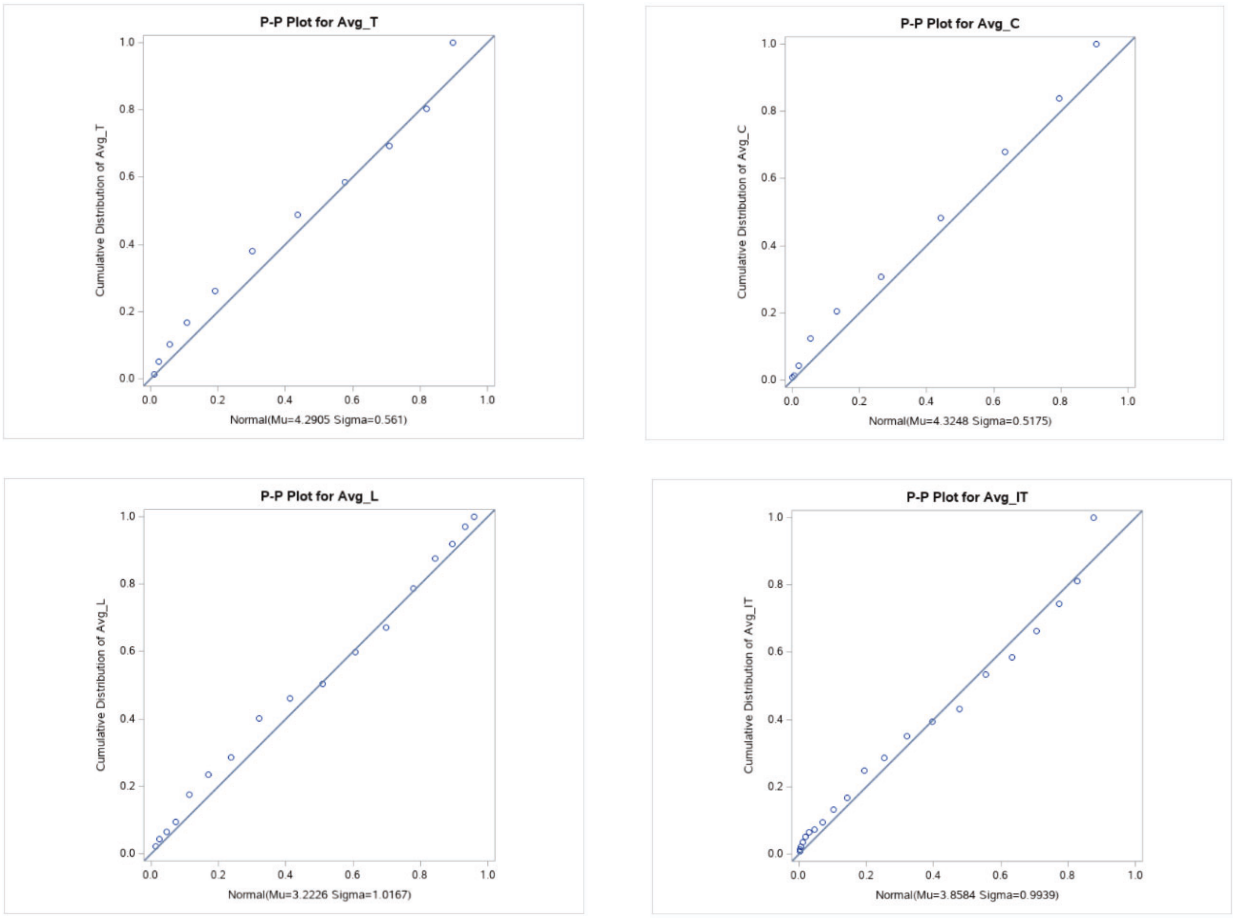
Standardized values or z-scores were used to identify any outliers. Outliers are data points that could represent inaccuracies in the data. A z-score is an objective standardized score that allows for a clearer interpretation of the data and the identification of outliers. For this

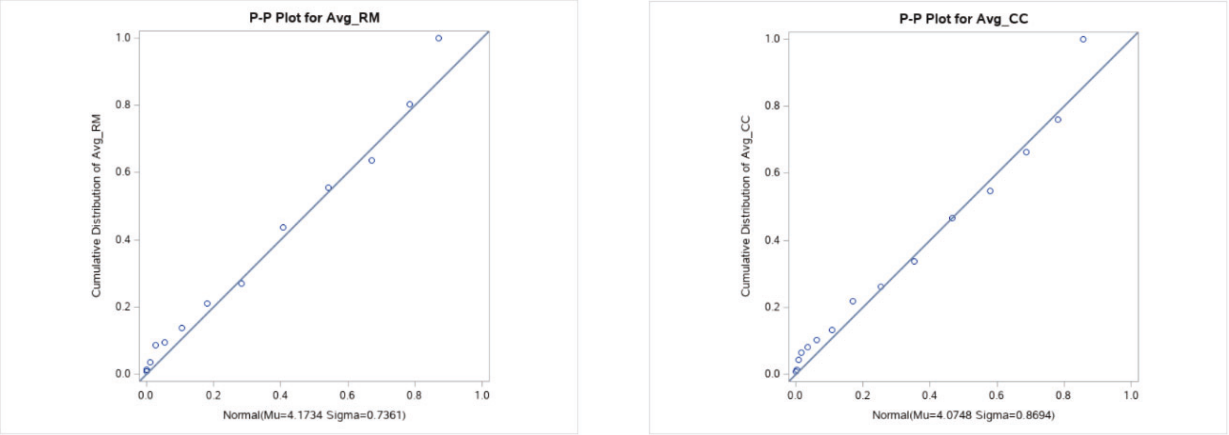
analysis, z-scores exceeding ± 3.29 were the standard value used to identify the outliers (Mowbray, Fox-Wasylyshyn, & El-Masri, 2019). The analysis identified one record which had a z-score of -4.21 in the Collaboration field and one record which had a z-score of -3.42 in the Role Modeling field. The researcher removed these two outliers from the analysis.

The normality of the residuals was examined through the use of P-P scatterplots. For all variables, they were found to closely follow the normality trend line, supporting the assumption of normality (Pallant, 2020). They are shown in Figure 13.

Figure 13

P-P plots for trust, collaboration, learning, IT support, role modeling, and creating a climate that supports learning confirm the normality of residuals

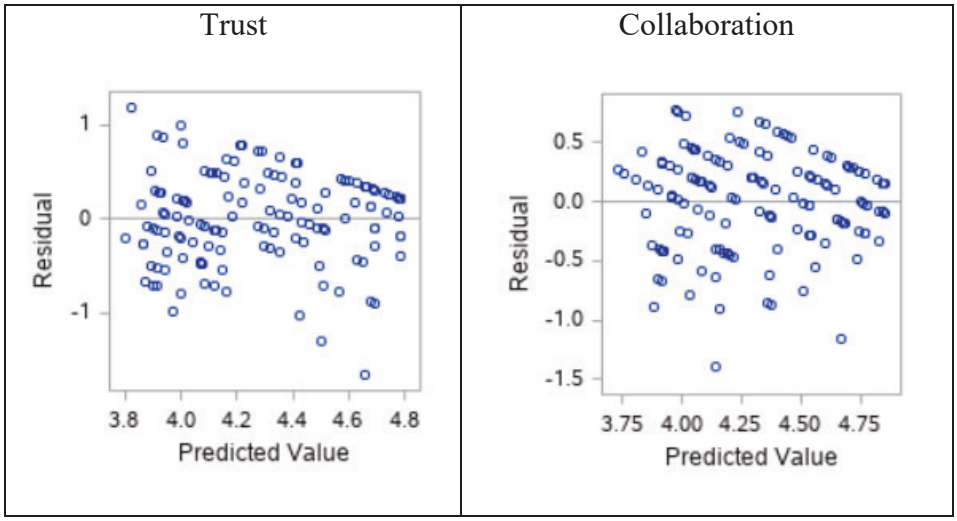


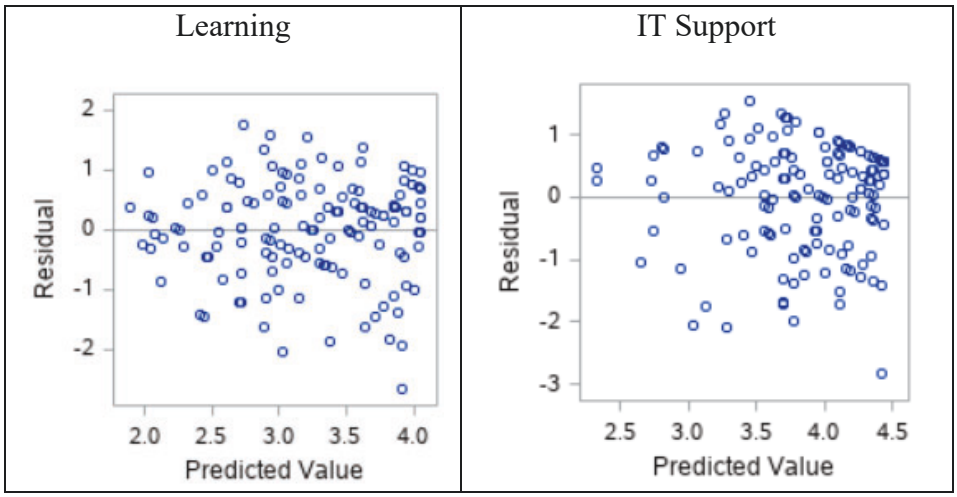


Homoscedasticity and linearity were examined with residual scatterplots. A slight pattern was detected in the linearity of the residual plots which could indicate a weak statistical relationship between the variables. This weakness could be examined further in future research. The absence of a recurring pattern in the residual scatterplots indicated that the assumption of homoscedasticity was met (Field, 2013). Figure 14 illustrates these results.

Figure 14

Residual plots for trust, collaboration, learning, and IT support confirm the absence of a recurring pattern





Multicollinearity

When verifying the variance factors for the four dependent variables against the two independent variables, multicollinearity was confirmed to be absent by the variance inflation factors returning a value of less than ten as shown in Figure 15.

Figure 15

Variance inflation factors for independent variables

Variable	Variance Inflation
Intercept	0
Avg_RM	2.67983
Avg_CC	2.67983

Multiple Regression and HLM

The inclusion of company names in the analysis was intended to determine whether people reporting from the same company had statistically similar responses and could potentially skew the results. However, the data collected included very few people reporting from the same

company, and therefore there was little to no clustering effect within the data. Consequently, a multiple regression analysis was used rather than the hierarchical linear model.

The four regression models for this analysis are:

$$Y_1 = \beta_0 + \beta_1(RM_j) + \beta_2(CC_j) + \varepsilon$$

$$Y_2 = \beta_0 + \beta_1(RM_j) + \beta_2(CC_j) + \varepsilon$$

$$Y_3 = \beta_0 + \beta_1(RM_j) + \beta_2(CC_j) + \varepsilon$$

$$Y_4 = \beta_0 + \beta_1(RM_j) + \beta_2(CC_j) + \varepsilon$$

where Y_1 is Trust (T), Y_2 is Collaboration (C), Y_3 is Learning (L), and Y_4 is IT Support (IT). The results from the regression analysis are detailed below.

Research Questions and Hypotheses

Four research questions and related hypotheses were created for investigation in this study. They are detailed below.

Research Questions

RQ1: Is there a relationship between the knowledge leadership behaviors of role modeling and creating a culture that supports learning with the cultural element of employee trust in SMEs?

RQ2: Is there a relationship between the knowledge leadership behaviors of role modeling and creating a culture that supports learning with the cultural element of employee collaboration in SMEs?

