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Knowledge Sharing Among Academics in Higher Education Institutions in Saudi Arabia

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by
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An Abstract of a Dissertation Submitted to Nova Southeastern University in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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The Ministry of Higher Education (MOHE) in Saudi Arabia aims to move toward a knowledge-based economy and many knowledge management (KM) and knowledge sharing (KS) initiatives have been taken to accelerate the achievement of this goal. Despite the substantial body of research into KS in the business environment, research that investigates factors that promote KS practices among academics in higher education institutions (HEIs) is generally limited, but particularly in Saudi Arabia. To bridge this gap, the goal was to explore what individual and organizational factors contribute to a person's willingness to share knowledge and develop a profile of the current knowledge sharing culture of academics within HEIs in Saudi Arabia.

An online survey was designed based on extant literature and used to collect both quantitative and qualitative data on organizational factors (i.e. leadership, organizational structure, information technology platform, and organizational culture) and individual factors (i.e., willingness to share knowledge, attitude toward KS, expected rewards and associations, expected contribution, and trust) that influence the success of KS in HEIs. A total of 140 completed surveys were analyzed. The quantitative data were analyzed through validity, reliability, descriptive, and multivariate regression analyses. A qualitative coding process was used to analyze the open-ended questions. Quantitative data analysis resulted in a significant main effect for factors of trust, leadership, and attitude toward KS on the person's willingness to share knowledge. Results for the factors of expected rewards and associations, expected contribution, organizational structure, information technology platform, and organizational culture were not significant. Qualitative analysis revealed that Saudi academics generally have a positive attitude toward knowledge sharing and prefer sharing knowledge face-to-face. Knowledge sharing is mainly related to teaching strategies followed by research. Trust and time are key factors in their willingness to share, as well as, support from their institutions through effective information systems and facilitation of open communication and collaboration. While most academics are intrinsically motivated to share knowledge, some expect extrinsic rewards and recognition.

Findings will assist Saudi HEIs to design systems necessary to become knowledge-based institutions, help HEI management plan and apply KS practices, and identify future research opportunities to advance KS in HEIs.

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Chapter 1

Introduction

Background

Knowledge management (KM) enables the use, creation, sharing and management of an organization's knowledge and information (Girard & Girard, 2015). Witherspoon, Bergner, Cockrell and Stone (2013) emphasized the importance of knowledge sharing (KS), in particular and strategies that enable it. They stated that knowledge "exists first in individuals; absent organizational processes that enable KS, individual knowledge perishes from the organization" (p. 250). Razak, Pangil, Zin, Yunus and Asnawi (2016) defined KS as a "strategic approach for business to gain competitive advantages" (p. 546). Based on this premise, knowledge as a strategic resource of organizations must be shared across the organization, so that it can be used effectively as a competitive tool (Argote, Ingram, Levine, & Moreland, 2000).

As knowledge-creating entities, higher education institutions (HEIs) benefit from effective KM and in particular, KS. Academics recognize the importance of sharing knowledge and commonly exchange knowledge with colleagues and administration in their daily activities (Ramayah, Yeap, & Ignatius, 2014). Cheng, Ho and Lau (2009) supported this view by noting that the impact of KS in HEIs where knowledge production, distribution, and application are created in the institution could be even greater than its impact in business organizations.

Asrar-ul-Haq and Anwar (2016) conducted a meta-review of 64 articles that were published in the *Journal of Knowledge Management* from 2010–2015. These articles included both quantitative and qualitative research studies that related to KS and

knowledge transfer (KT). They presented the issues, barriers, and trends in KS and KT across various industries and countries. They discussed extensively the major factors that were identified as the most important KS and KT enablers. They argued that cultural dimensions in relation to KS are considered to be one of most crucial KS enablers that have been studied extensively in the Chinese and American cultural context and suggested that studying this factor in different cultural contexts will be beneficial. This study highlighted a gap in the literature about KS practices in developing countries and it is evident that KM and KS are the most significant areas for future research. The authors found that most of the research has been published by developed countries such as the United States (US) and China; however, interest in KS from other countries such as United Kingdom (UK) and Malaysia is growing.

Al-Adaileh and Al-Atawi (2011) conducted a study in the Saudi Telecom context where they used a descriptive approach to determine if organizational culture factors such as openness to change, innovation, trust, teamwork, morale, information flow, employee's involvement, supervision, customer service, and reward orientation can affect knowledge exchange. Results of the study showed that some organizational culture factors such as trust, innovation, information flow, supervision, reward, teamwork, and customer orientation have a high level of impact on KS from the perspective of Saudi Telecom Context's (STC) employees. This study suggested that exploring these factors as well as some other cultural attributes in different Saudi contexts could produce useful and interesting results.

Overall, research on KS in Arab countries such as Saudi Arabia and other Arab Gulf Countries (AGC) is still lacking. The KS literature has focused on business sectors (Al-Adaileh & Al-Atawi, 2011; Asrar-ul-Haq & Anwar, 2016; S. Wang & Noe, 2010;

Witherspoon, Bergner, Cockrell, & Stone, 2013; Yassin, Salim, & Sahari, 2013). Simply put, more research regarding KS within HEIs in general and in the Saudi context specifically is needed (Alammari & Chandran, 2016; Alotaibi, Crowder, & Wills, 2014; Nafei, 2014; Shafique, 2015).

Problem Statement

The problem addressed in this research is the limited understanding regarding if and how Saudi Arabian academics in HEI's share knowledge (Fullwood, Rowley, & Delbridge, 2013; Sohail & Daud, 2009). Academics are a key source for knowledge sharing in HEIs. However, knowledge among academics is rarely shared with colleagues and administration in a systematic way. As a result of not sharing knowledge among academics effectively, HEIs could face a substantial challenge to respond to moving toward a knowledge based economy as well as a deficiency in institutional performance (Al-Adaileh & Al-Atawi, 2011; Wang & Noe, 2010). Despite the growing number of studies relating to KS in a business environment (Aurelie Bechina Arntzen, Worasinchai, & Ribière, 2009; Manus, Ragab, Arisha, & Mulhall, 2016; Razak et al., 2016), a review of the KM and KS literature indicates there is a lack of research identifying factors that influence KS among academics in HEIs in general and in Saudi Arabia in particular (Fullwood, Rowley, & Delbridge, 2013; Sohail & Daud, 2009). Given the highly contextual nature of KM strategies and the unique organizational climate of HEIs, future research is needed to understand KS among academics in HEIs in Saudi Arabia and factors that affect their willingness to share knowledge (Fullwood & Rowley, 2017; Fullwood, et al., 2013). HEI's are knowledge intensive organizations given their engagement in research activity, dissemination of knowledge through publications,

partnerships with other businesses and organizations, and teaching (Fullwood, et al., 2013).

Sohail and Daud (2009) studied knowledge sharing among teaching staff in public and private universities in Malaysia. The authors wanted to find out what factors facilitate successful knowledge sharing and what factors inhibit knowledge sharing. They used a cross-sectional survey based on Ipe's (2003) conceptual framework to collect data from a sample of 161 business and management schools in Malaysian HEIs. Ipe's (2003) four factors include: nature of knowledge, staff attitude, motivation to share, opportunities to share, and working culture. They found that the most important factors that influence knowledge sharing are nature of knowledge and working culture. There was minimal difference in responses from public and private universities. Staff attitude, motivation to share, and opportunities to share also played an important role in knowledge sharing. They suggested future research focusing on a broader sample of faculty beyond economics and business management departments as well as a larger sample size.

Fullwood et al. (2013) sought to understand the attitudes and intentions to share knowledge among academics in the United Kingdom (UK). They surveyed 230 academics from 11 universities in the UK on factors such as rewards and associations, expected contributions, affiliation to the discipline, technology platform, leadership, etc. They found overall that academics had positive attitudes toward knowledge sharing and most of their sharing related to research and teaching. They also felt that knowledge sharing was expected as it was a way to build rapport with colleagues and managers. Neutral results were found in the areas of leadership, information technology, and organizational structure. Although universities had a knowledge sharing culture, that culture was "individualistic and self-serving" (p. 131). Fullwood et al. suggested future

research in the enhancement of existing knowledge sharing cultures, a deeper understanding of why academics responded the way they did, and exploration of these factors in other countries with different national cultures.

Dissertation Goal

To bridge these gaps in the research literature, the goal was to explore what factors contribute to a person's willingness to share knowledge and develop a profile of the current knowledge sharing culture of academics within HEIs in Saudi Arabia. Figure 1 shows the conceptual model where the independent variables include attitude toward KS (A), expected rewards and associations (ERA), trust (T), expected contribution (EC), leadership (L), organizational structure (OS), information technology platform (IT), organizational culture (OC), and the dependent variable is willingness to share knowledge (WIL).

Figure 1: The conceptual model of IVs (L, OS, IT, OC, A, T, ERA, and EC) and the DV (WIL)

This study extended Sohail and Daud's (2009) and Fullwood et al.'s (2013) work by surveying academics from a non-Western culture, as well as, gaining a deeper understanding of KS factors through the collection and analysis of both closed-ended and

open-ended survey questions. A survey design included the collection of quantitative and qualitative data. These data were analyzed to study a sample of the HEI population in Saudi Arabia in order to draw inferences on this population that may be generalized to a broader Saudi HEI population (Creswell, 2014).

Relevance and Significance

A review of literature relating to KM has considered KS as the significant element that contributes to the success and survival of the HEIs in highly competitive environments (Muscio, Quaglione, & Scarpinato, 2012; Ramayah et al., 2014; Yassin et al., 2013). Accordingly, the investigation of factors that influence KS among academics within HEIs is seen as important as the knowledge itself. Therefore, exploring how various factors contribute to a person's willingness to share knowledge is important in moving HEIs in Saudi Arabia towards a knowledge-sharing institution. This research is significant because it aims to:

- assist HEIs in Saudi Arabia in designing a compatible strategy for becoming knowledge-based institutions.
- add to the body of literature a research study that focuses on factors that influence KS in HEIs in a Saudi context.
- identify future research opportunities for other researchers who are interested in investigating the concept of KS in HEIs in Saudi Arabia and other countries.
- help management at academic institutions in Saudi Arabia to plan and apply KS practices among academics.

Research Questions

The following research questions guided the investigation of this research:

RQ1: To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing?

RQ2: What attitudes do academics in Saudi Arabian HEIs have toward knowledge sharing?

RQ3: What are the perceived outcomes of knowledge sharing?

RQ4: What types of knowledge are shared among academics in Saudi Arabian HEIs?

RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs?

RQ6: To what extent do organizational factors including leadership (L), organizational structure (OS), information technology platform (IT), and organizational culture (OC) and individual factors including attitude (A), trust (T), expected rewards and associations (ERA), and expected contribution (EC) contribute to willingness to share knowledge (WIL).

Barriers and Issues

This study was conducted within HEIs in Saudi Arabia. Cooperation between the researcher and participating universities was paramount. There was some difficulty gaining access to academics' contact information; however, the researcher was able to obtain enough information from the websites of the participating HEIs. Also, there was concern about the lack of commitment of academics to participate and complete the study; however, an adequate sample size was achieved. Overcoming these barriers was facilitated by the positive relationship the researcher has with the participating HEIs.

Assumptions, Limitations, and Delimitations

Assumptions

It is assumed that HEIs in Saudi Arabia are at a disadvantage due to the lack of sharing knowledge among academics and their administrations. It is also assumed that implementing the appropriate KS practices in HEIs in Saudi Arabia can improve their institutions as well as assist them to design a compatible strategy for becoming knowledge-based institutions.

Limitations

Aspects of this research that may negatively affect the results but over which the researcher has no control include the fact that data will be self-reported by academics in HEIs across a range of disciplines in Saudi Arabia. Participants may not be fully truthful in their reporting of KS knowledge and practices.

Delimitations

The following delimitations were identified. First, this research focuses on knowledge sharing and a person's willingness to share knowledge. Other KM aspects including knowledge use, knowledge creation, and management are beyond the scope. Second, the context of the research was limited to Saudi Arabian HEIs and the participants were academics who were working full time at these institutions such as professors, assistant professors, lecturers, senior lecturers, teacher assistants, researchers, and associates at the time of the study. Finally, since KM and KS are growing areas in Saudi Arabia, this research is limited to the current related KM and KS literature.

Definitions of Terms

The following is an alphabetized list of terms that are used throughout the study:

Academics

Academics defined as knowledge workers who are engaging in teaching, writing, and research (Jones & Sallis, 2013).

Attribute toward Knowledge Sharing (ATKS)

ATKS is defined as " the degree of one's positive feeling about sharing one's knowledge" (Bock, Zmud, Kim, & Lee, 2005, p. 108).

Contribution

Contribution is defined as "a belief by employees that their knowledge sharing will result in enhanced organizational performance" (Fullwood & Rowley, 2017, p. 1258).

Data

Data are defined as "symbols that represent properties of objects, events and their environment" (Rowley, 2007, p. 166).

Expected Reward (ER)

ER is defined as " the degree to which one believes that one will receive extrinsic incentives for one's knowledge sharing" (Bock et al., 2005, p. 107).

Explicit Knowledge (EK)

EK is defined as "knowledge that is transmittable in formal and systematic language whereas tacit knowledge is a personal quality,which makes it diffecult to formalize and communicate" (Nonaka, 1994, p. 16).

Information

Information is defined as "data that have been arranged into meaningful patterns such as pixels, bits or symbols, where data are the basic building blocks of information and they come in four particular forms such as numbers, words, images, and sounds" (Chinying Lang, 2001, p. 48).

Intellectual Capital (IC)

IC is defined as “sum of information, knowledge, experiences, intellectual property that put together to create wealth” (Stewart & Ruckdeschel, 1998, p. 56).

Knowledge

Knowledge is defined as “a state of mind focuses on enabling individuals to expand their personal knowledge and apply it to the organization's need (Alavi & Leidner, 2001, p. 110).

Knowledge Management (KM)

KM is largely regarded as “a process of creating, storing/retrieving, transferring, and applying, as well as updating and sharing the knowledge internally and externally” (Alavi & Leidner, 2001, p.114).

Knowledge Sharing (KS)

KS is defined as a “the transference of knowledge among individuals, groups, teams, departments, and organizations” (Asrar-ul-Haq and Anwar, 2016, p. 2).

Knowledge Sharing Culture (KS Culture)

A KS culture is one where knowledge sharing is the norm (Gurteen, 1999).

Knowledge Worker (KW)

KW is defined as “knowledge workers are people with motivation and capacity to create new insights, communicate, coach, and facilitate the implementation of new ideas” (Lin, 2010, p. 300).

Organizational Culture (OC)

OC is defined as “the way of perceiving, thinking and feeling, shared and transmitted among organizational members” (De Normalisation & Normung, 2004, p. 12).

Organizational Structure (OS)

OS is defined as " a traditional structure that usually characterized by complicated layers and lines of responsibility with certain details of information reporting procedures" (Ismail Al-Alawi, Yousif Al-Marzooqi, & Fraidoon Mohammed, 2007, p. 25).

Survey Design

A survey design "provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. From sample results, the researcher generalizes or draws inferences to the population" (Creswell, 2014, p. 155)

Tacit Knowledge (TK)

TK is defined as "knowledge is a personal quality,which makes it diffecult to formalize and communicate" (Nonaka, 1994, p. 16).

Trust

Trust is defined as " the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party"(Mayer, Davis, & Schoorman, 1995, p. 712).

Information Technology (IT)

IT is defined as "systems that enable the integration of information and knowledge in the organization as well as the creation, transfer, storage and safe-keeping of the firm's knowledge resource" (Mills & Smith, 2011, p. 159).

Willingness to Share (WTS)

WTS is defined as motivators that enable employees to share knowledge (Wasko & Faraj, 2005).

List of Acronyms

AT – Attitude toward KS

HEIs – Higher Education Institutions

IS – Information Systems

IT– Information Technology

KM – Knowledge Management

KMS – Knowledge Management System

KS – Knowledge Sharing

OC– Organizational Cultural

OS– Organizational Structure

Summary

This chapter served as an introduction to this research study. The research problem addressed in this study was the limited understanding concerning if and how Saudi Arabian academics in HEI's share knowledge. Background related to the context of the study was presented. The goal was to explore what factors contribute to a person's willingness to share knowledge and develop a profile of the current knowledge sharing culture of academics within HEIs in Saudi Arabia. Identifying the factors that influence Saudi academics' knowledge sharing practices was used to develop this profile. Terms were defined, and a list of acronyms was also provided. Chapter two included review of literature related to knowledge, KM, KS, related theories, as well as HEIs in Saudi Arabia.

Chapter 2

Review of the Literature

Introduction

The goal was to explore what factors contribute to a person's willingness to share knowledge and develop a profile of the current knowledge sharing culture of academics within HEIs in Saudi Arabia. The following review of literature is related to knowledge, KM, KS, factors affecting the individual's KS behavior as well as HEIs in Saudi Arabia. The literature review provided a theoretical foundation for this study and analysis of previous and existing literature that is relevant to the research goal.

While this study is an IS related research, it was suggested by Levy and Ellis (2006) that a viable literature review begins with an analysis of scholarly journals and provides a solid theoretical foundation of the study. This literature review consists of six sections. The first section focused on the concept of knowledge including an overview of the current body of knowledge in this area. The second section investigated the concept of KM. While it is essential to understand the theoretical foundation of KM, it is also essential to understand the phases of the KM process as well as factors and barriers that influence and impede KM. The third section explored the theoretical evolution of KS and the related theories. The underlying constructs that attribute to the success of KS within the HEI context were discussed. The fourth section covered the IS and behavior theories that underlie the foundation of this research. The fifth section presented an overview of the proposed descriptive research approach and why it is the appropriate research method to use for this study. The last section presented an overview of HEI's is Saudi Arabia.

Knowledge

Overview

In the new era, knowledge is recognized as one of the main assets of organizations along with labor, land, and capital as it enables businesses to gain a competitive advantage (Alavi & Leidner, 2001; Fullwood, Roger, & Rowley, 2017). Organizations recognized the power of knowledge and how managing it effectively benefits businesses in many ways including but not limited to business sustainability, improving business performance, and increasing productivity and profitability (Bontis, 2001; Hussinki, Kianto, Vanhala, & Ritala, 2017; Ismail Al-Alawi et al., 2007; McDermott & O'Dell, 2001). Knowledge can be found in various sources and is available in different forms such as books, documents, repositories, databases, search engines and people's minds. However, what is entrenched in people's mind, and can be observed through their actions and behaviors is considered to be the most critical knowledge source of them all (Bontis, 2001; Ismail Al-Alawi et al., 2007). While knowledge is the important resource for organizations, knowledge workers particularly are the important contributor in the knowledge society (Adriaenssen, Johannessen, & Johannessen, 2017; Smith, Collins, & Clark, 2005). According to Lin (2010), knowledge workers are people with motivation and capacity to create new insights, communicate, coach, and facilitate the implementation of new ideas. Knowledge workers use tools such as email, discussion boards, and group support systems to effectively expand their work and collaboration with others in the organization. Anantatmula (2008) argued that leaders play the most critical role for implementing KM and KS initiatives within the organization. He stated that the responsibility of creating a collaborative environment at both individual and organizational levels lies on senior managers to encourage KS in order to improve organizational performance internally and externally. From another

perspective, Smith et al. (2005) stated that both of top management members and knowledge workers play a critical role in terms of creating knowledge capability as well as disrupting the existing knowledge in the organization. Many researchers studied how different factors impact KS among knowledge workers and leaders in the business environment. This research focuses on profiling the factors that may affect the KS activities among the individual knowledge worker in the academic environment.

HEI's are knowledge intensive organizations given their engagement in research activity, dissemination of knowledge through publications, partnerships with other businesses and organizations, and teaching (Fahimeh & Kermani, 2011; Fullwood, et al., 2013). Thus, academics are the knowledge workers who are engaging in teaching, writing, and research (Jones & Sallis, 2013; Sohail & Daud, 2009). Therefore, recognizing the critical role academics play in KS and providing strategies to support KS would enable them to share knowledge more effectively (Riege, 2005; Skaik & Othman, 2015).

Types of Knowledge

Given the premise that knowledge is an intellectual resource, it is vital that organizations apply a broad range of strategies to create, store, share and apply knowledge within their context (Chang & Lin, 2015; Kayworth & Leidner, 2004). Hence, KM has become a popular approach since the 1990s in the business environment (Tian, Nakamori, & Wierzbicki, 2009; Yi, 2015). The definition of knowledge varies from scholar to scholar and from one organization to another due to the reason that knowledge is a multifaceted concept and has multidimensional characteristics (Birkinshaw, Nobel, & Ridderstråle, 2002; Cavaliere & Lombardi, 2015; Kulkarni, Ravindran, & Freeze, 2006; Mohsen Allameh, Khazaei Pool, Jaberi, & Mazloomi Soveini, 2014; Nonaka, 2000).