RQ3: Is there a relationship between the knowledge leadership behaviors of role modeling and creating a culture that supports learning with organizational learning in SMEs?

RQ4: Is there a relationship between the knowledge leadership behaviors of role modeling and creating a culture that supports learning with IT support in SMEs?

Hypotheses

$H1_0$: There is no statistically significant relationship between the predictive variables of role modeling and creating a climate that supports learning with the cultural element of employee trust in SMEs.

$H2_0$: There is no statistically significant relationship between the predictive variables of role modeling and creating a climate that supports learning with the cultural element of employee collaboration in SMEs.

$H3_0$: There is no statistically significant relationship between the predictive variables of role modeling and creating a climate that supports learning with organizational learning in SMEs.

$H4_0$: There is no statistically significant relationship between the predictive variables of role modeling and creating a climate that supports learning with IT support in SMEs.

The Results

The purpose of this study was to understand the relationship between key knowledge leadership behaviors and critical knowledge management enablers. The analysis measured each dependent variable (the knowledge management enablers of trust, collaboration, learning, and IT support) against the independent variables (the knowledge leadership behaviors of role modeling and creating a climate that supports learning) to examine the relationship between them. The enter method was used for the entry of the unstandardized predictor variables, meaning that the two predictors (role modeling and creating a climate that supports learning) were entered into the model simultaneously. The results of the analysis are found in Tables 5 through 8 below.

Table 5

Correlation Matrix

	Trust	Collaboration	Learning	IT Support	Role Modeling
Trust					
Collaboration	0.63759				
Learning	0.32668	0.45287			
IT Support	0.28746	0.27309	0.37962		
Role Modeling	0.43092*	0.46756*	0.51481*	0.46648*	
Creating a Climate	0.45188*	0.52067*	0.55759*	0.46848*	0.79173

* = p value < 0.05, statistically significant correlation

The correlations between role modeling and creating a climate with employee trust, collaboration, learning, and IT support returned a p-value of less than 0.05 (as marked with an asterisk in Table 5 above), meaning that the correlations were statistically significant. The further away the correlation coefficient is from zero, the stronger the relationship is between the variables. Cohen's standard (Cohen J. , 1988) was used to evaluate the correlation coefficient to determine the strength of the relationship, where coefficients between .10 and .29 represent a low association; coefficients between .30 and .49 represent a moderate association, and coefficients above .50 represent a high associate or relationship. Accordingly, looking only at the results that were shown to be statistically significant, the correlations between role modeling and employee trust, collaboration, and IT support were seen to represent a moderate association, while role modeling and organizational learning were seen to have a high association. Creating a climate was seen to have a moderate association with trust and IT support, and a high association with collaboration and organizational learning.

Table 6

Analysis of Variance for Dependent Variables

	DF	r2	F Value	P-Value
Trust	2	0.22	18.74	<.0001
Collaboration	2	0.28	25.96	<.0001
Learning	2	0.33	32.31	<.0001
IT Support	2	0.24	21.62	<.0001

The F value in the ANOVA results evaluates the overall significance of the regression analysis, while the p-value indicates whether the results are statistically significant. With p values all below the 0.05 benchmark, these data are shown to be statistically significant. The coefficient of determination (r2) shows the degree of variation that the regression analysis can explain. These results show that the regression analysis can explain 22% of the variation for trust, 28% of the variation for collaboration, 33% of the variation for learning, and 24% of the variation for IT support.

Tables 7 and 8 display the coefficient statistics for the standardized variables. For role modeling, only the relationship with IT support is statistically significant with a p-value of 0.04. However, it should be noted that at the stricter cut-off of 99% (p-value of 0.01), this result would not be seen to be statistically significant. For creating a climate that supports learning, all 4 dependent variables are shown to have statistically significant results.

Table 7

Coefficients for Role Modeling

	Parameter Estimate	Standard Error	T Value	P-Value	Variance Inflation
Trust	0.15	0.10	1.57	0.12	2.68
Collaboration	0.10	0.08	1.24	0.22	2.68
Learning	0.27	0.16	1.69	0.10	2.68
IT Support	0.35	0.14	2.16	0.03*	2.68

* = p-value < 0.05

Among the four variables, IT support is the only one that has a statistically significant relationship with role modeling. Trust, collaboration, and learning were not statistically significant in this model.

Table 8

Coefficients for Creating a climate that supports learning

	Parameter Estimate	Standard Error	T Value	P-Value	Variance Inflation
Trust	0.20	0.08	2.37	0.02*	2.68
Collaboration	0.24	0.07	3.36	0.00*	2.68
Learning	0.47	0.14	3.46	0.00*	2.68
IT Support	0.30	0.14	2.16	0.03*	2.68

* = p-value < 0.05

Among the dependent variables, all four had p-values of below 0.05, meaning that they each have a statistically significant influence on creating a climate that supports learning.

All Predictors with Trust

The multiple linear regression analysis revealed that the overall model fit was statistically significant, $F(2,134) = 18.74$, $p < .0001$, $r^2 = .219$, indicating that collectively there was a statistically significant positive relationship between role modeling, creating a climate that supports learning and employee trust. The coefficient of determination, r^2, shows the degree of variance that the regression analysis can explain and, in this case, indicates that the predictors explain approximately 21.9% of the variance in trust scores. The model is considered statistically significant because the p-value, or the measure of the probability that the relationship is random, is less than the 0.05 benchmark. Due to the collective significance of the regression model, the predictor variables were examined individually.

RM did not have a statistically significant influence on T with a p-value above the 0.05 benchmark, $\beta = 0.15$, $t = 1.57$, $p = 0.12$. CC had a statistically significant influence on T such that when CC increased, T was positively affected, $\beta = 0.20$, $t = 2.37$, $p = .02$. Table 9 presents the regression findings.

Table 9

Multiple Linear Regression Findings for Role Modeling and Creating Climate that Supports Learning Influencing Trust Scores

Variable	β	*SE*	*t*	*p*
(Intercept)	2.89	0.25	11.69	<.001*
Role Modeling (RM)	0.15	0.10	1.57	.119
Creating Climate that Supports Learning (CC)	0.19	0.08	2.37	.019*

Note: * = $p < 0.05$.

These findings show role modeling does not have a statistically significant relationship to trust. However, the knowledge leadership behavior of creating a climate that supports learning has a statistically significant influence on employee trust in a small business environment. Null hypothesis 1 stated that no statistically significant relationship existed between the two knowledge leadership behaviors and the four knowledge management enablers. The null hypothesis is therefore rejected as the data show that a statistically significant relationship between them is present.

All Predictors with Collaboration

The multiple linear regression analysis revealed that the overall model fit was statistically significant, $F(2, 134) = 25.96$, $p < .0001$, $r^2 = .279$, indicating that collectively there was a statistically significant positive relationship between role modeling, creating a climate that supports learning and employee collaboration. The coefficient of determination, r^2, indicates that the predictors could explain approximately 27.9% of the variance in collaboration scores. This model is considered statistically significant because the p-value is less than the 0.05 benchmark. Due to the collective significance of the regression model, the predictor variables were examined individually.

RM does not have a statistically significant influence on C, $\beta = 0.10$, $t = 1.24$, $p = .219$. CC has a statistically significant positive relationship with C with a p-value below the 0.05 benchmark, $\beta = 0.24$, $t = 0.07$, $p = .001$. Table 10 presents the regression results.

Table 10

Multiple Linear Regression Findings for Role Modeling and Creating Climate that Supports Learning Influencing Collaboration Scores

Variable	*β*	*SE*	*t*	*p*
(Intercept)	2.91	0.22	13.31	<.001*
Role Modeling (RM)	0.10	0.08	1.24	.219
Creating Climate that Supports Learning (CC)	0.24	0.07	3.36	<.001*

Note: * = $p < 0.05$.

These findings indicate that creating a climate that supports learning has a statistically significant influence on employee collaboration. This analysis also shows that the leadership behavior of role modeling does not have a statistically significant relationship with employee collaboration in this environment. Null hypothesis 2 stated that there was no relationship between the two leadership behaviors and the four cultural factors. The null hypothesis is therefore rejected as a statistically significant relationship is shown to be present.

All Predictors with Learning

The multiple linear regression analysis revealed that the overall model fit was statistically significant, $F(2, 134) = 32.21$, $p < .0001$, $r^2 = .3253$, indicating that collectively there was a statistically significant predictive relationship between role modeling, creating a climate that supports learning and learning scores. The coefficient of determination, r^2, indicates that the predictors could explain approximately 32.53% of the variance in learning scores. Due to the collective significance of the regression model, the predictor variables were examined individually.

RM did not have a statistically significant relationship on L, $\beta = 0.27$, $t = 1.69$, $p = 0.09$. CC had a statistically significant relationship on L, $\beta = 0.47$, $t = 3.46$, $p = .0007$. Table 11 presents the regression findings.

Table 11

Multiple Linear Regression Findings for Role Modeling, and Creating Climate that Supports Learning Influencing Learning Scores

Variable	β	*SE*	*t*	*p*
(Intercept)	0.17	0.42	0.42	.676
Role Modeling (RM)	0.27	0.16	1.69	.093
Creating Climate that Supports Learning (CC)	0.47	0.14	3.46	<.001*

Note: * = $p < 0.05$.

These findings reinforce the importance of the knowledge leadership behavior in creating a climate that supports learning in a small business environment. They indicate a statistically significant relationship between creating a climate that supports learning and the level of organizational learning in the company. The other knowledge management enablers that were analyzed did not result in any statistically significant impacts. Null hypothesis 3 stated that there was no statistically significant relationship between the two independent variables and organizational learning. The null hypothesis is therefore rejected.

All Predictors with IT Support

The multiple linear regression analysis revealed that the overall model fit was statistically significant, $F(2, 134) = 21.62$, $p < .0001$, $r^2 = .2439$, indicating that collectively there was a statistically significant predictive relationship between role modeling, creating a climate that supports learning and IT support. The coefficient of determination, r^2, indicates that the predictors could explain approximately 24.39% of the variance in IT support scores. Due to the collective significance of the regression model, the predictor variables were examined individually.

RM did have a statistically significant positive influence on IT scores, $\beta = 0.35$, $t = 2.08$, $p = .0392$. CC also had a statistically significant influence on IT scores, $\beta = 0.30$, $t = 2.16$, $p = .032$. The regression findings are presented in Table 12.

Table 12

Multiple Linear Regression Findings for Role Modeling, and Creating Climate that Supports Learning and IT Support Scores

Variable	*β*	*SE*	*t*	*p*
(Intercept)	1.18	0.43	2.74	<.001*
Role Modeling (RM)	0.34	0.17	2.08	.042*
Creating Climate that Supports Learning (CC)	0.30	0.14	2.16	.032*

Note: * = $p < 0.05$.

These findings further reinforce the importance of creating a climate that supports learning to build important IT support. Role Modeling also has a statistically significant influence on IT support in this model. Null hypothesis 4 stated that the two independent variables do not have a significant relationship to IT support. The null hypothesis is therefore rejected.

Summary Tables

Table 13 illustrates the p-value and intercepts of the interactions between each variable. The bolded values indicate where the p-value is below the 0.05 benchmark and is therefore considered statistically significant. The intercept shows the strength of the relationship and whether it has a negative or positive influence. Table 15 summarizes the results of the hypothesis tests, where the null hypothesis states that there is no statistically significant interaction between the variables.

Table 13

P-values and beta values

	Role Modeling (RM)		Creating a Climate (CC)	
	p	β	p	β
Trust	0.1432	0.14055	**0.0135***	0.20321
Collaboration	0.2926	0.08779	**0.0003***	0.26197
Learning	0.1075	0.26120	**0.0006***	0.48378
IT Support	**0.0424***	0.34250	**0.0320***	0.30812

Note: * = $p < 0.05$.