In order to understand the concept of knowledge, it is necessary to distinguish between knowledge, information, and data. Based on the information systems literature, much has been written about the differences and similarities between these three concepts (Aamodt & Nygård, 1995; Bellinger, Castro, & Mills, 2004; Benjamins, 2013; Boisot & Canals, 2004; M. Chen et al., 2009; Jifa, 2013; Stenmark, 2001; Sun, Bie, Thomas, & Cheng, 2014; Y. Wang, 2015). However, researchers have not reached a consensus on the distinctions between knowledge, information, and data (Stenmark, 2000; Wang & Noe, 2010). For example, some researchers indicated that the relation between the three is not clear and there is a need for a unified concept that illustrates their relevant similarities and differences (Aamodt & Nygård, 1995; Boisot & Canals, 2004; Jifa, 2013). Nonaka, (2000) supported this perspective and argued that there is a clear distinction between knowledge and information and both terms are often used interchangeably. Nonaka defined information as " a flow of messages or meanings, whereas knowledge is created and based on a flow of information, and beliefs of its holder" (Nonaka, 2000, p. 15). Davenport and Prusak (1998) defined data as "a set of discrete, objective facts about events, while information is described as sets of data that are presented in form of documents or audible, or visible communication that have a meaning, and make a difference. However, they see knowledge as "a mix of information, values, and experiences" (p. 3-6). Chinying Lang (2001) described information as data that have been arranged into meaningful patterns such as pixels, bits or symbols, where data are the basic building blocks of information and they come in four particular forms such as numbers, words, images, and sounds. Alavi and Leidner (2001) described knowledge as "personalized information that is held in the mind of the individual related to facts, procedures, concepts, interpretations, ideas, observations, and judgments whereas data

are facts and raw numbers, and information is data that has been processed" p.111). According to Rowley (2007) data can be defined as "symbols that represent properties of objects, events and their environment, while information is contained in descriptions, answers to questions that begin with such words as who, what, when and how many, and knowledge is know-how, and is what makes possible the transformation of information into instructions" (p. 166).

In order to get the meaning of a non-classical concept, it has to be understood within a particular context (Compton & Jansen, 1990). Hence, to understand the distinctions between the terms data, information, and knowledge is necessary related it to KM and KS contexts, and this study will apply the following definitions. Data is described as a set of discrete an objective and facts about events (Davenport & Prusak, 1998). Information is defined as a descriptive answers to questions that begin with words like who, what, when and how many (Rowley, 2007). Last, knowledge is information that is held in the mind of the individual related to facts, procedures, concepts, interpretations, ideas, observations, and judgments (Alavi & Leidner, 2001).

In the knowledge-based theory of the firm (KBTF) Grant (1996) adduced that knowledge is the most critical primary resource and the foundation of a firm's competitive advantage. This theory builds upon and extends the theory of the growth of the firm that was initially promoted by Penrose (1959). Moreover, KBTF was broadly expanded by other researchers who argued that the knowledge-based view provides a solid foundation for managing knowledge in organizations (Alavi & Leidner, 2001; Bryant, 2005; Fullwood et al., 2013; Jones & Sallis, 2013; Machlup, 2014; Y. Wang, 2015). Grant (1996) argued that previous literature focused on knowledge creation, organizational knowledge as well as disregarded the knowledge application and the role

of the individual. He claimed that for organizations to gain a competitive advantage, it is essential to pay more attention to the individual who possesses the knowledge and is the primary actor in creating it.

Human knowledge can be found in both tacit and explict forms (Polanyi, 1966b). Many researchers extensively discussed the differences between the tacit and explict types of knowledge (Collins, 2010; Davies, 2015; Huang, Hsieh, & He, 2014; Mohsen Allameh, Khazaei Pool, Jaberi, & Mazloomi Soveini, 2014; Nonaka, Toyama, & Konno, 2000; C. Park, Vertinsky, & Becerra, 2015; Rowley, 2007; Virtanen, 2015). Nonaka, (1994) extended Polanyi's classification by developing a knowledge creation and sharing model using the four patterns of tacit and explicit knowledge within the organization. He defined explicit knowledge as a "knowledge that is transmittable in formal and systematic language whereas tacit knowledge is a personal quality,which makes it difficult to formalize and communicate" (Nonaka, 1994, p. 16). Swan, Newell, Scarbrough, and Hislop (1999) argued that explicit knowledge can easily transfer through the electronic communication device, but it is limited when it comes to innovation, whereas tacit knowledge needs personal interaction that makes it difficult to share via the use of IT networks.

Researchers confirmed the complexity of tacit and explicit knowledge and argued that only individuals who possess knowledge are the ones who indeed can share it within their context (Alavi & Leidner, 2001; Nonaka, 1994). Prior researchers have investigated several factors, barriers, and motivators that affect how individuals share both tacit and explicit knowledge (Asrar-ul-Haq & Anwar, 2016; Holste & Fields, 2010; Joia & Lemos, 2010; Martín-Pérez, Martín-Cruz, & Estrada-Vaquero, 2012). Both types of knowledge are distinct, and have advantages and disadvantages in terms of managing and sharing

them in organizations (Collins, 2010; Davies, 2015; Faizuniah & Aizzat, 2009; Huang et al., 2014). For example, tacit knowledge is challenging to transfer through electronic communication platforms in business organizations. On the other hand, it is considered as a competitive advantage for educational institutions because it can be shared through face to face conversation and meeting (Faizuniah & Aizzat, 2009). According to Leonard and Sensiper (1998), tacit knowledge is a source of competitive advantage and is a tremendous resource for all activities, especially for innovation. Explicit knowledge, on the other hand, is formal, systematic, and easy to articulate, capture, and share across the orgnaization (Bhusry, Ranjan, & Nagar, 2011; Zack, 1994).

Given the premise that both tacit and explicit knowledge are a mix of information and experience that is personalized, in order for one person's knowledge to be useful to another individual or group, it must be managed and shared in a systematic way so as to be interpretable and accessible to the other individuals and groups (Alavi & Leidner, 1999). A summary of the literature that relates to knowledge, including its findings and contributions is in Appendix A.

Knowledge Management (KM)

Overview

KM as a managerial way of thinking traces its roots to the 1960s (Lambe, 2011), but it only became a popular management strategic approach since the 1990s (Lambe, 2011; Tian et al., 2009; Yi, 2015). The definition of KM varies from organization to organization and from one scholar to another, and it depends on the conceptual understanding of knowledge and how it can be managed. Some researchers focus on the KM methods that are used to utilize knowledge, while others define KM by showing the significance of KM as an important management approach. For instance, Alavi and Leidner (2001) and Donate, Mario and Pablo (2015) defined KM as systematic way that engages in creating, organizing, sharing, and applying the organizational knowledge to maximize organizational effectiveness. In contrast, Heisig, Suraj, Kianto, Kemboi, Perez Arrau and Easa (2016) described KM as a "planned and ongoing management of activities and processes for leveraging knowledge to enhance competitiveness through better use and creation of individual and collective knowledge resources".

Regardless of how organizations and authors define KM, they all agree that KM is a useful and important concept for organizations (Al Saifi, 2015; Alavi & Leidner, 2001; Asrar-ul-Haq & Anwar, 2016; Dwivedi, Venkitachalam, Sharif, Al-Karaghouli, & Weerakkody, 2011). The necessity of managing knowledge is as powerful as the knowledge itself; therefore, the field of KM has gained recognition in both business and HEI fields (Petrides & Nodine, 2003; Shafique, 2015; Zhang & Jiang, 2015). Davenport and Prusak (1998) discussed three reasons why organizations implement KM practices and initiatives. First, the access of tacit and explicit knowledge would be easier throughout the organization. Second, KM helps to improve and support the sharing of

individual knowledge. Finally, it encourages the creation and collaboration of the organizational knowledge effectively.

Barclay and Murray (1997) identified reasons that illustrate the need for KM in organizations. They noted that KM can accelerate the achievement of the organization's strategic goals by reducing the amount of time to acquire knowledge, increasing market competition, and motivating innovation. Dwivedi et al. (2011) conducted a research study where they used bibliometric analysis and historical analysis of 1,043 articles from 1974 - 2008 to identify the current state of KM literature, including the topics addressed and research methods used. They pointed out that the majority of studies applied to the United States. They argued that it is important to "develop a deeper understanding of how KM practice, in a certain cultural context, can be effectively replicated or applied in other cultural contexts (i.e., between eastern and western types of organizational culture)" (Dwivedi et al. 2011, p. 54).

Knowledge Management (KM) Process

The main goal of KM as a process is to make the tacit knowledge available (Akhavan, Ramezan, & Yazdi Moghaddam, 2013; Clarke & Rollo, 2001; Crawford, 2005). There are four enablers that play a crucial role in improving the organization's ability to execute the process effectively. These enablers include leadership, technology, culture, and measurement (Anantatmula, 2008; Ward & Aurum, 2004). The process of KM involves several activities and events including knowledge creation, knowledge storage, knowledge sharing, and knowledge application that ultimately contribute to the success and survival of the organization in highly competitive environments (Chang & Lin, 2015; Eaves, 2014).

Masa'deh, Masa'deh, et al. (2017) conducted an empirical study in which they aimed to explore the relationship between KM processes and the job performance of the academics within HEIs. They tested seven constructs of the KM process: knowledge identification, creation, collection, organization, storage, dissemination, and application. Their study findings showed that there was a significant relationship between KM processes and job performance. Masa'deh and his colleagues recommended that this empirical study be carried out in different cultural contexts to reshape the research model.

Mills and Smith (2011) evaluated the impact of KM enablers and processes on organizational performance. They surveyed 500 participants including students and managers in Jamaican universities. Structural equation modeling (SEM) was used to assess the links between knowledge management resources and organizational performance. The results showed that organizational structure and knowledge application are directly related to organizational performance, while technology and knowledge conversion are not.

Knowledge Management (KM) in Higher Education Institutions (HEIs)

The concept of managing intellectual capital is widely discussed in commercial environments; however, there are limited discussions as to how it applies KM to HEIs (Alexandropoulou, Angelis, & Mavri, 2009; Bhusry et al., 2011; Trivella & Dimitrios, 2015). HEIs are known as a society where knowledge can be constantly gained (Howell & Annansingh, 2013; Yeh, 2005). Petrides and Nodine (2003) defined KM in the education domain as general know-how that serves to enhance the application and sharing of data and information for better decision making. Veer Ramjeawon and Rowley (2017) discussed how the concepts of knowledge creation, KS, and knowledge transfer enhance KM in HEIs. Their research findings showed that barriers are more than enablers

to KM in universities. They identified barriers such as a lack of policies and reward mechanisms, resources, data, funding and time for research, leadership changes, lack of a KS culture and weak industry-academia linkages. On the other hand, enablers were perceived to be qualified and experienced academic staff in public HEIs, information technology (IT) infrastructure, and the digital library.

HEIs engage in providing education, research, and service to their society. These jobs, in turn, match the KM processes that are involved in the creation, storage, sharing and application of knowledge. Academics in HEIs are recognized to be knowledge workers who create, consume, and share as well as apply that knowledge throughout the university. Thus, for HEIs to obtain competitive advantages and enhance their performances, they have to develop strategies that utilize the knowledge that academics possess (Devi Ramachandran, Chong, & Wong, 2013; Popescu, 2017; Trivella & Dimitrios, 2015).

In the last decade, significant contributions have been made in different aspects of the KM field within the context of HEIs (Altbach, 2015; Bhusry et al., 2011; Disterheft, da Silva Caeiro, Ramos, & de Miranda Azeiteiro, 2012; Fitzgerald, Bruns, Sonka, Furco, & Swanson, 2016; Howell & Annansingh, 2013; Naser, Al Shobaki, & Amuna, 2016; Popescu, 2017). Trivella and Dimitrios (2015) argued that KM strategy contributes to the development of the academic staff and allocates the resources of HEIs to be competitive, which results in an increase in organizational performance.

Petrides and Nodine (2003) conducted a research study that presented a set of current practices and recommendations that focus on the most effective KM approach in educational settings. Forty professionals from 12 schools, colleges, universities, and businesses participated in interviews during the KM in Education Summit in December

2002. They discussed both opportunities and challenges that are faced by those who are working to improve the use and sharing of knowledge and contributed by providing a suggestion for those interested in promoting the use of KM practices in the education field. They argued that KM in educational settings links people, processes, and technologies to help both upper management and employees promote policies and share knowledge.

Bhusry et al. (2011) developed a KM framework that helps HEIs make the access of knowledge easier. The framework has five phases including knowledge creation, knowledge encapsulation and storage, knowledge structuring, knowledge dissemination, knowledge audit and measure and each has its own process. They argued that this proposed KM framework enhances the transformation of organizational knowledge into decision making and actions. They recommended that the framework be implemented in other HEI contexts.

Given the importance of the individual knowledge, this research will focus on academics as individuals who possess knowledge. HEIs are recognized as knowledge societies. A summary of the literature related to KM in HEIs including study findings and contributions and the country in which the study was conducted is presented in Appendix B.

Knowledge Sharing (KS)

Overview

Although information technology (IT) rules the field of KM, people play a significant role in the KM processes (Akhavan, Ramezan, & Yazdi Moghaddam, 2013; Cavaliere and Lombardi, 2015; Ipe, 2003; Stenmark, 2000). People in the organization are considered to be the primary sources of knowledge. They create, share, and use the knowledge throughout the organization, and organizations can leverage that knowledge only if the individuals share it (Ipe, 2003; Joia & Lemos, 2010). Accordingly, KS became a key factor and gained attention among researchers, primarily in business environments (Arntzen et al., 2009; Sohail & Daud, 2009). Many studies noted that KS is critical to knowledge creation, organizational learning, and performance achievement (Bartol & Srivastava, 2002; Ipe, 2003) and the outcome of KS enhances organizational performance and competitive advantage (Fullwood et al., 2017; Fullwood et al., 2013; Nordin, Daud, & Osman, 2012; Paroutis & Al Saleh, 2009; Yassin et al., 2013).

KS is not an end in itself, but a means to an end (Sohail & Daud, 2009). Multiple research studies argued that the purpose of KS is to improve organizational effectiveness and performance (Dong, Bartol, Zhang, & Li, 2017; Twum-Darko & Harker, 2015; S. Wang & Noe, 2010; Zhao & Chen, 2013). Fundamentally, the goal of KS is for people to exchange experience with each other. KS between individuals is the process that converts possessed knowledge from one individual into a form that can be comprehended and used by others (Seonghee & Boryung, 2008). Bartol and Srivastava (2002) defined KS as individuals sharing organizationally relevant information, ideas, suggestions, and expertise with one another. According to Al-Hawamdeh (2003), KS is defined as communication of all types of knowledge, including tacit, explicit, information, the

know-how, and know-who. Another view of KS as a phase in the KM process is what Witherspoon et al. (2013) described as a process in knowledge management that used to creating, harvesting, and sustaining business processes.

Knowledge Sharing (KS) in Higher Education Institutions (HEIs)

In the knowledge-based era, HEIs have faced a substantial increase of knowledge content including tacit and explicit knowledge (Nonaka & Takeuchi, 1995). According to Nonaka and Takeuchi (1995), tacit knowledge is personal and cannot be stored, retrieved, copied, or transferred, while explicit knowledge can be formulated in words or symbols and therefore can be stored, retrieved, copied, or transferred to be used at any time. Therefore, to make knowledge useful for any organization, it has to be exchanged, distributed, and shared among members and throughout the organization (Al-Adaileh & Al-Atawi, 2011; Nordin et al., 2012; Phung, Hawryszkiewycz, & Binsawad, 2017).

Previous studies presented KS initiatives and practices in HEIs from an individual level or an organizational level (Bulan & Sensuse, 2012; Haque, Ahlan, & Razi, 2006). According to Haque et al. (2006), KS at a personal level is defined as a process of exchanging experiences, events, and collaborating between academics, students, or administration, whereas, at the organizational level KS means to capture, organize, reuse, and transform expertise within the institution. The focus of this research is on the personal level, in which this study aims to identify the underlying constructs that contribute to the success of KS practices among academics within the context of HEIs.

Multiple researchers studied various aspects of KS and how KS could benefit HEIs. For example, Alammari and Chandran (2016) conducted a research study on KS in HEIs in Saudi Arabia. They investigated various factors of KS adoption in Saudi universities and proposed a framework that other HEIs could use to implement KS. Their

research findings showed a significant impact of the KS individual factors such as openness in communication, interpersonal trust, and the technology acceptance factors such as perceived usefulness and perceived ease of use on the KS attitude. They have suggested that future studies can include other factors, such as culture and the type of knowledge that is likely to influence KS adoption in Saudi e-learning communities.

Seonghee and Boryung (2008) conducted a study that analyzed whether factors such as perception, trust, openness, collaboration, reward systems, communication channel, and sharing materials influence KS among faculty members in an HEI in South Korea. They also tested whether these factors are related. Their research findings indicated that perception was the most effective factor influencing KS among faculty members. The second most influential factor that affected sharing material among faculty members on campus was the reward system. However, other factors such as trust, openness in communication, collaboration, and communication channels based on IT infrastructure did not statistically have a significant impact on faculty KS. Seonghee and Boryung (2008) argued that developing, establishing, and maintaining successful and efficient knowledge repositories will play a crucial role in enhancing knowledge-related performance.

Arntzen et al. (2009) noted how HEIs continue to adopt information and communication technologies (ICTs) to aid in teaching and learning, and with this adoption comes the challenge of how HEIs acquire, store, organize, disseminate, search, index, and retrieve knowledge. They investigated KM practices, including KS at Bangkok University, and proposed a generic framework that other HEIs could use. They also suggested that future research should focus on how HEIs use these ICTs and argued

that KM and KS for HEIs "might be the right strategy to move toward a knowledge-based economy" (Arntzen et al., 2009, p. 128).

Cavaliere and Lombardi (2015) noted that organizational culture has been identified as the most important factor that enables KS in organizations. They found that the four types of culture, including innovative, competitive, bureaucratic, and community tend to have a positive effect on the KS behaviors of individuals. In contrast, Jeon, Kim, and Koh (2011) argued that rewards motivate individuals to share the available knowledge among each other as well as with the management. They noted that to create the intention for KS among individuals, their contributions and capabilities must be supported. They argued that reward is the key to motivating individuals to share knowledge because if there is no reward for individuals, they tend to hide the knowledge they have and not share it with others.

Factors Influencing KS

Previous literature identified a number of factors that were found to influence the success of KS initiatives either positively or otherwise (Cabrera & Cabrera, 2002; Chen & Hung, 2010; Cho et al., 2007; Fullwood et al., 2017; Sohail & Daud, 2009; McLure Wasko & Faraj, 2000). The success of KS was found to be related to organizational and individual factors (Chen & Hung, 2010; Connelly & Kevin Kelloway, 2003; Dokhtesmati & Bousari, 2013; Kim & Lee, 2004). Wang and Noe (2010) conducted research where they reviewed both qualitative and quantitative studies of individual-level KS. They discussed factors such as leadership, structure, technology platform, organizational culture, expected reward, and contribution and suggested further studying them in a different context.

Fullwood et al. (2013) addressed research on KS in universities by profiling the attitudes of and intentions toward KS of UK academics. They discussed some of the factors that might be expected to impact KS activities. They noted that studying these factors in the context of different HEIs is recommended and it could be central for KS. The following sub-sections describe each KS factor within the context of HEIs. They are grouped by organizational factors and individual factors.

Organizational Factors

Several organizational factors such as leadership, organizational structure, information technology platform, and organizational culture are among enablers that give the HEIs the ability to influence their KS initiatives (Bock et al., 2005; Fong Boh, Nguyen, & Xu, 2013; Fullwood et al., 2013; Sohail & Daud, 2009).

Leadership.

The role of leadership is important in emphasizing KS in the organization. Many researchers suggested that the role that leaders play could impact KS positively, by facilitating communication between employees. However, they may also pose cultural barriers to KS between the organization members (Hauke, 2006; Rivera-Vazquez, Ortiz-Fournier, & Rogelio Flores, 2009). Xue, Bradley and Liang (2011) conducted a study that investigated the impact of team climate and empowering leadership on team members' KS behavior. They surveyed more than 500 college members at major US universities and developed a research model that aimed to iterate why team members engage in KS. Their research findings indicated that team climate and empowering leadership significantly influence individuals' KS behavior by affecting their attitude toward knowledge sharing.

Organizational Culture.

Organizational culture has been studied extensively and identified as one of the most significant factors that influence or hinder KS (Chang & Lin, 2015; Durmusoglu, Jacobs, Zamantili Nayir, Khilji, & Wang, 2014; Fang, Yang, & Hsu, 2013; Z. Ma, Huang, Wu, Dong, & Qi, 2014; Rai, 2011; Suppiah & Singh Sandhu, 2011). For example, Cavaliere and Lombardi (2015) studied the impact of the different type of organizational culture such as such as innovative, competitive, bureaucratic and communal on the employees' KS behaviors within multinational corporations. Their research findings showed that all four types of organizational culture influenced employees' KS behavior and processes. They argued that strong top management support is necessary to enable relationships among employee to share knowledge.

Organizational Structure.

Previous research on KS emphasized that the organizational structure is a key factor that impedes the sharing of tacit knowledge in the organization (Cronin, 2001; Walczak, 2005). Due to the rule and purpose of HEIs, their structures vary from that of business organizations. Tippins (2003) argued that the organizational structure of HEIs have an impact on KS and could be a significant barrier on KS practices.

Information Technology (IT) Platform.