Table 14

Results of hypothesis tests

	Role Modeling (RM)	Creating a Climate (CC)
Trust (H_1)	Fail to reject	**Reject the null**
Collaboration (H_2)	Fail to reject	**Reject the null**
Learning (H_3)	Fail to reject	**Reject the null**
IT Support (H_4)	**Reject the null**	**Reject the null**

These results indicate that only IT support has a statistically significant relationship to role modeling, but that the relationship is relatively weak. Therefore, role modeling has not been shown to have a comprehensive influence on the organizational cultural elements that lead to the adoption of knowledge management. However, the results also reveal that creating a climate that supports learning has a statistically significant influence on all four of the enablers of knowledge management present in organizational culture: trust, collaboration, organizational learning, and IT support. This indicates that this leadership behavior has an important influence on the successful adoption of knowledge management practices in an SME.

Summary

This study focused on examining whether there is a meaningful relationship between two essential knowledge leadership behaviors and four knowledge management enablers in SMEs. The survey was developed from two previously tested questionnaires and required several adjustments to ensure its applicability for this study as detailed at the beginning of this chapter. 175 survey results were received, of which 139 were in alignment with the target audience of people who have worked or owned an SME. After a series of assumptions testing concluded that the data was fit for further analysis, a multiple regression analysis explored whether there were statistically significant relationships between any of the independent and dependent variables. The research found five statistically significant influences of which one leadership behavior stood out as the most influential across all critical success factors in the adoption of knowledge management in SMEs.

The analysis found that there was no statistically significant influence between role modeling and employee trust, collaboration, or organizational learning. This indicates that the leadership behavior of role modeling does not have a broad influence on the cultural elements that influence the adoption of knowledge management in an SME.

The most significant results of the analysis indicate that creating a climate that supports learning has a statistically significant influence on employee trust, collaboration, organizational learning, and IT support. This makes it an important leadership behavior that small business leaders should implement in the effort to build an environment that can ensure strong and successful knowledge management practices. The clarity of this analysis sends a strong signal to small business leaders that this leadership behavior is the most impactful on the factors of organizational culture within SMEs.

Overview of Chapter 5

The following chapter includes the context and reasoning behind this study's purpose, a discussion of the findings, a description of the limitations of the study, and recommendations for future research. Conclusions and recommendations for practical applications for SME leaders are also presented.

Chapter 5: Interpretation, Limitations, Suggestions for Future Research

Introduction

This chapter summarizes the basis for this research and includes a description and discussion of the findings. The chapter addresses the research question of whether there is a significant relationship between knowledge leadership behaviors and knowledge management enablers in the context of adopting knowledge management practices in small-to-medium-sized companies and interprets the significance of the findings. An introduction of the context for the study including an explanation of why knowledge management practices are important for small-to-medium-sized companies will be presented, and then the chapter summarizes previous literature and identifies the gaps that were the motivation for this research. Following, there is a presentation of the data collection process and the statistical procedures used, and then a discussion of the results revealed by the analysis. Subsequently, there is a discussion of insights revealed by the analysis with recommendations on their use. Finally, there is a presentation of the limitations of the study and recommendations for further research.

Purpose of the Study

Knowledge management, and its related activities such as knowledge sharing, knowledge transfer, and knowledge reuse, have been identified as critically important to a company's success (Seow, et al., 2006; Gray, 2000; Dias Jordao & de Almeida, 2017). In the study of knowledge management in business, SMEs have largely been left out of the research due to the relative lack of resources available to innovate their own KM practices (Wong & Aspinwall, 2005). SMEs tend to rely on less formal behaviors to capture and transfer knowledge (Alavi & Leidner, 1999) and, as such, they are especially vulnerable to knowledge loss as their intellectual assets are often directly tied to a small number of key people. In their seminal paper on

knowledge management in SMEs, Wong and Aspinwall (2004) acknowledged that while KM was as vital for SMEs as for larger companies, perhaps even more so, the SME's route to benefit from successful KM practices was through small strategies that delivered quick and tangible results to the business. The authors note that "small businesses should not be seen as less important and influential than large ones…KM should be considered just as important for [small businesses] as it is for large organizations, and hence, it is appropriate that they receive adequate attention in its discourse and discussion" (Wong & Aspinwall, 2004, p. 45).

This study addressed this gap in the literature by examining the relationship between two knowledge leadership behaviors and four organizational cultural elements in SMEs, to provide recommendations for how SME leaders can facilitate the adoption of successful knowledge management practices. This research focused on two known leadership behaviors that facilitate knowledge management: role modeling and creating a climate that supports learning (Lakshman & Rai, 2019) and four organizational cultural elements: employee trust, employee collaboration, organizational learning, and IT support (Lee & Choi, 2003) that are critical success factors for the adoption of knowledge management within SMEs.

Interpretation and Discussion of Results

The research methodology was a quantitative multiple regression analysis using responses to a questionnaire that incorporated two previously developed questionnaires. The target population was people who had worked in or owned an SME, which was defined as a privately-owned business established more than 3 years ago, with more than 4 and less than 250 employees and less than 40M in annual revenue (currency was dollars, euros, or swiss francs). Over 1200 people were solicited and 175 responses were collected, with 139 of them meeting the criteria for this study. The respondents came from a wide variety of industries and sizes of SMEs

and represented a broad cross-section of demographic characteristics such as age, gender, and longevity with the company. Assumptions testing was used to exclude two completed questionnaires that were identified as outliers. The remaining data were appropriate for the multiple regression model with scatterplots that showed normal trend lines and residual plots that indicated an absence of substantial recurring patterns in the data.

The results of this analysis do not show a statistically significant influence of the leadership behavior of role modeling on the cultural elements of employee trust, collaboration, and learning in SMEs. This is a somewhat surprising finding as there is much literature showing the positive impact on innovation, performance, and employee culture that role modeling leadership practices have in businesses (Matzler, Schwarz, Deutinger, & Harms, 2008; Byrne, Fattoum, & Diaz Garcia, 2019; Mazzarol, Volery, Doss, & Thein, 1999). It could therefore be considered a somewhat unusual finding that this study concludes that role modeling does not have a statistically significant influence on key cultural elements of an SME.

The literature shows, however, that the debate over the impact of role modeling is still far from conclusive. There is evidence of both positive and negative influence of role modeling in business cautioning that the type of behavior being modeled could determine whether it has a positive or negative influence (Lockwood, Marshall, & Sadler, 2005). There are also many advice columns and self-help articles emploring small business leaders to adopt good role modeling behavior, citing studies that claim that role modeling has a positive influence on employee morale, innovation, accountability, productivity, and change management (Morgenroth, Ryan, & Peters, 2015; Blunt, 1991; Islam, Hasan, Ahmed, & Ahmed, 2011). However, the contradictory results, and in particular findings associated with the unique and complex organizational culture of an SME, make it plausible that role modeling, as defined in

the foundational studies of Holsapple and Jones (2005) and Lakshman & Rai (2019), does not have a predictive influence on the specific cultural factors identified by Lee & Choi (2003.

The findings in this study suggest, however, a clear relationship between the leadership behavior of creating a climate that supports learning and the key organizational success factors that support the adoption of knowledge management practices in SMEs. This is an exciting discovery as it provides a compelling and well-defined imperative for small business leaders to embark on, and reinforce, their organizational commitment to activities that provide a supportive learning environment for their employees. This leadership behavior has a statistically significant positive relationship with employee trust, employee collaboration, organizational learning, and IT support, all critical factors to the success of SMEs. These findings provide a clear-cut argument to persuade small business leaders to ensure that their behavior emphasizes the elements that create a climate that supports learning.

The lack of employee trust or employee collaboration can have important and serious consequences on the health and growth of the company (Kramer, 1999). The unique nature of an SME business environment where leaders are inherently more involved in the day-to-day operations and resources are limited, makes it vitally important to focus efforts on activities that deliver maximum benefit. This research shows that creating a climate that supports learning leads to a positive influence on employee trust and employee collaboration in SMEs, which are both strong influencers in the successful adoption of knowledge management (Lee & Choi, 2003).

In their seminal study on leadership behaviors that support the adoption of knowledge management practices, Lakshman & Rai (2019) address the complexities of theories that explore organizational learning and knowledge creation. The authors acknowledge that transformational

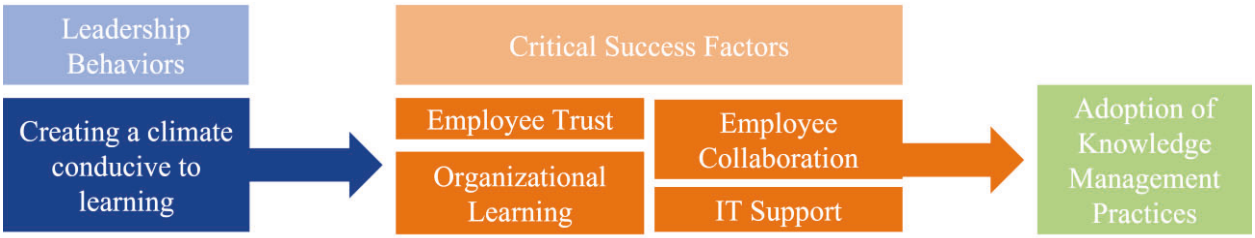
leadership practices and theories are closely related and provide an important form of leadership influence, however, their research focuses specifically on the issues of collective learning and knowledge sharing (Lakshman & Rai, 2019). Creating a climate that supports learning includes encouraging feedback, transparency, listening to, openly appreciating the ideas of subordinates, and generally creating an atmosphere of openness and interaction. These activities require leaders to actively demonstrate their receptivity and authentic desire to establish a learning culture at every level of the business. The findings of this research demonstrate that this leadership behavior should be employed in SMEs to generate the positive cultural elements of employee trust and employee collaboration, and provide learning and IT support to employees, all vital to the adoption of successful knowledge management practices in small businesses.

The conclusions of this study have practical applications for small business owners and managers and theoretical implications for researchers in knowledge management, organizational culture, and the study of small business. The goal of this study was to provide evidence of the relationship between knowledge leadership behaviors and cultural elements known to influence the successful adoption of knowledge management practices. The results show that the leadership behavior of creating a culture that supports learning has the most significant positive impact on the trust that employees have in the organization and their leaders. It also has a positive impact on the collaboration they employ among themselves, as well as the activities of organizational learning and IT support that they benefit from within the company. Owners and managers in small businesses can apply the results of this research to develop a robust culture that supports learning and implement practical techniques to build an organizational culture that supports heightened knowledge sharing and collaboration.

Figure 16 below provides a visual image of the demonstrated relationships between the two leadership behaviors and the four cultural factors identified in this research. It shows how the leadership behavior of creating a climate that supports learning influences the four critical success factors of trust, collaboration, learning and IT support, which in turn, in other literature have been shown to have a positive influence on the adoption of knowledge management in SMEs (Wong & Aspinwall, 2005).

Figure 16

Demonstrated relationships between leadership behaviors, critical success factors, and the adoption of knowledge management practices in SMEs



Recommendations

Comprehensive and integrated knowledge management practices have been proven to be an asset for small and medium-sized enterprises (Gray, 2000; Dias Jordao & de Almeida, 2017). Knowledge management has been shown to improve innovation, productivity, transparency, employee loyalty, and many more positive cultural attributes that contribute to a business's financial success (Andreeva, Schiuma, & Kianto, 2012). Lakshman & Rai (2019) define the knowledge leadership behavior of creating a climate that supports learning as fostering "a climate of trust and comfort conducive to learning, emphasizing a constructive approach in dealing with problems, being open to feedback, and listening to and appreciating the ideas of subordinates" (Lakshman & Rai, 2019, p. 8). Employing these behaviors is more than a method to leverage internal intellectual assets, as it has been shown that a lack of this leadership behavior

can lead to detrimental relationships and knowledge hiding (He, Sun, Zhao, Zheng, & Shen, 2020). SMEs who are innovative are significantly more committed to learning and tend to share qualities of shared vision and open-mindedness, and see learning as an investment (Saunders, Gray, & Goregaokar, 2014). Based on the results of this research, it is clear that there is a direct link between the behavior of SME leaders and the level of trust and collaboration that employees experience, as well as a commitment to learning and IT support. As these are known to be critical factors in the successful adoption of knowledge management practices (Lee & Choi, 2003), and knowledge management is a critical aspect of innovation and growth of a small business (Ahmed, Salloum, & Shaalan, 2021), it is vitally important that leaders employ these key behaviors.

Limitations of the Research

This research employed non-probability and snowballing sampling methodologies to gather responses for the questionnaire. The original plan to use LinkedIn and personal emails to solicit contacts from the author's professional network and rely on them to disseminate the study within their own networks had limited success. The researcher was required to reach out personally using the messenger feature on LinkedIn to more than 1200 contacts gathered in the past 20 years of professional life to collect a sufficient number of responses for this study. This study could be recreated with a broader, more objective, and a controlled, robust sample of employees within SMEs, leading to conclusions that would be more generalizable.

During the statistical analysis, a weak linear relationship was identified between the independent and dependent variables. A relatively close correlation was also identified between the independent variables which could indicate a statistical weakness in the findings. These relationships could be a result of the sample population used for this study or could reflect an

overlap between the understanding of role modeling and creating a climate that supports learning. These elements should be further examined in future research to understand if they are influencing factors in the analysis.

Finally, this study relies on previous work to provide evidence that knowledge leadership behaviors and knowledge management enablers influence the successful adoption of knowledge management. This study did not require its respondents to be engaged in knowledge management practices but instead focused on the relationship between leadership behaviors and the critical elements of trust, collaboration, learning, and IT support within the SME organization.

Suggestions for Future Research

This study uncovered a direct link between an SME that creates an environment that supports learning and the critical success factors of organizational culture that lead to the adoption of good knowledge management practices. Future research could delve deeper into how different types of SMEs can create this beneficial environment and what the limitations of the learning environment are. Investing in employee learning can be costly, and many SMEs shy away from investments that do not yield significant and short-term results, therefore further linkages between leadership behaviors, organizational learning, and the measures of the impact of successful knowledge management practices could be beneficial.

There is an opportunity to build on this research by adding a qualitative component that digs deeper into the motivations and mindsets of SME leaders and employees. Qualitative research techniques help investigate complex situations that could offer valuable insights into the behavior of SME leaders regarding the cultural elements that influence the adoption of knowledge management practices (Pajo, 2017). A qualitative research study could also help uncover the intentions behind SME leaders' behaviors and, through simultaneous interviews with

employees, understand their reactions and any effect on the critical success factors that lead to the successful adoption of knowledge management practices.

Another extension of the research that could yield valuable and insightful results would be to examine whether there is a significant bias among employees of the same company. This study could not investigate this potentially moderating factor due to having too few respondents from the same company. The investigation of employees' perceptions of the same company could increase the understanding of whether loyalty to an organization skews the perception of the cultural elements examined in this study. Similarly, the longevity factor could be better understood by investigating the influence that the length of time that an employee stays with an SME on their perceptions of trust, collaboration, learning, and IT support.

As this study found negligible statistically significant evidence that role modeling has an influence on employee trust, collaboration, learning, and IT support, a future study would be beneficial to better understand why the relationship does not seem to exist. As mentioned previously, it is possible that within the unique and complex environment of an SME, the cultural elements critical to the adoption of knowledge management practices are not influenced by role modeling. It is also possible that SME leaders do not consider modeling these behaviors as they are closer to, and therefore more preoccupied with, the daily operations of the business compared to their counterparts in larger organizations. These possibilities could be further examined to uncover the potential breakdown in these relationships.

As illustrated in Figure 14, there was a slight pattern in the linearity of the residual plots, which could indicate a weak statistical relationship between the variables. In addition, as shown in Table 5, the correlations between the independent variables show a relatively strong relationship between them which could cause bias in the analytical findings. Duplicating this

study with a different sample could verify whether this finding is repeatable and therefore a cause for further examination.

Finally, as mentioned previously, this study relies on historical studies and literature that have asserted that these cultural elements and leadership behaviors are significantly influential in the adoption of knowledge management practices within SMEs. Therefore, this research could be extended to examine the level of impact on the successful adoption of knowledge management practices in SMEs based on the combination of these cultural elements and leadership behaviors.

Conclusion

This study was founded on previous research that identified the important principles that supported successful knowledge management in business. Lee & Choi's seminal work in 2003 provided important early that identified key organizational cultural elements that enable the adoption of knowledge management in SMEs (Lee & Choi, 2003). Lakshman & Rai's 2019 measurements of the effect of knowledge leadership behaviors emphasized the critical importance of conscious leadership practices to ensure the successful adoption of knowledge management practices (Lakshman & Rai, 2019). Before these studies, the previous 20 years of research around knowledge management had established the founding principles of the critical influence that good knowledge management practices had on the financial success and longevity of businesses, mostly focusing on larger enterprises that had the resources to develop and maintain knowledge management systems and practices.

This research aimed to extend the understanding of knowledge management enablers and knowledge leadership behaviors specifically with a focus on small businesses. Knowledge management has an outsized influence on small businesses because they have smaller teams of people whose arrival and departure from the company can be very impactful. Small businesses

tend to have more agile and faster moving operational lifecycles, and, often, there are fewer resources to dedicate to infrastructure and documentation of knowledge and practice. In the research about knowledge management, there is evidence that SMEs have been largely left out (Wong & Aspinwall, 2004). This study sought to bring some insight to small business leaders on the subject.

The study was designed to focus on the relationships between key leadership behaviors and the elements of organizational culture that were known to influence the successful adoption of knowledge management practices. This research did not set out to recreate or reinforce the literature that has already proven these facts, but instead to extend them and apply them specifically to the unique environment of small businesses. This inquiry was particularly focused on the influence of key knowledge leadership behaviors on critical elements of the organizational culture that were already known to impact the successful adoption of knowledge management practices in small businesses. The leadership behaviors concerned by the study are role modeling and creating a climate that is conducive to learning, two critical leadership behaviors that have been shown to influence the adoption of knowledge management. The four elements of organizational culture that were included in this study were employee trust, employee collaboration, organizational learning, and IT support, identified as critical success factors for knowledge management in SMEs (Lee & Choi, 2003).

The analysis in this study identified that creating a climate that supports learning had a statistically significant influence on all four of the organizational factors. The investigation found that this leadership behavior, linked to openness, knowledge sharing, shared vision, and accessible and authentic feedback, has a statistically significant positive impact on employee trust, employee collaboration, organizational learning, and IT support. There is clear evidence

that this key knowledge management leadership behavior has a positive influence on these critical success factors of knowledge management in SMEs.

There are several opportunities for future research that can be derived from this study. The analysis in this research is based on a narrow population of SMEs with a direct professional link to the author. Future research could recreate the study based on a broader population of SMEs and could control for people responding from the same organization. In addition, this study falls short of focusing on the adoption of knowledge management practices in SMEs, relying on instead previous literature that provided evidence for the linkages. Finally, future research could connect the knowledge leadership behaviors with the organizational cultural factors to the adoption and implementation of knowledge management practices within SMEs.

Appendix I: Survey Instrument

The objective of this research is to understand the influence of knowledge leadership behaviors on the organizational cultural elements that are known to enable the successful adoption of knowledge management (KM) practices in small-and-medium-sized companies (SMEs). Knowledge management is a strategy based on information sharing and transparency at all levels of the company. It has been shown that successful knowledge management ensures a competitive advantage for companies of all sizes.

Participants in this study have owned or worked in, or currently own or work in, SMEs. For the purpose of this study, SMEs are defined as privately-owned organizations that have between 5 and 250 employees, that have been established for at least three years and are NOT in startup mode, and generate less than 40M of revenue per year.

Personal information will not be stored or shared as part of this research. Participants may request a free copy of the conclusions of this study, which could inform decision-making about cultural and leadership practices in SMEs. All data will be kept confidential. Participants have the option to withdraw from the study at any time.

This questionnaire is estimated to take 10-15 minutes. By clicking on the next section, you consent to the conditions of this questionnaire. Thank you for your participation.

<u>Demographics</u>
This information will be kept confidential and used only for follow-up and statistical analysis. No personal information will be released or used in the reporting.

Company Name: Company Website:

Industry Type: (dropdown menu) Country: (dropdown menu)

Your Title:

Gender: (dropdown menu) Age range: (dropdown menu)

Your email address:

Length of time with the company (dropdown menu):

Briefly describe your role in terms of responsibilities, subordinates, decision-making, etc

Number of Employees: (dropdown menu) Annual Revenue (dropdown menu):

Ownership Model (dropdown menu):

The following questions are on a 5-point scale where 1=strongly disagree, 2=somewhat disagree, 3=neither agree nor disagree, 4=somewhat agree, and 5=strongly agree:

Trust: the degree of reciprocal faith in other's intentions, behaviors, and skills toward organizational goals

1. Our company members are generally trustworthy.
2. Our company members have reciprocal faith in other members' intentions and behaviors.
3. Our company members have reciprocal faith in others' ability.
4. Our company members have reciprocal faith in others' behaviors to work toward organizational goals.
5. Our company members have reciprocal faith in others' decisions towards organizational interests over individual interests.
6. Our company members have relationships based on reciprocal faith.

Collaboration: the degree of active support and help in organizations

1. Our organization's members are satisfied by the degree of collaboration.
2. Our organization's members are supportive.
3. Our organization's members are helpful.
4. There is a willingness to collaborate across organizational units within our company.
5. There is a willingness to accept responsibility for failure.

Learning: the degree of opportunity, variety, satisfaction, and encouragement for learning and development in organizations

1. Our company provides various formal training programs for performance of duties.
2. Our company provides opportunities for informal individual development other than formal training such as work assignments and job rotation.
3. Our company encourages people to attend seminars, symposia, and so on.
4. Our company provides various programs such as clubs and community gatherings.
5. Our company's members are satisfied by the contents of job training or self-development programs.

IT Support: the degree of IT support for collaborative work, for communication, for searching and accessing, for simulation and prediction, and for systematic storage

1. Our company provides IT support for collaborative works regardless of time and place.

2. Our company provides IT support for communication among organization members.

3. Our company provides IT support for searching for and accessing necessary information.

4. Our company provides IT support for simulation and prediction.

5. Our company provides IT support for systematic storing.

Role Modeling: the leader models the attitudes and behaviors appropriate for learning, thereby motivating subordinates to follow

1. The company's leadership is enthusiastic about his/her own work.

2. The company's leadership commits him/herself to changes agreed upon.

3. The company's leadership searches for and collects information relevant to decision-making before decisions are made.

4. The company's leadership develops his/her own professional skills.

Creating a Climate that supports learning: the leader fosters a climate of trust and comfort conducive to learning, emphasizing a constructive approach in dealing with problems, being open to feedback, and listening to and appreciating the ideas of subordinates

1. The company's leadership encourages a confidential atmosphere in which it is easy to express thoughts and views openly.

2. The company's leadership promotes the transfer and sharing of knowledge at work.

3. The company's leadership supports constructive dealing with faults and problems in our cooperation.

4. The company's leadership encourages us to make decisions after considering all the information available.

Thank you for your participation. In exchange for the generous contribution of your time, you will receive a report with the results of this study intended to help you understand how to further leverage your organization's knowledge to greater competitive advantage.