Information technology (IT) was identified as a significant enabler of KS initiatives (Alavi & Leidner, 2001; Kim & Lee, 2006; Mitchell & Unitec, 2003). Organizations make significant investments in IT to manage and share both organizational and individual knowledge effectively (Choi, Lee, & Yoo, 2010). Alavi and Leidner (2001) noted that the IT platform was developed to support and enhance the organizational processes of knowledge creation, storage, transfer, and application. They argued that many KM initiatives rely on IT as a significant enabler that increases KS

practices by extending an individual's reach beyond formal lines of communication. Choi et al. (2010) conducted an empirical study that involved 139 ongoing teams of 743 individuals from two major organizations in South Korea. They aimed to explore the role of IT and its impact on knowledge sharing and application. Their study findings showed a positive impact of IT in KS practices in organizations. They argued that organizations can improve the individual's willingness to share their knowledge through careful investment in IT.

Individual Factors

Willingness to Share Knowledge.

Based on the review of IS literature, an individual's willingness to share knowledge has remained a topic of interest for researchers in last decade (Asrar-ul-Haq & Anwar, 2016; Chang & Lin, 2015; Chen & Hung, 2010; Han & Pashouwers, 2018; Holste & Fields, 2010). Researchers found that the willingness of organizational members to share both tacit and explicit knowledge may depend on both the individual and organizational factors. For example, Lucas (2005) found that interpersonal trust between co-workers and their administration had a significant effect on employee experiences in sharing knowledge throughout the organization. In a related study, McNichols (2010) noted that the fair consideration in distribution of the extrinsic and intrinsic rewards to employees would positively influence the willingness to share knowledge among employees in the organization.

Attitude Towards Knowledge Sharing.

The increasing interests given by previous studies on individual attitude and their connection with KS are significant (Bock & Kim, 2001; Hsu, Ju, Yen, & Chang, 2007; Ipe, 2003; McLure Wasko & Faraj, 2000), and related theories such as theory of reasoned

action (TRA), theory of planned behavior (TPB) and social exchange theory (SET) identified that attitude lead to drive individual toward KS behavior (Razak et al, 2016). For instance, Fullwood et al. (2013) looked into the attitudes of UK academics towards KS. They profiled the academics' views of some of the factors that might be expected to impact on KS practices within the universities. Their research findings showed positive attitudes towards KS. They argued that this significant result is because academics think KS can improve relationships with other members as well as offer more internal and external opportunities and rewards.

Trust.

Previous literature discussed various factors and barriers to KS. However, trust emerged as the most important enabler of KS in organizations (Hsu et al., 2007; Lucas, 2005; Niu, 2010; H. Park, Ribière, & Schulte Jr, 2004; Sankowska, 2013; Simonin, 1999; Swift & Hwang, 2013). For example, Casimir, Lee, and Loon (2012) examined the influence of affective trust in colleagues and KS. They revealed in their research findings that the effective trust in colleagues controls the relationship between affective commitment and KS, and the relationship between cost of KS and KS activities. Fong Boh et al. (2013) investigated factors such as trust, cultural alignment, and openness to diversity and their impact on the effectiveness of KS from a large corporation to their subsidiaries. They argued that KS becomes easier when trust is greater among employees.

Expected Rewards and Associations.

In addition to trust, expected rewards and associations positively influence an individual's KS behaviors. Alternatively, lack of motivators and reward systems can impede KS in organizations (Durmusoglu et al., 2014; Jeon et al., 2011; Zhang & Jiang, 2015). Gururajan and Fink (2010) studied the attitudes that affect KS among academics

in technology-based university setting. Their research findings showed that reward and motivation in the form of recognition, admiration, and financial rewards encourage academics to share knowledge with their colleagues. In a similar study, Jeon et al. (2011) conducted empirical research to identify factors that influence the community of practice members' KS attitudes, intentions, and behaviors. Their research findings showed a significant impact on the extrinsic and intrinsic motivational factors on the attitude toward KS behaviors.

Expected Contribution.

Previous studies showed that the expected contribution of the individual is a significant player that determines the attitudes toward knowledge-sharing (Blankenship & Ruona, 2009; Bock et al., 2005; Ma & Agarwal, 2007; Molly McLure Wasko & Faraj, 2005; Yu & Chu, 2007). For instance, Chang and Lin (2015) found that organizational culture positively affects the expected knowledge contribution of individuals that lead to accelerating the achievement of an organization's goals. Mills and Smith (2011) argued that the differences in the expected contribution that each employee provide are therefore likely to enable benefits such as competitive advantage and improved performance.

Theories Underlying KS Behavior Research

This research reviews multiple information systems (IS), behavioral sciences, and economic theories that underlie KS to understand the constructs that influence individual behavior to share their knowledge. According to Levy and Ellis (2006) quantitative research tends to use theory for deductive purposes or testing generalized perspective, or for a specific phenomenon in a specific context. Thus, the choice of these theories will provide a structure to the research by understanding, analyzing, and designing ways to

investigate the problem of the research (Grant & Osanloo, 2014). Each of the constructs and the associated theories contribute to serve the research questions of this study. See Appendix C for a summary of the literature related to the theories and their definitions.

Higher Education Institutions in Saudi Arabia

The Ministry of Higher Education (MOHE) in Saudi Arabia aims to move toward a knowledge-based economy, and many knowledge management (KM) and knowledge sharing (KS) initiatives have been taken to accelerate the achievement of MOHE goal. For example, the number of HEIs have rapidly increase over the past decade and have been distributed geographically between the regions of the Kingdom (Alamri, 2011).

- 23 Government Universities
- 33 Private Universities and Colleges
- 18 Primary Teacher's Colleges for men and 80 for women
- 37 Colleges and Institutes for health
- 12 Technical Colleges

Summary

This chapter provided a theoretical foundation for this research study. The review of the literature investigated the organizational factors (i.e. leadership, organizational structure, information technology platform, and organizational culture) and the individual factors (i.e., willingness to share knowledge, attitude toward KS, expected rewards and associations, expected contribution, and trust) that influence the success of KS in HEIs. This chapter also provided a literature-based review for each of the nine theories foundational to the ten constructs presented in this study. Each of these theories and associated constructs addressed to investigate the research questions of this study:

RQ1: To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing?

RQ2: What attitudes do academics in Saudi Arabian HEIs have toward knowledge sharing?

RQ3: What are the perceived outcomes of knowledge sharing?

RQ4: What types of knowledge are shared among academics in Saudi Arabian HEIs?

RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs?

RQ6: To what extent do organizational factors including leadership (L), organizational structure (OS), information technology platform (IT), and organizational culture (OC) and individual factors including attitude (A), trust (T), expected rewards and associations (ERA), and expected contribution (EC) contribute to willingness to share knowledge (WIL)?

Chapter 3

Methodology

Overview

The goal was to explore what factors contribute to a person's willingness to share knowledge and develop a profile of the current knowledge sharing culture of academics within HEIs in Saudi Arabia. Based on a review of literature, survey research was an effective approach for collecting baseline profile data from a broad range of HEIs in Saudi Arabia (Fullwood et al., 2013; Sohail & Daud, 2009). Creswell (2014) defined survey research as research used to study and describe "trends, attitudes, or opinions of a population by studying a sample of that population" (p. 155). The survey included questions aimed to collect both quantitative and qualitative data. Quantitative questions were used to identify KS factors, including willingness to share knowledge, attitude toward KS, expected rewards and associations, trust, expected contribution, leadership, organizational structure, information technology platform, and organizational culture, and qualitative questions were included to gain a deeper understanding of participant responses. A total of 140 full-time academics from different universities within Saudi Arabia completed the survey.

Table 1 summarizes the sources of the items for measuring the constructs in the survey. All items were measured using five-point Likert scales in which one means "strongly disagree" and five means "strongly agree". Also, at the end of each section, a qualitative open-ended question was added to allow participants to provide more descriptive responses. The questionnaire includes a contextual question related to the demographic data, including gender, age, department, length of time in universities, and

carrier category. The questionnaire was piloted with a subset of the target population to determine content validity and reliability.

Table 1

Sources of Measurement Items

Constructs	Sources
Willingness to Share Knowledge (WIL)	Lee & Choi (2003), Seonghee & Boryung (2008) and Masa'deh, Shannak, Maqableh & Tarhini (2017)
Attitude Toward KS (A)	Fullwood, Rowley & Delbridge (2013)
Expected Rewards and Associations (ERA)	Fullwood, Rowley & Delbridge (2013) and Bock, Zmud, Kim & Lee (2005)
Trust (T)	Lee & Choi (2003)
Expected Contribution (EC)	Fullwood, Rowley, & Delbridge (2013)
Leadership (L)	Fullwood, Rowley, & Delbridge (2013)
Organizational Structure (OS)	Fullwood, Rowley & Delbridge (2013) and Seonghee & Boryung (2008)
Information Technology Platform (IT)	Fullwood, Rowley & Delbridge (2013)
Organizational Culture (OC)	Sohail & Daud, (2009)

Research Design

A questionnaire-based survey method was used (See Appendix D) to collect KS data, in addition, one or two open-ended questions were corresponded with each construct to gain a more in-depth understanding to answer the research questions of this study. A web-based survey was designed based on extant literature and specifically designed for this research. This survey research design was the preferred type of data collection procedure because it assisted in gathering data from a specific population to answer the research questions (Abramson, 2015; Terrell, 2015). Survey research helped in enhancing the generalizability, as well as, draw inferences to a broader population in order to obtain an impression of KS across a range of universities and disciplines in Saudi Arabia (Creswell, 2014; Mullinix, Leeper, Druckman, & Freese, 2015). Including open-ended questions enabled participants to provide more descriptive responses. According to Reja, Manfreda, Hlebec and Vehovar (2003), the advantages of adding open-ended

questions to the web-based survey include the possibility of discovering the responses that individuals give spontaneously, thus avoiding the bias that may result from suggesting responses to individuals.

The investigation sought to answer the six research questions via an online survey that was distributed to the target population (Smyth, Dillman, Christian, & McBride, 2009). A cover letter (see Appendix E) along with survey instrument was distributed via a commercial website to select academics who are currently working in Saudi's HEIs. Participants' information was taken from the universities' websites and they were notified of the survey URL/link to complete the survey on their personal time. The survey participant notifications were made based upon Institution Review Board (IRB) approval (see Appendix F) of this study by Nova Southeastern University, as well as by the approval of the selected universities in Saudi Arabia.

The quantitative data analysis helped to answer the research questions that investigated the relationships among the eight independent variables and the dependent variable of this study. Specifically, the sixth question sought to identify what factors among the IVs including leadership (L), organizational structure (OS), information technology platform (IT), and organizational culture (OC), attitude (A), trust (T), expected rewards and associations (ERA), and expected contribution (EC) contribute to the single DV, which is the willingness to share knowledge (WIL).

The qualitative data from the participants' responses to the open-ended questions aimed to answer the other five research questions. These research questions are as follow:

RQ1: To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing?

RQ2: What attitudes do academics in Saudi Arabian HEIs have toward knowledge sharing?

RQ3: What are the perceived outcomes of knowledge sharing?

RQ4: What types of knowledge are shared among academics in Saudi Arabian HEIs?

RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs?