(optional) Can you provide the name and email address of at least one other person who you think could benefit from the same rewards and would be willing to participate in this study?

I suggest contacting the following people for participation in this study. I understand that my name might be used when soliciting their participation, but all my data will remain confidential.

https://forms.gle/cQBm5a8jRgJ4euUx7

Appendix II: Email of Introduction

Hello,

My name is Sara Pax and I am a doctoral candidate at Franklin University in Columbus, Ohio. I am conducting research for my dissertation that explores the relationship between organizational cultural factors that influence the adoption of knowledge management practices and knowledge leadership behaviors in small to medium-sized companies. The study may help business leaders adjust their behaviors to ensure the implementation of knowledge management in their organization.

If you work for or own an established small or medium-sized company, I would like to invite you to participate in my survey. The company should be privately-owned, employ between 4 and 250 people, and earn less than 40M in annual revenue.

Participation in this survey will be done online and should take no longer than 10 minutes. Your responses will be kept confidential and only aggregate data will be published. You will be asked your opinion about specific cultural and leadership practices related to knowledge management at your organization.

If you have questions about the study that you would like to discuss before deciding to participate, please contact me at pax01@email.franklin.edu. A copy of the informed consent form is attached to this email for your reference. If you decide to participate in the study, you will be asked to electronically consent at the start of the questionnaire.

If you would like to participate in this study, please click on the link below. If you can recommend other people in your professional network who would qualify to participate in this questionnaire, please feel free to forward this message to them. If you do not wish to participate, please delete this email.

With kind regards,

Sara Pax

Link to online survey: https://forms.gle/cQBm5a8jRgJ4euUx7

Appendix III: Consent Form

Hello, my name is Sara Pax and you have been invited to take part in a research study. I am a student in the Instructional Design Leadership program at Franklin University in Columbus, Ohio. This study is part of the requirements for earning my doctorate.

The purpose of this study is to understand the influence of knowledge leadership behaviors on organizational culture in small to medium sized companies. I am inviting you to participate in my project because you have owned or worked in, or currently own or work in, an SME. For the purpose of this study, SMEs are defined as privately-owned organizations that have between 4 and 250 employees, that have been established for at least three years, and generate less than 40M of revenue per year.

If you participate in this study, you will be asked to fill out an online questionnaire. Your participation in this study is voluntary and you may stop participating at any time. If you stop participating, there will be no penalty or other negative consequences. All data collected will remain confidential and no identifying information will be used in the dissertation, or anywhere else. The survey consists of 29 questions and should take no longer than 10 minutes.

I believe there is little risk to you for participating in this research project. The personal information that is requested in the questionnaire will be used only to identify participants who are reporting on the same organization in order to control for any unintended bias. Only my Franklin University dissertation chair and I will have access to the information. Other agencies that have legal permission have the right to review research records. The Franklin University IRB has the right to review research records for this study.

Participants may request a free copy of the conclusions of this study, which could inform decision-making about cultural and leadership practices in SMEs. If you have any questions about this study, please email me at pax01@email.franklin.edu. You may also contact my dissertation chair, Dr. Yi Yang, at yi.yang@franklin.edu. If you have any questions about your rights as a research participant, please contact the Franklin University IRB Office at +1.614.947.6037 or irb@franklin.edu.

By clicking on the next section, you imply consent to the conditions of this questionnaire. You may print or save a copy of this page as reference. If you do not wish to participate, please close your browser window.

Appendix IV: Full List of Survey Questions with Mean and Standard Deviation

		Mean	StDev
T1	1. Our employees are generally trustworthy	4.55	0.59
T2	2. Our employees generally believe in each other's intentions and behaviors	4.35	0.64
T3	3. Our employees generally believe in each other's ability	4.29	0.72
T4	4. Our employees generally trust in each others' commitment to work toward organizational goals	4.34	0.78
T5	5. Our employees generally trust each other to prioritize organizational interests over individual interests	3.87	0.96
C1	1. Our employees are generally satisfied by the degree of collaboration with their peers	3.99	0.72
C2	2. Our employees are generally supportive of each other	4.40	0.71
C3	3. Our employees are generally helpful with their peers	4.49	0.65
C4	4. There is a general willingness to collaborate across roles and divisions within our company	4.35	0.82
L1	1. Our company provides a variety of formal training programs for performance of duties	3.06	1.32
L2	2. Our company provides opportunities for informal individual development other than formal training such as work assignments and job rotation	3.23	1.26
L3	3. Our company encourages people to attend seminars, symposia, and so on	3.39	1.24
L5	4. Our employees are generally satisfied by the contents of job training or self-development programs	3.19	1.15
IT1	1. Our company provides IT support to work collaboratively regardless of time and place	3.93	1.17
IT2	2. Our company provides IT support for communication among employees	4.03	1.10
IT3	3. Our company provides IT support for searching for and accessing necessary information	3.90	1.21
IT4	4. Our company provides IT support for analysis and forecasting	3.37	1.35
IT5	5. Our company provides IT support for document storage	4.10	1.04
RM1	1. The company's leadership or leadership team is enthusiastic about their own work	4.48	0.65
RM2	2. The company's leadership or leadership team commits themselves to agreed-upon actions and changes	4.14	0.90
RM3	3. The company's leadership or leadership team searches for and collects information relevant to decision-making before decisions are made	3.99	1.06
RM4	4. The company's leadership or leadership team develops their own professional skills	3.97	1.08
CC1	1. The company's leadership or leadership team encourages a confidential atmosphere in which it is easy to express thoughts and views openly	3.94	1.11
CC2	2. The company's leadership or leadership team promotes the transfer and sharing of knowledge at work	4.12	0.96

CC3	3. The company's leadership or leadership team supports constructive debate to resolve issues and improve cooperation	4.01	1.05
CC4	4. The company's leadership or leadership team encourages us to make decisions after considering all the information available	4.11	1.04

Appendix V: Correlation Matrix with p-values

	Trust	Collaboration	Learning	IT Support
Role Modeling	0.43 p-value <.0001	0.79 p-value <.0001	0.51 p-value <.0001	0.47 p-value <.0001
Creating a Climate	0.45 p-value <.0001	0.52 p-value <.0001	0.56 p-value <.0001	0.47 p-value <.0001

Appendix VI: Full Statistical Output for all 4 Dependent Variables

Trust (Avg_T)

The REG Procedure
Model: MODEL1
Dependent Variable: Avg_T Avg_T

Number of Observations Read	137
Number of Observations Used	137

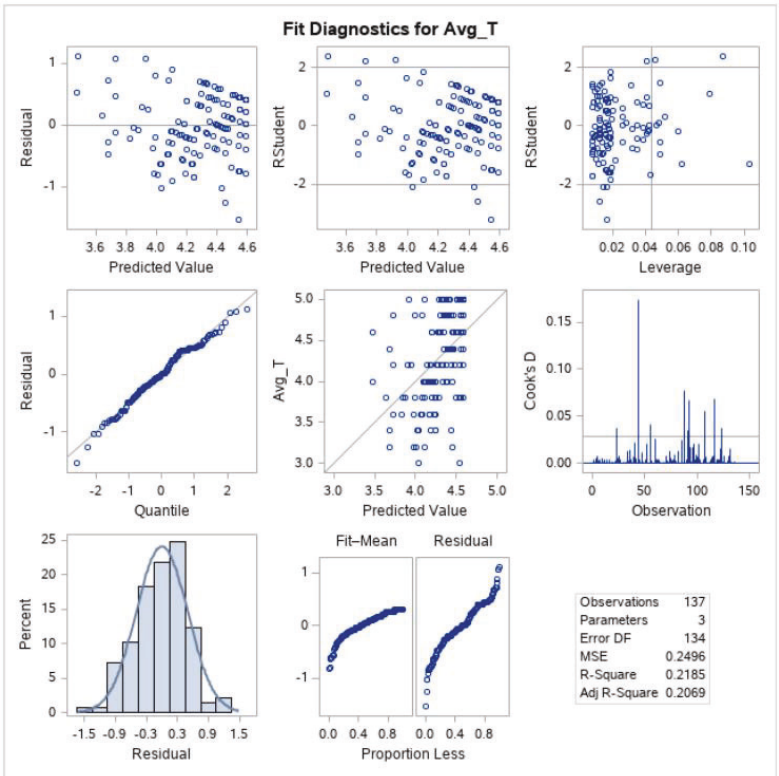
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	9.35272	4.67636	18.74	<.0001
Error	134	33.44495	0.24959		
Corrected Total	136	42.79766			

Root MSE	0.49959	R-Square	0.2185
Dependent Mean	4.29051	Adj R-Sq	0.2069
Coeff Var	11.64404		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variance Inflation
Intercept	Intercept	1	2.88704	0.24699	11.69	<.0001	0
Avg_RM	Avg_RM	1	0.14938	0.09527	1.57	0.1192	2.67983
Avg_CC	Avg_CC	1	0.19143	0.08066	2.37	0.0191	2.67983



Collaboration (Avg_C)

The REG Procedure
Model: MODEL1
Dependent Variable: Avg_C Avg_C

Number of Observations Read	137
Number of Observations Used	137

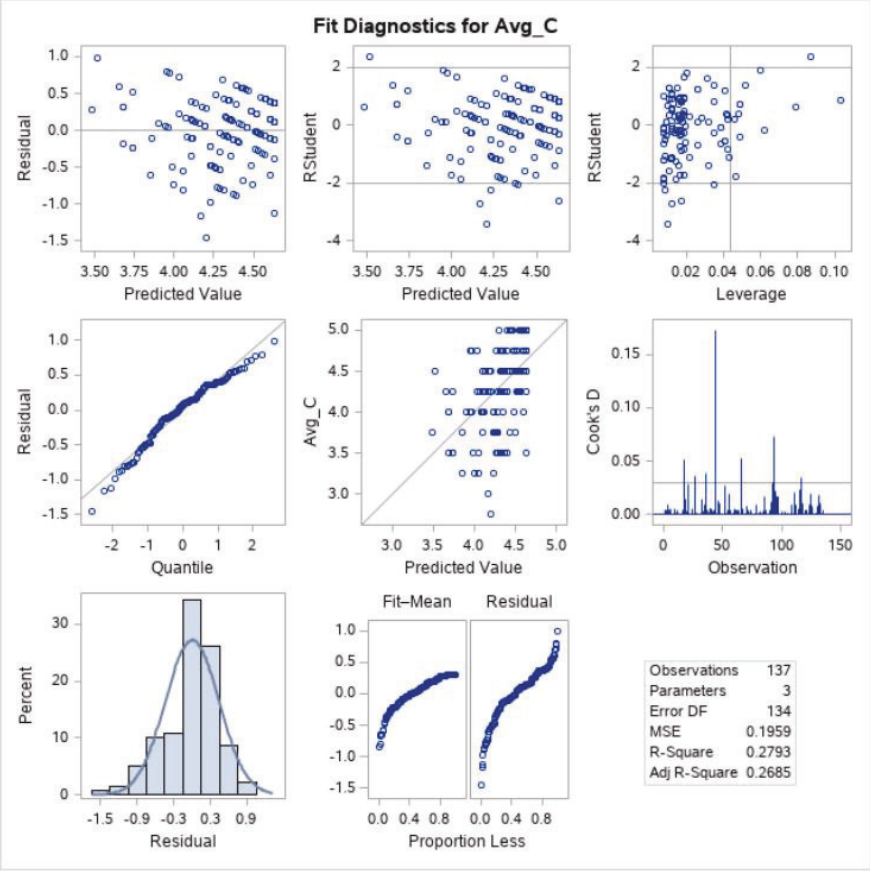
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	10.17217	5.08609	25.96	<.0001
Error	134	26.24845	0.19588		
Corrected Total	136	36.42062			