Previous literature identified multiple reasons for preferring to use a web survey approach. For example, Reja et al. (2003) recommended the online survey method because it influences several aspects of data quality, varying from non-response, sampling, and coverage errors, to measurement errors. Several authors even suggested that the web-based surveys provided complete information (Ganassali, 2008; Ilieva, Baron, & Healey, 2002), and faster, better, and easier to avoid data quality issues like social desirability bias (Schonlau, Ronald Jr, & Elliott, 2002). In addition, Van Selm and Jankowski (2006) addressed several advantages for collecting data via web-based surveys such as elimination of a separate phase for data entry and automatic coding of close-ended questions. Figure 2 presents and overview of the research procedures from pilot testing the survey to reporting the results.

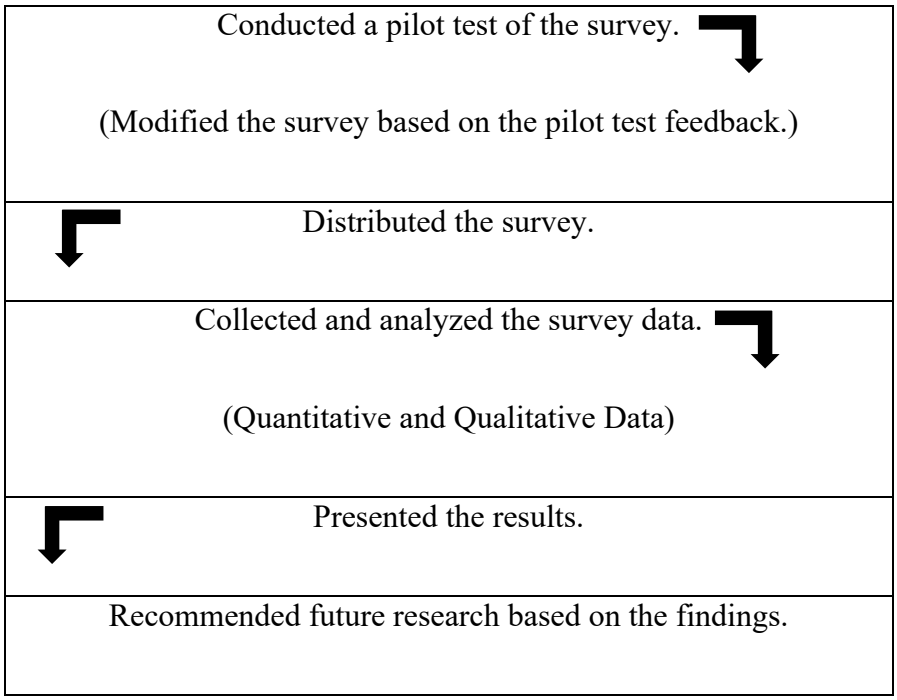

Figure 2: Research design procedures

Population and Sample

The survey sample consisted of academic staff including professors, assistant professors, lecturers, senior lecturers, teacher assistants, researchers, and associates who are currently working full-time in Saudi Arabian universities. The survey was sent to the targeted population who worked in Saudi HEIs. A total of 140 completed surveys were received.

Instrument Development

The research population to which the findings of this study would be generalizable (Stern, Bilgen & Dillman, 2014) were comprised of academics who are working full time as professors, assistant professors, lecturers, senior lecturers, teacher assistants, researchers, and associates in Saudi HEIs. The survey instrument was created and distributed by, Google Forms, a commercial online survey service (Creswell, 2017).

The selected service accommodated all technical requirements for survey construction, visualization, data collection, security, and stored form responses in a spreadsheet for necessary data analyses.

Quantitative Survey Items

This research study built on survey items to measure the constructs adapted from two previous validated studies conducted by Fullwood et al. (2013) and Sohail and Daud (2009). Items of the survey instrument were adapted from prior validated studies that used the nine constructs presented in Table 2 to ensure the reliability and validity of the measures, as well as modified to suit the goal of the research. The nine constructs and their related items were measured using a five-point Likert scale, where "1" would indicate "Strongly Disagree" and "5" would indicate "Strongly Agree."

Capitalizing on 51 literature-based survey items to measure the nine constructs, this study measured factors that influence Saudi academics' knowledge sharing practices. The construct of willingness to share knowledge was assessed using seven items adapted from prior research conducted by Fullwood, Rowley and Delbridge (2013), Lee and Choi (2003), Masa'deh, Shannak, et al., (2017), and Seonghee and Boryung (2008). Four items adapted from Fullwood et al. (2013) will be used to measure the construct of attitude toward KS. Six items obtained from the research of Bock et al., (2005) and Fullwood et al. (2013) were used to assess the construct of expected reward and association. The construct of trust was measured using six items adapted from Lee and Choi (2003). Five items derived from Fullwood et al. (2013) were used to assess the construct of expected contribution. Leadership was assessed using six items based on the investigations conducted by Fullwood et al., (2013). Studies conducted by Fullwood et al. (2013), as well as Seonghee and Boryung (2008), used as the foundation for five items measuring

the construct of organizational structure. Six items of the construct of information technology platform adapted from prior research conducted by Fullwood et al. (2013). Finally, six items derived from Sohail and Daud (2009) was used to measure the constructs of organizational culture in an academic environment. Table 2 outlines each of the nine constructs, the related survey items and their alignment with the research questions.

Table 2

Mapping of Constructs, Sources and Survey Items, and Research Questions

Construct	Sources and Survey Items	Research Question
Willingness to Share Knowledge (WIL)	*Lee and Choi (2003)* WIL1: I'm willing to collaborate and share my knowledge with other members of my university. WIL2: I encourage people to attend seminars, events and conferences inside and outside the university. WIL3: There is a willingness among academics to share their knowledge across my university's colleges and departments. *Fullwood, Rowley and Delbridge (2013)* WIL4: The only type of knowledge I'm willing to share is my research information and teaching and learning resources. WIL5: The only type of knowledge I'm willing to share is my teaching and learning resources. *Masa'deh, Shannak, Maqableh and Tarhini (2017)* WIL6: I would welcome the opportunity to spend a significant time with another academic member of my university to learn from his/her work. WIL7: Knowledge sharing with other colleagues in the department increases my willingness to work with others. *Fullwood, Rowley and Delbridge (2013)* A1: I don't enjoy sharing my knowledge. A2: Sharing my knowledge with other university members is a valuable experience. A3: Sharing my knowledge with other	RQ1: To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing?

	university members is a wise move.	
Attitude Toward KS (A)	A4: I share my knowledge in an appropriate and effective way.	RQ2: What attitudes do academics in Saudi Arabian HEIs have toward knowledge sharing? RQ6: To what extent do attitude toward KS (A) contribute to willingness to share knowledge (WIL)?
Expected Rewards and Associations (ERA)	*Fullwood, Rowley and Delbridge (2013)* ERA1: I am more likely to be considered for interesting and prestigious projects if I engage in knowledge sharing. ERA2: I am more likely to be considered for internal promotions if I engage in knowledge sharing. *Bock, Zmud, Kim and Lee (2005)* ERA3: I am more likely to be considered for higher positions if I share my knowledge to enhance the performance of my university. ERA4: I am more likely to be given the opportunity to attend conferences and other events if I share my knowledge. ERA5: My knowledge sharing activities would not improve my sense of self-worth. ERA6: I receive monetary rewards in return for my knowledge sharing.	RQ3: What are the perceived outcomes of knowledge sharing? RQ6: To what extent do expected rewards and associations (ERA) contribute to willingness to share knowledge (WIL)?
Trust (T)	*Lee and Choi (2003)* T1: Academics in my university are generally trustworthy. T2: I have reciprocal faith in other members' intentions and behaviors. T3: I have reciprocal faith in others' ability. T4: I have reciprocal faith in others' behaviors to work toward the university goals. T5: I have reciprocal faith in others' decision toward university interests than individual interests. T6: My relationships with other teaching staff at my university is based on reciprocal faith.	RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs? RQ6: To what extent do trust (T) contribute to willingness to share knowledge (WIL)?

Construct	Sources and Survey Items	Research Question
Expected Contribution (EC)	*Fullwood, Rowley and Delbridge (2013)* EC1: My knowledge sharing would not help others in the organization to solve problems. EC2: Sharing my knowledge would create new research opportunities with my colleagues. EC3: My knowledge sharing would improve work processes in the department in particular and the university in general. EC4: My knowledge sharing would increase the productivity in the university. EC5: My knowledge sharing would help the university to achieve its performance objectives.	RQ3: What are the perceived outcomes of knowledge sharing? RQ6: To what extent do expected contribution (EC) contribute to willingness to share knowledge (WIL)?
Leadership (L)	*Fullwood, Rowley and Delbridge (2013)* L1: Members of my department have a clear view of the direction of the university. L2: The opinions of members of my department are not sought and valued by the senior management team. L3: The senior management team holds a position of respect amongst members of my department. L4: Objectives are given to me which are often unreasonable. L5: My manager shows favoritism towards specific persons.	RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs? RQ6: To what extent do leadership (L) contribute to willingness to share knowledge (WIL)?
Organizational Structure (OS)	*Fullwood, Rowley and Delbridge (2013)* OS1: The structure of this department promotes collective rather than individualistic behavior. OS2: The university designs processes to facilitate knowledge exchange across departmental boundaries. OS3: The university's structure for sharing and exchanging knowledge isn't clear. *Seonghee and Boryung (2008)* OS4: The university encourages people to go where they need for knowledge regardless of structure.	RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs? RQ6: To what extent do organizational structure (OS) contribute to willingness to share knowledge (WIL)?

Construct	Sources and Survey Items	Research Question
Information Technology	*Fullwood, Rowley and Delbridge (2013)* IT1: My university does not foster the	RQ5: How is knowledge sharing

Platform (IT)	development of information technology. IT2: Whenever a new technology involving communication is introduced, the university tries to provide it quickly. IT3: The information technology platform in my university links all academics together to exchange knowledge easily. IT4: The information technology platform in my university are designed to be user friendly. IT5: The difficulties of using the information technology platform in my university is preventing me from sharing my knowledge. IT6: I need more training to be able to use the information technology platform effectively.	facilitated within Saudi Arabian HEIs? RQ6: To what extent do information technology platform (IT) contribute to willingness to share knowledge (WIL)?
Organizational Culture (OC)	*Sohail and Daud (2009)* OC1: My knowledge sharing would strengthen ties between existing academics and myself. OC2: My knowledge sharing would get me well acquainted with new academics. OC3: My knowledge sharing would create strong relationship with other academics in my university. OC4: My college continuously encourages staff to bring new knowledge into this university. OC5: Sharing my knowledge would not result in colleagues sharing their knowledge with me. OC6: My knowledge sharing would create strong bonds with members who have common interests in the university.	RQ1: To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing? RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs? RQ6: To what extent do organizational culture (OC) contribute to willingness to share knowledge (WIL)?

Qualitative Survey Items

Open-ended qualitative survey items were used to clarify the responses to the open-ended survey questions and gain a deeper understanding of knowledge sharing perceptions and behaviors. Table 3 includes the constructs and qualitative questions along with their mapping to the research questions.

Table 3

Constructs, Open-ended Survey Questions and Their Alignment to the Research Questions

Construct	Open-ended Survey Questions	Research Question
Willingness to Share Knowledge (WIL)	OE1: In your own words, how do you describe knowledge sharing within the context of your work? OE2: How do you share your knowledge with others (e.g., face-to-face, by email, phone, social media, conferences, publication, other)?	RQ1: To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing?
Attitude Toward KS (A)	OE3: How do you feel about sharing knowledge with other members in your university?	RQ2: What attitudes do academics in Saudi Arabian HEIs have toward knowledge sharing? RQ6: To what extent do attitude toward KS (A) contribute to willingness to share knowledge (WIL)?
Expected Rewards and Associations (ERA)	OE4: What do you expect to gain by sharing your knowledge?	RQ3: What are the perceived outcomes of knowledge sharing? RQ6: To what extent do expected rewards and associations (ERA) contribute to willingness to share knowledge (WIL)?
Trust (T)	OE5: What would increase your trust to share knowledge with others in your university?	RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs? RQ6: To what extent do trust (T) contribute to willingness to share knowledge (WIL)?
Leadership (L)	OE7: What types of knowledge do you share	RQ5: How is knowledge

	among your stakeholders within and outside of your university (e.g., research ideas, research agendas, research reports, teaching strategies, patents, funded proposals, discipline expertise, organizational acumen, other)?	sharing facilitated within Saudi Arabian HEIs? RQ6: To what extent do leadership (L) contribute to willingness to share knowledge (WIL)?
Organizational Structure (OS)	OE8: What is your perspective of the university's structure about exchanging knowledge?	RQ4: What types of knowledge are shared among academics in Saudi Arabian HEIs? RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs? RQ6: To what extent do organizational structure (OS) contribute to willingness to share knowledge (WIL)?
Information Technology Platform (IT)	OE9: What types of technologies need to be implemented to encourage academics to share their knowledge in your university?	RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs? RQ6: To what extent do information technology platform (IT) contribute to willingness to share knowledge (WIL)?
Organizational Culture (OC)	OE1O: With whom do you share your knowledge and what barriers exist that keep you from sharing your knowledge?	RQ1: To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing? RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs? RQ6: To what extent do organizational culture (OC) contribute to willingness to share knowledge (WIL)?

Survey Pilot Test

Given the context-specificity, the researcher pilot tested the questionnaire with a group of eight people. Pilot testing helps determine content validity and reliability (Dringus, Snyder, & Terrell, 2010). Six participants represented the target population of academics in Saudi HEIs and two participants had expertise in survey design and knowledge management. An email invitation was sent to the eight participants and Appendix G shows the cover letter that was sent to participants. Expert's Pilot Study Cover Letter. It contained information about the purpose, problem statement, goals, and research approach. All eight people accepted the invitation to review and provide feedback. Instructions were then sent to the reviewers to first complete the survey, which was hosted by Google Forms, take notes on the items, and then complete a short seven-item questionnaire (Appendix H), which was hosted by SurveyMonkey. Pilot testing the survey helped to ensure that content and wording were free of possible misinterpretation as well as whether the questions were understood as intended. It also enabled the researcher to test the web-based survey functionality. Recommendations resulting from the pilot test were incorporated into the survey prior to distributing the survey to the target population. Following the pilot test, the questionnaire was sent to academics in a variety of disciplines across HEIs in Saudi Arabia.

Data Collection

A link to the questionnaire was sent to academics in the sample population. The sample population included academics (i.e., professors, assistant professors, lecturers, senior lecturers, teacher assistants, researchers, and associates) who were working full-time in Saudi Arabian universities. Their contact information was gathered from the universities' websites. Participants received an email that contained a cover letter that

included a link to the online-based survey and instructions to complete the survey at their convenience. Also, they were able to exit from the online survey at any time. The survey was organized to allow only one response for each question. The respondent had to answer each question to continue to the next section of the survey.

Data were collected and stored in the Google Forms database. The researcher informed the participants that their information would remain confidential and their anonymity would be protected. A reminder email was sent repeatedly to follow up with participants. Once all survey data were collected, it was exported from Google Forms into an Excel file where it was cleaned and prepared for analysis including removing duplicate entries, out-of-range data and extraneous characters, and separating the qualitative data (Weiss & Townsend, 2005). After that, the quantitative data were imported from Excel to SPSS®'s statistical package for additional analysis. The qualitative data were copied and pasted into a Microsoft Word document so that they could be more easily analyzed. Word's review comments feature was used for coding.

Data Analysis

To analyze the quantitative survey data, the appropriate descriptive and inferential statistics were used for analysis (Terrell, 2012). To analyze the responses to the open-ended qualitative questions, a descriptive coding process was followed (Creswell, 2014). As it was suggested by Levy and Ellis (2006), the first step of the data analysis process was the pre-analysis data screening to ensure the accuracy of the data collected. The pre-analysis data screening identified the response rate as well as addressed the outliers before data analysis.

The descriptive analysis was performed using SPSS®'s statistical package to summarize the demographic information as well as to perform all pre-analysis data

screening to check for response rate, missing data, multivariate outliers, normality, linearity as well as reliability and validity analyses. A graphical method such as histograms and boxplots were used to check for normality of each factor. Scatter plots were used to check for linearity. The descriptive statistics computed the minimum, maximum, mean, median, mode, and standard deviations values for all variables. Multiple Linear Regression (MLR) analysis using SPSS was used to determine the contribution of the eight independent variables including Attitude Toward KS (A), Expected Rewards and Associations (ERA), Trust (T), Expected Contribution (EC), Leadership (L), Organizational Structure (OS), Information Technology Platform (IT), and Organizational Culture (OC), on the single dependent variable, which was the Willingness to Share Knowledge (WIL). The results of the statistical analyses are presented in chapter four including characteristics of the sample, descriptive analysis, instrumentation reliability and validity analysis.

A qualitative coding process was used to interpret the responses to the open-ended questions (Creswell, 2014). Once the qualitative data were separated from the quantitative data, the first step was to winnow the qualitative responses, which means to separate out the meaningful data and disregarding the rest. Data from the survey responses were hand coded in MS Word. The researcher read the text line by line. Next, the data were organized and assigned codes. Instead of using predetermined codes, the codes emerged during the data analysis. Once all codes were identified, a smaller number (e.g., five to seven) of themes were generated. These themes represented the major qualitative findings. This process, combined with the analysis of the quantitative data, resulted in a general description (or profile) of Saudi academics' knowledge sharing

culture. Using a rich, thick description to present the findings aided in the validity of the qualitative findings (Creswell, 2014).

Formats for Presenting Results

Results of the quantitative and qualitative data analysis presented in several formats, including a narrative description with embedded figures, charts, summary tables, and statistics.

Summary

This chapter described the research methods in detail. The main goal was to explore what factors contribute to a person's willingness to share knowledge and develop a profile of the current knowledge sharing culture of academics within HEIs in Saudi Arabia. A descriptive research approach was used to collect baseline profile data from Saudi Arabian academics. After securing approval from the IRB at Nova Southeastern University, a web-based survey was administered to collect data from academics who are currently working full-time in Saudi universities. Both quantitative and qualitative data were analyzed and findings are presented in Chapter 4. Conclusions, implications, recommendations, and a summary of the research are presented in Chapter 5.

Chapter 4

Results

Introduction

The purpose was to explore what factors contribute to a person's willingness to share knowledge and develop a profile of the current knowledge sharing culture of academics within Higher Education Institutions (HEIs) in Saudi Arabia. The following research questions guide the inquiry and results are presented in this chapter.

RQ1: To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing?

RQ2: What attitudes do academics in Saudi Arabian HEIs have toward knowledge sharing?

RQ3: What are the perceived outcomes of knowledge sharing?

RQ4: What types of knowledge are shared among academics in Saudi Arabian HEIs?

RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs?

RQ6: To what extent do organizational factors including leadership (L), organizational structure (OS), information technology platform (IT), and organizational culture (OC) and individual factors including attitude (A), trust (T), expected rewards and associations (ERA), and expected contribution (EC) contribute to willingness to share knowledge (WIL)?

First, results of the survey analysis including the response rate, demographic information, multivariate outliers, normality, and linearity are reported. Second, analysis of the quantitative data including the validity, reliability, correlational analysis, and Multiple Linear Regression (MLR) analysis are presented. Third, results from the

qualitative analysis are presented, which includes a description of the codes, categories, and major themes (Ardichvili, & Wentling, 2003; Miles & Huberman, 1994). This chapter concludes with an overall summary of the results.

Quantitative Data Analysis and Results

The survey was distributed through email to academics who are currently working in HEIs within Saudi Arabia. The active survey period began on July 3, 2018 and concluded on August 15, 2018.

Summary of Demographic Information

A demographic analysis was performed in survey items of gender, age, academic positions category, and years of experience in HEIs in Saudi Arabia. Results showed that males represented 56.4% of the sampling (N=140) where women represented 43.6% of the received sampling. The age category ranged from 1 (25 or under), 2 (26 – 35), 3 (36 – 45), 4 (46 – 55), 5 (56 – 65), 6 (66 – 75), and 7 (76 or Older). The academic positions category included titles such as professor, associate professor, assistant professor, researcher, senior lecturer, lecturer, teacher assistant, and associate. Finally, the year of experiences category ranged from 1 (Less than 1 year), 2 (1–5 years), 3 (6 – 10 years), 4 (11 – 15 years), 5 (16 – 20 years), 6 (21 – 25 years), 7 (26 – 30 years), 8 (31 – 35 years), and 9 (More than 35 years). Table 4 Shows a summary of the demographic data analysis of this study.

Table 4

Demographic Data Analysis (N=140)

Item	Frequency	Percentage
Gender		
Male	80	57.1%
Female	60	42.9%
Age		
25 or under	1	0.7%
26 - 35	63	45%
36 - 45	37	26%
46 - 55	21	15%
56 - 65	11	7.9%
66 – 75	6	4.3%
76 or Older	1	0.7%
Academic Positions		
Professor	13	9.3%
Associate Professor	11	7.9%
Assistant Professor	33	23.6%
Researcher	4	2.8%
Senior Lecturer	5	3.6%
Lecturer	49	35%
Teacher Assistant.	21	15%
Other	4	2.8%
Years of Experiences		
Less than 1 year	7	5%
1–5 years	45	32.1%
6 – 10 years	33	23.6%
11 – 15 years	18	12.9%
16 – 20 years	10	7.1%
21 – 25 years	7	5%
26 – 30 years	5	3.6%
31 – 35 years	5	3.6%
More than 35 years	10	7.1%

Pre-Analysis Data Screening

According to Levy and Ellis (2006), the first step of the data analysis process is the pre-analysis data screening to ensure the accuracy of the data collected. This pre-analysis data screening was completed using the SPSS®'s statistical package to check for

missing data, data accuracy, multivariate outliers, normality, and linearity. Moreover, response rate and participants' demographics were also provided.