Root MSE	0.44259	R-Square	0.2793
Dependent Mean	4.32482	Adj R-Sq	0.2685
Coeff Var	10.23368		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variance Inflation
Intercept	Intercept	1	2.91168	0.21881	13.31	<.0001	0
Avg_RM	Avg_RM	1	0.10424	0.08440	1.24	0.2190	2.67983
Avg_CC	Avg_CC	1	0.24004	0.07146	3.36	0.0010	2.67983



Learning (Avg_L)

The REG Procedure
Model: MODEL1
Dependent Variable: Avg_L Avg_L

Number of Observations Read	137
Number of Observations Used	137

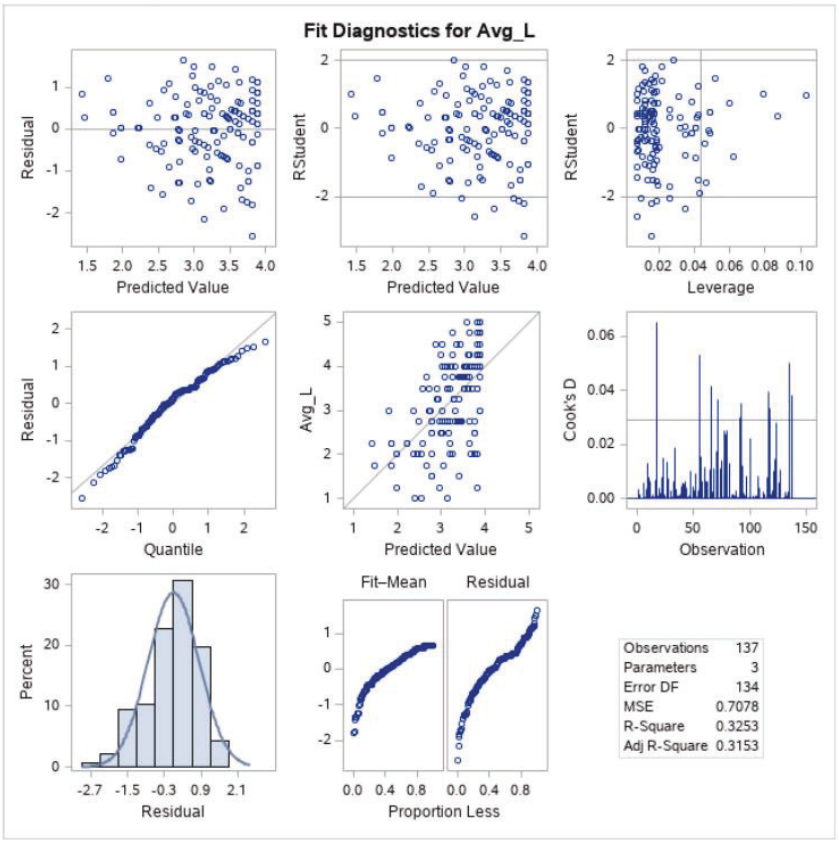
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	45.73552	22.86776	32.31	<.0001
Error	134	94.84934	0.70783		
Corrected Total	136	140.58485			

Root MSE	0.84133	R-Square	0.3253
Dependent Mean	3.22263	Adj R-Sq	0.3153
Coeff Var	26.10686		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variance Inflation
Intercept	Intercept	1	0.17416	0.41593	0.42	0.6761	0
Avg_RM	Avg_RM	1	0.27146	0.16043	1.69	0.0930	2.67983
Avg_CC	Avg_CC	1	0.47010	0.13584	3.46	0.0007	2.67983



IT Support (Avg_IT)

The REG Procedure
Model: MODEL1
Dependent Variable: Avg_IT Avg_IT

Number of Observations Read	137
Number of Observations Used	137

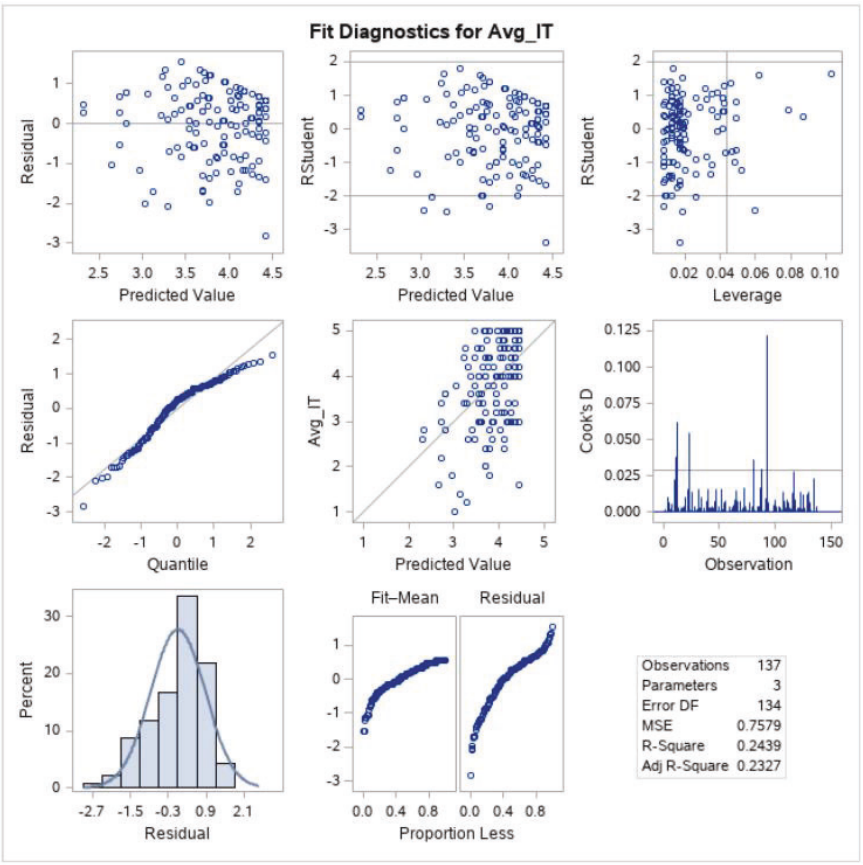
Analysis of Variance

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	2	32.77015	16.38508	21.62	<.0001
Error	134	101.56269	0.75793		
Corrected Total	136	134.33285			

Root MSE	0.87059	R-Square	0.2439
Dependent Mean	3.85839	Adj R-Sq	0.2327
Coeff Var	22.56359		

Parameter Estimates

Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr > |t|	Variance Inflation
Intercept	Intercept	1	1.17765	0.43040	2.74	0.0071	0
Avg_RM	Avg_RM	1	0.34577	0.16602	2.08	0.0392	2.67983
Avg_CC	Avg_CC	1	0.30375	0.14057	2.16	0.0325	2.67983



References

Abdi, K., Mardani, A., Senin, A. A., Tupenaite, L., Naimaviciene, J., Kanapeckiene, L., & Kutut, V. (2018). The effect of knowledge management, organizational culture and organizational learning on innovation in automative industry. *Journal of Business Economics and Management, 19*(1), 1-19.

Abubakar, M., Elrehail, H., Alatailat, M., & Elci, A. (2019). Knowledge management, decision-making style and organizational performance. *Journal of Innovation & Knowledge, 4*(2), 104-114.

Abu-Jarad, I. Y., Yusof, N. A., & Nikbin, D. (2010). A review paper on organizational culture and organizational performance. *International Journal of Business and Social Science***,** *1*(3), 26-46.

Acar, A. Z., & Acar, P. (2012). The effects of organizational cultre and innovativeness on business performance in healthcare industry. *Procedia-Social and Behavioral Sciences, 58*, 683-692.

Achtenhagen, L., Naldi, L., & Malin, L. (2010). "Business Growth" - Do practitioners and scholars really talk about the same thing? *Entrepreneurship: Theory & Practice, 34*(2), 289-316.

Ahmed, D., Salloum, S. A., & Shaalan, K. (2021). Knowledge management in startups and SMEs: A systematic review. In M. &. Al-Emran, *Recent Advances in Technology Acceptance Models and Theories* (pp. 389-409).

Akhtar, C. S., Arif, A., Rubi, E., & Naveed, S. (2011). Impact of organizational learning on organizational performance: Study of higher education institutes. *International Journal of Academic Research, 3*(5), 327-331.

Alam, S. S., Abdullah, Z., Ishak, N. A., & Zain, Z. M. (2009). Assessing knowledge sharing behavior among employees in SMEs: An empirical study. *Internaitonal Business Research, 2*(2), 115-122.

Alavi, M., & Leidner, D. (1999). Knowledge management systems: Issues, challenges, and benefits. *Communications of the Association for Information Systems, 1*(7), 2-37.

Alavi, M., Kayworth, T. R., & Leidner, D. (2005). An empirical examination ofthe influence of organizational culture on knowledge management practices. *Journal of Management Information Systems, 22*(3), 191-224.

Alici, E. N., & Cengizoglu, E. (2017). *The effect of knowledge management in start-ups: Exploring the transition process of a start-up from temporary to a permanent organization.* Umeå, Sweden: Umeå School of Business and Economics.

Aliyu, M. S., Rogo, H. B., & Mahmood, R. (2015). Knowledge management, entrepreneurial orientation and firm performance: The role of organizational culture. *Asian Social Science, 11*(23), 140-152.

Allameh, S. M., Zare, S. M., & Davoodi, S. M. (2011). Examining the impact of KM enablers on knowledge management processes. *Procedia Computer Science, 3*, 1211-1223.

Amidon, D. M., & Macnamara, D. (2004). The 7 Cs of knowledge leadership: Innovating our future. In C. Holsapple (ed.), *Handbook of Knowledge Management 1* (pp. 539-551). Spring Science & Business Media.

Anantatmula, V. (2009). Designing meaningful KM processes to improve organizational learning. *Trends in Information Management, 5*(2), 219-245.

Andreeva, T., Schiuma, G., & Kianto, A. (2012). Does knowledge management really matter? Linking knowledge management practices, competitiveness and economic performance. *Journal of Knowledge Management, 16*(4), 617-636.

Aronoff, C. (2004). Self-perpetuation family organization built on values: Necessary condition for long-term family business survival. *Family Business Review, 17*(1), 55-59.

Barney, J. B. (1986). Organizational culture: Can it be a source of sustained competitive advantage? *Academic of Management Review, 11*(3), 656-665.

Bennett, R., & Gabriel, H. (1999). Organisational factors and knowledge management within large marketing departments: An empirical study. *Journal of Knowledge Management, 3*(3), 212-225.

Bertoncelj, A., Markič, M., Štok, Z., & Meško, M. (2010). Elements of organizational culture leading to business excellence. *Zbornik Radova Ekonomskog Fakulteta u Rijeci : Časopis Za Ekonomsku Teoriju i Praksu, 28*(2), 303-318.

Birasnav, M., Rangnekar, S., & Dalpati, A. (2011). Transformational leadership and human capital benefits: The role of knowledge management. *Leadership & Organization Development Journal, 32*(2), 106-126.

Blunt, P. (1991). Organizational culture and development. *Journal of the History of Economic Thought, 2*(1), 55-71.

Bracci, E., & Vagnoni, E. (2011). Understanding small family business succession in a knowledge management perspective. *IUP Journal of Knowledge Management, 9*(1), 7-36.

Brahma, S., & Mishra, S. (2015). Understanding researchable issues in knowledge management: A literature review. *Journal of Knowledge Management, 13*(4), 43-67.

Brettel, M., Chomik, C., & Flatten, T. C. (2015). How organizational culture influences innovativeness, proactiveness, and risk-taking: Fostering entrepreneurial orientation in SMEs. *Journal of Small Business Management, 53*(4), 868-885.

Buenechear-Elberdin, M. (2017). Structure literature review about intellectual capital and innovation. *Journal of Intellectual Capital, 18*(2), 262-285.

Byrne, J., Fattoum, S., & Diaz Garcia, M. C. (2019). Role models and women entrepreneurs: Entrepreneurial superwoman has her say. *Journal of Small Business Management, 57*(1), 154-184.

Cambanis, M. (2017). *Leadership roles, attitudes, and competencies required to develop firm-level dynamic capabilities enabling transition from SME to big business.* Doctoral Dissertation. University of Pretoria.

Camuffo, A., & Comacchio, A. (2005). Linking intellectual capital and competitive advantage: A cross-firm competence model for north-east Italian SMEs in the manufacturing industry. *Human Resource Development International, 8*(3), 361-377.

Carmeli, A., & Tishler, A. (2004). The relationship between intangible organizational elements and organizational performance. *Strategic Management Journal, 25*(13), 1257-1278.

Centobelli, P., Cerchione, R., & Esposito, E. (2017). Knowledge management in startups: Systematic literature review and future research agenda. *Sustainability, 9*(3), 361-380.

Cerchione, R., & Esposito, E. (2017). Using knowledge management systems: A taxonomy of SME strategies. *International Journal of Information Management, 37*(1b), 1551-1562.

Cerchione, R., Esposito, E., & Spadaro, M. R. (2015). The spread of knowledge management in SMEs: A scenario in evolution. *Sustainability, 7*, 10210-10232.

Chang, C. L., & Lin, T. C. (2015). The role of organizational culture in the knowledge management process. *Journal of Knowledge Management, 19*(3), 433-455.

Choi, S. Y., Kang, Y. S., & Lee, H. (2008). The effects of socio-technical enablers on knowledge sharing: An exploratory examination. *Journal of Information Science, 34*(5), 742-754.

Cochran, K. (2013). *Exploring the strategies of enhanced organizational learning in small- and medium-sized enterprises.* (Doctoral Dissertation, Northcentral University).

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences (2nd ed.).* St Paul, MN: West Publishing Company.

Cohen, W. A. (2009). *Drucker on leadership: New lessons from the father of modern management.* John Wiley & Sons.

Cordes, C., Richerson, P. J., & Schwesinger, G. (2010). How corporate cultures coevolve with the business environment: The case of firm growth crises and industry evolution. *Journal of Economic Behavior & Organization, 76*(3), 465-480.

Davenport, T. H. (1997). Ten principles of knowledge management and four case studies. *Knowledge & Process Management, 4*(3), 187-191.

Dawes, J. (2008). Do data characteristics change according to the number of scale points used? An experiment using 5-point, 7-point and 10-point scales. *International Journal of Market Research, 50*(1), 61-77.

Delobbe, N., Haccoun, R. R., & Vandenberghe, C. (2002). *Measuring core dimensions of organizational culture. A review of research and development of a new instrument.* Belgium: Universite Catholique de Louvain.

Dias Jordao, R., & de Almeida, V. (2017). Performance measurement, intellectual capital and financial sustainability. *Journal of Intellectual Capital, 18*(3), 643-666.

Dinath, W. (2020). The importance of using knowledge transfer practices within a small family-run business. *Proceedings of the European Conference on Knowledge Management*, (pp. 179-185).

Donate, M. J., & Pablo, J. D. (2015). The role of knowledge-oriented leadership in knowledge management practices and innovation. *Journal of Business Research, 68*(2), 360-370.

Durst, S., & Edvardsson, I. R. (2012). Knowledge management in SMEs: A literature review. *Journal of Knowledge Management, 16*(6), 879-903.

Easterby-Smith, M., & Lyles, M. A. (2011). *Handbook of organizational learning and knowledge management.* John Wiley & Sons.

Esposito, E., Evangelista, P., Lauro, V., & Raffa, M. (2009). The challenge of knowledge management in SMEs: Findings from an empirical study. *Proceedings of the European Conference on Knowledge Management*, (pp. 939-947).

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analysis using G*Power 3.1: Tests for correlation and regression analysis. *Behavior Research Methods, 41*, 1149-1160.

Feltham, T. S., Feltham, G., & Barnett, J. J. (2005). The dependence of family businesses on a single decision-maker. *Journal of Small Business Management, 43*(1), 1-15.

Field, A. (2013). *Discovering Statistics Using SPSS.* Thousand Oaks, CA: Sage Publications.

Geldenhuys, D. J., & Cilliers, F. (2012). Transforming a small business: A learning intervention. *South African Journal of Industrial Psychology, 38*(2), 147-155.

George, D., & Mallery, P. (2020). *IBM SPSS step by step: A simple guide and reference (16th ed).* Boston, MA: Allyn and Bacon.

Ghosh, S., & Srivastava, B. (2014). Construction of a reliable and valid scale for measuring organizational culture. *Global Business Review, 15*(3), 583-596.

Girard, J., & Girard, J. (2015). Defining knowledge management: Toward an applied compendium. *Online Journal of Applied Knowledge Management, 3*(1), 1-20.

Gray, P. (2000). The effects of knowledge management systems on emergent teams: Towards a research model. *Journal of Strategic Information Systems, 9*(2-3), 175-191.

Grillo, C., Ferreira, F. A., Marques, C. S., & Ferreira, J. J. (2018). A knowledge-based innovation assessment system for small- and medium-sized enterprises: Adding value

with cognitive mapping and MCDA. *Journal of Knowledge Management, 22*(3), 696-718.

Grover, V., & Davenport, T. H. (2001). General perspectives on knowledge management: Fostering a research agenda. *Journal of Management Information Systems, 9*(2/3), 5-21.

Harris, K. (2016, February 29). *The difference between startups and SMEs.* Retrieved from Brighter Blog: https://brighterbox.com/blog/article/difference-between-startups-and-smes

He, P., Sun, R., Zhao, H., Zheng, L., & Shen, C. (2020). Linking work-related and non-work-related supervisor-subordinate relationships to knowledge hiding: A psychological safety lens. *Asian Business & Management*, 1-22.

Heisig, P., Suraj, O. A., Kianto, A., Kemboi, C., Arrau, G. P., & Easa, N. F. (2016). Knowledge management and business performance: Global experts' views on future research needs. *Journal of Knowledge Management, 20*(6), 1169-1198.

Hofstede, G., Neuijen, B., Ohayv, D. D., & Sanders, G. (1990). Measuring organizational cultures: A qualtiative and quantitative study across twenty cases. *Administrative Science Quarterly, 35*(2), 286-316.

Holsapple, C. W., & Jones, K. (2004). Exploring primary activities of the knowledge chain. *Knowledge and Process Management, 11*(3), 155-174.

Holsapple, C. W., & Jones, K. (2005). Exploring secondary activities of the knowledge chain. *Knowledge and Process Management, 12*(1), 3-31.

Holsapple, C. W., & Joshi, K. D. (2000). An investigation of factors that influence the management of knowledge in organizations. *The Journal of Strategic Information Systems, 9*(2-3), 235-261.

Holsapple, C. W., & Joshi, K. D. (2004). A knowledge management ontology. In C. W. Holsapple (ed.), *Handbook on Knowledge Management 1* (pp. 89-124). Berlin: Springer.

Holsapple, C. W., & Singh, M. (2000). The knowledge chain model. *Third Annual Conference of the Southern Association for Information Systems (SAIS)*, *31 March - 2 April.* Atlanta, Georgia.

Holsapple, C. W., & Singh, M. (2001). The knowledge chain model: Activities for competitiveness. *Expert Systems with Applications, 20*(1), 77-98.

Holsapple, C. W., Jones, K., & Leonard, L. N. (2015). Knowledge acquisition and its impact on competitiveness. *Knowledge and Process Management, 22*(3), 157-166.

Howell, D. C. (2013). *Statistical methods for psychology (8th ed.).* Belmont, CA: Wadsworth Cengage Learning.

Inkinen, H. (2016). Review of empirical research on knowledge management practices and firm performance. *Journal of Knowledge Management, 20*(2), 230-257.

Islam, Z. M., Hasan, I., Ahmed, S. U., & Ahmed, S. M. (2011). Organizational culture and knowledge sharing: Empirical evidence from service organizations. *African Journal of Business Management, 5*(14), 5900-5909.

Jones, N. B., & Gupta, J. N. (2008). Small business transformation through knowledge management. In *Knowledge Management: Concepts, Methodologies, Tools, and Actions* (pp. 2680-2686). IGI Global.

Kakabadse, N. K., Kakabadse, A., & Kouzmin, A. (2003). Reviewing the knowledge management literature: Toward a taxonomy. *Journal of Knowledge Management, 7*(4), 75-91.

Klein, A. S., Wallis, J., & Cooke, R. A. (2013). The impact of leadership styles on organizational culture and firm effectiveness: An empirical study. *Journal of Management & Organization, 19*(3), 241-254.

Kramer, R. M. (1999). Trust and distrust in organizations: Emerging perspectives, enduring questions. *Annual Review of Psychology, 50*(1), 569-598.

Kulkarni, U. R., Ravindran, S., & Freeze, R. (2006). A knowledge management success model: Theoretical development and empirical validation. *Journal of Management Information Systems, 23*(3), 309-347.

Kumar, J. A., & Ganesh, L. S. (2009). Research on knowledge transfer in organizations: A morphology. *Journal of Knowledge Management, 13*(4), 161-174.

Kuo, R. Z., & Lee, G. G. (2011). Knowledge management system adoption: Exploring the effects of empowering leadership, task-technology fit and compatibility. *Behavior & Information Technology, 30*(1), 113-129.

Kwantes, C. T., & Boglarsky, C. A. (2007). Perceptions of organizational culture, leadership effectiveness and personal effectivness across six countries. *Journal of International Management, 13*(2), 204-230.

Kwiatkowski, C. (2016). Characteristics of the startup culture from the perspective of the organizational culture model. *Czech Journal of Social Sciences, Business and Economics, 5*(3), 28-36.

Laitinen, J. A., Pawlowski, J. M., & Senoo, D. (August 2015). A study on the influence of national culture on knowledge sharing. *Knowledge Management in Organizations: 10th International Conference*, (pp. 160-175). Maribor, Slovenia.

Lakshman, C. (2007). Organizational knowledge leadership; A grounded theory approach. *Leadership & Organization Development Journal, 28*(1), 51-75.

Lakshman, C. (2009). Organizational knowledge leadership: An empirical examination of knowledge management by top executive leaders. *Leadership & Organizational Development Journal, 30*(4), 338-364.

Lakshman, C., & Rai, S. (2019). The influence of leadership on learning and innovation: Evidence from India. *Asian Business & Management*, 1-32.

Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology, 28*(4), 563-575.

Lawson, S. (2003). *Examining the relationship between organizational culture and knowledge management (Order No. 3100959).* Available from ProQuest Dissertations & Theses Global (350235047).

Le, P. B., & Lei, H. (2018). The mediating role of trust in stimulating the relationship between transformational leader and knowledge sharing processes. *Journal of Knowledge Management, 22*(3), 521-537.

Lee, H., & Choi, B. (2003). Knowledge management enablers, processes, and organizational performance: An integrative view and empirical examination. *Journal of Management Information Systems, 20*(1), 179-228.

Li, J., Liu, M., & Liu, X. (2016). Why do employees resist knowledge management systems? An empirical study from the status quo bias and intertia perspectives. *Computers in Human Behavior, 65*, 189-200.

Lin, H. F. (2007). Knowledge sharing and firm innovation capability: An empirical study. *International Journal of Manpower, 28*(3/4), 315-332.

Lockwood, P., Marshall, T. C., & Sadler, P. (2005). Promoting success or prevening failure: Cultural differences in motivation by positive and negative role models. *Personality and Social Psychology Bulletin, 31*(3), 379-392.

Loecher, U. (2000). Small and medium-sized enterprises - delimitation and the European definition in the area of industrial business. *European Business Review, 12*(5), 261-264.

Lopes, C. M., Scavarda, A., Hofmeister, L. F., Thome, A. M., & Vaccaro, G. L. (2017). An analysis of the interplay between organizational sustainability, knowledge management, and open innovation. *Journal of Cleaner Production, 142*, 476-488.

López-Nicolás, C., & Merono-Cerdan, A. L. (2011). Strategic knowledge management, innovation and performance. *International Journal of Information Management, 31*(6), 502-509.

Madanchian, M., & Taherdoost, H. (2018). Role of Leadership in Small and Medium Enterprises. *International Journal of Economics and Management System, 2*, 240-243.

Mango, E. (2018). Rethinking leadership theories. *Open Journal of Leadership, 7*(01).

Martin, M. J. (2006). That's the way we do things around here: An overview of organizational culture. *Electronic Journal of Academic and Special Librarianship, 7*(1), 1-6.

Marulanda Echeverry, C. E., Lopez Trujillo, M., & Castellanos Galeano, J. F. (2016). Organizational culture and its influence on best practices for knowledge managment in SMEs in Columbia. *AD-Minister*(29), 163-176.

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.

Matzler, K., Schwarz, E., Deutinger, N., & Harms, R. (2008). The relationship between transformational leadership, product innovation and performance in SMEs. *Journal of Small Business & Entrepreneurship, 21*(2), 139-151.

Mazzarol, T., Volery, T., Doss, N., & Thein, V. (1999). Factors influence small business start-ups: a comparison with previous research. *International Journal of Entpreneurial Behavior and Research, 5*(2), 48-63.

Merat, A., & Bo, D. (2013). Strategic analysis of knowledge firms: The links between knowledge management and leadership. *Journal of Knowledge Management, 17*(1), 3-15.

Migdadi, M. (2009). Knowledge management enablers and outcomes in the small- and medium-sized enterprises. *Industrial Management & Data Systems, 109*(6), 840-858.

Morgenroth, T., Ryan, M. K., & Peters, K. (2015). The motivational theory of role modeling: How role models influence role aspirants' goals. *Review of General Psychology, 19*(4), 465-483.

Mowbray, F. I., Fox-Wasylyshyn, S. M., & El-Masri, M. M. (2019). Univariate outliers: A conceptual overview for the nurse researcher. *Canadian Journal of Nursing Research, 51*(1), 31-37.

Muchiri, M., & Kiambati, K. (2015). Relating leadership processes, societal culture, and knowledge management: A theoretical model. *Journal of Global Business Issues, 9*(1), 29-38.

Muñoz, J. (2002). Knowledge management in action: A study of knowledge management in management consultancies. *Journal of Administration Management, 2*, 10-30.

Musso, F., & Francioni, B. (2012). The influence of decision-maker characteristics on the international strategic decision-making process: An SME perspective. *Procedia - Social and Behavioral Sciences, 58*, 279-288.

Nguyen, H. N., & Mohamed, S. (2011). Leadership behaviors, organizational culture and knowledge management practices: An empirical investigation. *Journal of Management Development, 30*(2), 206-221.

Nicolson, L., & Rao-Graham, L. (2016). Knowledge management systems for small family-owned businesses; The case of the English-speaking Caribbean. *Social & Economic Studies, 65*(2/3), 133-159.

Nold, H. A. (2012). Linking knowledge processes with firm performance: Organizational culture. *Journal of Intellectual Capital, 13*(1), 16-38.

OECD. (2016). High growth enterprises rate. In *Entrepreneurship at a glance.* OECD Publishing, Paris.

Ott, L., & Longnecker, M. (2001). *An introduction to statistical methods & data analysis, 5th ed.* Thomson Learning.

Oyeku, O. M., Oduyoye, O., Asikhia, O., Kabuoh, M., & Elemo, G. N. (2014). On entrepreneurial success of small and medium enterprises (SMEs): A conceptual and theoretical framework. *Journal of Economics and Sustainable Development, 5*(16), 14-23.

Pagano, R. R. (2009). *Understanding statistics in the behavioral sciences (9th ed.).* Belmont, CA: Wadsworth Cengage Learning.

Pajo, B. (2017). *Introduction to research methods: A hands-on approach.* SAGE Publications.

Paliszkiewicz, J., Svanadze, S., & Jikia, M. (2017). The role of knowledge management processes on organizational culture. *Online Journal of Applied Knowledge Management, 5*(2), 29-44.

Pallant, J. (2020). *SPSS Survival Manual (7th ed.).* Routledge.

Pan, S. L., & Scarbrough, H. (1998). A socio-technical view of knowledge sharing at Buckman Laboratories. *Journal of Knowledge Management, 2*(1), 56-66.

Park, S., & Kim, E. J. (2018). Fostering organizational learning through leadership and knowledge sharing. *Journal of Knowledge Management, 22*(6), 1408-1423.

Pathiranage, Y. L., Jayatilake, L. V., & Abeysekera, R. (2020). A literature review of organizational culture towards corporate performance. *International Journal of Management, Accounting and Economics, 7*(9), 522-544.

Peyman, A., Zahedi, M. R., Dastyari, A., & Abasaltian, A. (2014). The effect of organizational culture and leadership style on knowledge management in selected research organizations. *International Journal of Scientific Management and Development, 2*(9), 432-440.

Porter, M. E., & Millar, V. E. (1985). How information gives you a competitive advantage. *Harvard Business Review, July-August*, 149-174.

Powell, W. W., & Snellman, K. (2004). The knowledge economy. *Annual Revue of Sociology, 30*, 199-220.

Rai, R. K. (2011). Knowledge management and organizational culture: A theoretical integrative framework. *Journal of Knowledge Management, 15*(5), 779-801.

Rhodes, J., Hung, R., Lok, P., Lien, B. Y., & Wu, C. M. (2008). Factors influencing organizational knowledge transfer: Implication for corporate performance. *Journal of Knowledge Management, 12*(3), 84-100.

Salojärvi, S., Furu, P., & Sveiby, K. E. (2005). Knowledge management and growth in Finnish SMEs. *Journal of Knowledge Management, 9*(2), 103-122.

Sarros, J. C., Gray, J., & Densten, I. L. (2002). Leadership and its impact on organizational culture. *International Journal of Business Studies, 10*(2), 1-26.

Sarvary, M. (1999). Knowledge management and competition in the consulting industry. *California Management Review, 41*(2), 95-107.

Saunders, M. N., Gray, D. E., & Goregaokar, H. (2014). SME innovation and learning: The role of networks and crisis events. *European Journal of Training and Development, 38*(1/2), 136-149.

Seow, C., Hillary, R., Robinson, H., Anumba, C., Carrillo, P., & Al-Ghassani, A. (2006). STEPS: A knowledge management maturity roadmap for corporate sustainability. *Business Process Management Journal, 12*(6), 793-808.

Sharma, G. (2017). Pros and cons of different sampling techniques. *International Journal of Applied Research, 3*(7), 749-752.

Shrafat, F. D. (2018). Examining the factors influencing knowledge management system (KMS) adoption in small and medium enterprises SMEs. *Business Process Management Journal, 24*(1), 234-265.

Stevens, J. P. (2009). *Applied multivariate statistics for the social sciences (5th ed.).* Mahwah, NJ: Routledge Academic.

Steyrer, J., Schiffinger, M., & Lang, R. (2008). Organizational commitment - A missing link between leadership behavior and organizational performance? *Scandinavian Journal of Management, 24*(4), 364-374.

Stok, Z. M., Markic, M., Bertoncelj, A., & Mesko, M. (2010). Elements of organizational culture leading to business excellence. *Zbornik radova Ekonomskog fakulteta u Rijeci: časopis za ekonomsku teoriju i praks, 28*(2), 303-318.

Sundiman, D. (2018). The effect of knowledge management on the strategic management process mediated by competitive intelligence in the small business company. *Jurnal Managemen Dan Wirausaha, 2*, 105.

Szczepańska-Woszczyna, K. (2014). The importance of organizational culture for innovation in the company. *Forum Scientiae Oeconomica, 2*(3), 27-39.

Teijlingen, E., & Hundley, V. (2002). The importance of pilot studies. *Nursing Standard, 16*(40), 33.

Tseng, S. M. (2010). The correlation between organizational culture and knowledge conversion on corporate performance. *Journal of Knowledge Management, 14*(2), 269-284.

Turilli, M., & Floridi, L. (2009). The ethics of information transparency. *Ethics & Information Technology, 11*(2), 105-112.

Valencia, J. (2019). Scaling culture in fast-growing companies. *Harvard Business Review Digital Articles*, 2-5.

Walker, J. L. (2012). The use of saturation in qualitative research. *Canadian Journal of Cardiovascular Nursing, 22*(2), 37-46.

Wang, D., Su, Z., & Yang, D. (2011). Organizational culture and knowledge creation capability. *Journal of Knowledge Management, 15*(3), 363-373.

Ward, J., & Dolan, C. (1998). Defining and describing family business ownership configurations. *Family Business Review, 11*(4), 305-310.

Wasserman, N. (2017). The throne vs. the kingdom: Founder control and value creation in startups. *Strategic Management Journal, 38*(2), 255-277.

Weinzimmer, L. G., Nystrom, P. C., & Freeman, S. J. (1998). Measuring organizational growth: Issues, consequences and guidelines. *Journal of Management, 24*(2), 235-262.

Wiig, K. M. (1997). Knowledge management: An introduction and perspective. *Journal of Knowledge Management, 1*(1), 6-14.

Wiklund, J., Patzelt, H., & Shepherd, D. A. (2009). Building an integrative model of small business growth. *Small Business Economics, 32*, 351-374.

Winston, B. E., & Patterson, K. (2006). An integrative definition of leadership. *International Journal of Leadership Studies, 1*(2), 6-66.

Wong, K. Y. (2005). Critical success factors for implementing knowledge management in small and medium enterprises. *Industrial Management & Data Systems, 105*(3), 261-276.

Wong, K. Y., & Aspinwall, E. (2004). Characterizing knowledge management in the small business environment. *Journal of Knowledge Management, 8*(3), 44-61.

Wong, K. Y., & Aspinwall, E. (2005). An empirical study of the important factors for knowledge management adoption in the SME sector. *Journal of Knowledge Management, 9*(3), 64-82.

Wyckoff, A. (2013). *Knowledge is growth.* OECD.

Yeh, Y. J., Lai, S. Q., & Ho, C. T. (2006). Knowledge management enablers: A case study. *Industrial Management & Data Systems, 106*(6), 793-810.

Yildirim, N., & Birinci, S. (2013). Impact of organizational culture and leadership on business performance: A case study on acquisitions. *Procedia-Social and Behavioral Sciences, 75*, 71-82.

Yusoff, M. (2019). ABC of content validation and content validity index calculation. *Resource, 11*(2), 49-54.

Zack, M. H. (2003). Rethinking the knowledge-based organization. *MIT Sloan Management Review, 44*(4), 67-72.

Zahra, S. A., Neubaum, D. O., & Larraneta, B. (2007). Knowledge sharing and technological capabilities: The moderating role of family involvement. *Journal of Business Research, 60*(10), 1070-1079.

Zheng, W., Yang, B., & McLean, G. N. (2010). Linking organizational culture, structure, strategy, and organizational effectiveness: Mediating role of knowledge management. *Journal of Business Research, 63*(7), 763-771.

Zieba, M. (2014). Critical success factors for knowledge management in SMEs in the KIBS sector. *European Conference on Knowledge Management*, (pp. 1072-1079). Gdansk.