Response Rate

A total of 140 responses were received and all the closed-ended survey questions were answered. No missing data were identified during the pre-analysis data process. The survey design was such that it required every participant to answer all the closed-ended questions. However, the answers to the open-ended questions were optional for participants. If respondents did not answer a required question, they were unable to complete the survey. This ensured that no data were missed during the survey collection. Analysis of the data frequency and descriptive statistics confirmed there were no missing data.

Multivariate Outliers

Mertler and Vannatta (2001) suggested that researchers should study outliers and remove the major ones before starting to analyze the data. As recommended by Levy (2008), a Mahalanobis Distance was performed using the SPSS software to detect multivariate outliers in the data collected. Figure 7 shows the Mahalanobis Distance results of outliers for extreme value ≥ 99. None of the case IDs were identified as an extreme value. By contrast, all Case IDs were within the acceptable range of >99. The final number of cases to perform further analysis was 140.

Normality

A multivariate normality test was used to determine whether the data were normally distributed. Using SPSS, the normality was assessed by examining the skewness and kurtosis of each variable. A graphical method such as histograms and

boxplots were used to check for normality of each variable. Table 5 shows the skewness and kurtosis values for the continuous variables.

Table 5

Skewness and Kurtosis Values for Continuous Variables (N=140)

Variables	**No. Items**	**Skewness**		**Kurtosis**	
		Skewness	**Std. Error**	**Kurtosis**	**Std. Error**
(WIL)	140	-.371	.205	.852	.407
(AT)	140	-.227	.205	.469	.407
(ERA)	140	-.476	.205	.655	.407
(T)	140	-.360	.205	-.187	.407
(EC)	140	-.468	.205	.854	.407
(L)	140	.506	.205	.797	.407
(OS)	140	-.081	.205	.614	.407
(IT)	140	.319	.205	.628	.407
(OC)	140	-.247	.205	-.041.	.407

According to Kline (2005), if the values of both skewness and kurtosis index are higher than one or less than negative one it is considered as a problem. The results of both the skewness and kurtosis tests for all variables were in the range between a positive one and a negative one, which means that variables are normally distributed. Appendix I illustrates the results of both skewness and kurtosis tests for all variables.

Linearity

Scatterplots were created to test for linearity between the DV and the IVs. The scatterplots demonstrated an adequate linearity as can be shown from the examples in Figures 3. Half of the dots fall above the line and half below the line (Lund & Lund, 2015d).

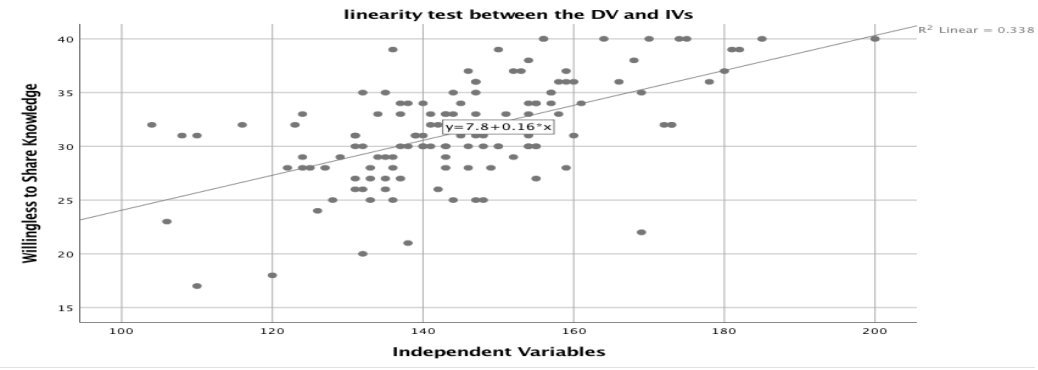

Figure 3. Linearity for willingness to share knowledge and the IVs

Validity Analysis

According to Leedy and Ormrod (2005), "The validity of a measurement instrument is the extent to which the instrument measures what it is supposed to measure" (p. 28). This research study builds on survey items to measure the constructs adapted from two previous validated studies conducted by Fullwood et al. (2013) and Sohail and Daud (2009). Furthermore, a pilot test was conducted to ensure participants were able to understand the questions and the responses provided meaningful information to help answer the research questions.

Reliability Analysis

According to Leedy and Ormrod (2005, p. 29), reliability is the consistency with which a measuring instrument yields a certain result when the entity being measured has not changed. Cronbach's Alpha was used to measure the internal consistency of both the individual and organizational constructs, as well as the willingness to share knowledge constructs. The individual constructs included items related to the following variables: attitude toward KS, expected rewards and associations, trust, and expected contribution.

The organizational constructs also included items related to the following variables: leadership, organizational structure, information technology platform, and organizational culture. Rovai, Baker, and Ponton (2013) stated that a valid Cronbach's Alpha for a construct is one in which it is above 0.7. In this research study, the Cronbach's Alpha for all constructs were above the acceptable edge of 0.7 except for the Willingness to Share Knowledge variable. The WIL was at .683. Table 6 provides an overview of the Cronbach's Alpha.

Table 6

Reliability Analysis – Cronbach's Alpha (N=140)

Construct Category	**No. items**	**Cronbach's Alpha**	**Cronbach's Alpha Based on Standardized Items**
Willingness to Share Knowledge	8	.683	.716
Individual Factors	20	.842	.854
Organizational Factors	21	.722	.734

Descriptive Analysis

Descriptive analysis was used to determine the main tendency of the data (Creswell, 2017). Measures of the maximum, minimum, means, and standard deviations for all variables were calculated. This initial analysis enabled exploration of the importance of every variable within the context of Saudi's HEIs. Table 7 provides the descriptive statistics for the continuous variables of this study.

Table 7

Descriptive Statistic - Continuous Variables (N=140)

Variables	No. items	Means	Median	Mode	Maximum	Minimum	SD
(WIL)	140	4.01	4.5	5	2	5	.623
(AT)	140	3.85	4.5	5	2	5	.574
(ERA)	140	3.39	3.5	4	1	5	.793
(T)	140	3.74	4	4	1	5	.878
(EC)	140	3.83	4	4	2	5	.611
(L)	140	3.21	3	3	2	5	.597
(OS)	140	3.29	3	3	1	5	.660
(IT)	140	3.05	3	3	2	5	.627
(OC)	140	3.98	4	5	2	5	.683

Multiple Linear Regression (MLR) Analysis

To answer RQ6, a Multiple Linear Regression (MLR) analysis was performed to determine the contribution of the eight independent variables including the Attitude Toward KS, Expected Rewards and Associations, Trust, Expected Contribution, Leadership, Organizational Structure, Information Technology, and Organizational Culture on the single dependent variable, which is the Willingness to Share Knowledge (WIL). According to Mertler and Reinhart, (2016), “MLR identifies the best combination of predictors (IVs) of the dependent variable. Consequently, it is used when there are several independent quantitative variables and one dependent quantitative variable. To produce the best combination of predictors of the dependent variable, a sequential multiple regression selects independent variables, one at a time, by their ability to account for the most variance in the dependent variable” (p. 14).

In the multiple regression equation, there are more Coefficients, where one for the *Y*-intercept and one for each of the IVs (Mertler and Reinhart, 2016).

The equation follows:

$$C = Constant\ \beta_0 + \beta_1\ AT_1 + \ \beta_2\ ERA_2 + \beta_3 T_3 + \beta_4\ EC_4 + \beta_5\ L_5 + \beta_6 OS_6 + \beta_7\ IT_7 + \beta_8\ OS_8$$

Where,

Y = predicted value of the dependent variable (WIL)

$\beta_0 =$ is the value of Y when all of the independent variables are equal to zero

$\beta_{1-}\ \beta_8$ = The estimated regression coefficients for each of the IVs

AT- OS = The independent or predictor variables

This study is an exploratory in nature, where the stepwise regression analysis was employed since there are many predictors and the researcher is unsure as to which may be significant (Aron, Aron, & Coups, 2008). The stepwise regression analysis was conducted to determine which of the specific IVs make a meaningful contribution to the DV, which conclude to what variables should be extracted (Mertler & Reinhart, 2016). Table 8, 9, and 10 present the results of the MLR analysis. Table 8 presents the summary results of the MLR analysis for each of the eight IVs (Attitude Toward KS, Expected Rewards and Associations, Trust, Expected Contribution, Leadership, Organizational Structure, Information Technology Platform, and Organizational Culture) to the DV (Willingness to Share Knowledge). Table 9 presents the output of the model summary of the Stepwise MLR analysis. The data contained in Table 9 revealed that three of the eights IVs ranked as significant contributors to the DV, where the other five IVs were extracted from the model. Table 10 presents the ANOVA analysis for each model produced. It showed the *F* test and the corresponding level of significance that examine the degree to which the relationship between the DV and IVs is linear.

Table 8

Coefficients Results of for all Variables (N=140)

	Unstandardized Coefficients		Standardized Coefficients			Correlations			Collinearity Statistics	
Model	B	Std. Error	β	T	Sig.	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	**8.231**	**3.284**		**2.50**	**.013**					
AT	.339	.154	.158	2.20	.029*	.277	.189	.148	.869	1.151
ERA	.113	.075	.111	1.49	.137	.331	.130	.100	.807	1.240
T	.447	.081	.465	5.55	.000***	.571	.436	.371	.636	1.572
EC	.021	.144	.012	.143	.887	.312	.012	.010	.596	1.678
L	.254	.124	.153	2.04	.043*	.244	.176	.137	.798	1.253
OS	.031	.160	.017	.192	.848	.372	.017	.013	.575	1.738
IT	.143	.107	.105	1.33	.183	.313	.116	.090	.728	1.373
OC	-.052	.112	-.041	-.46	.645	.319	-.040	-.031	.559	1.790

Note: $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$

Dependent Variable: Willingness to Share Knowledge

Statistical findings in Table 8 present that three of eight independent variables were statistically significant predicting the DV Willingness to Share Knowledge. These include the variables of Trust, Attitude Toward KS, and Leadership. Also, results show that there is no statistically significant impact on the IVs of Expected Rewards and Associations, Expected Contribution, Organizational Structure, Information Technology Platform, and Organizational Culture on the DV Willingness to Share Knowledge.

Trust had a beta of 0.465 with a p value of 0.000. This significant result indicated that the factor of trust contributes to a person's willingness to share knowledge. This result matches the findings of Al-Adaileh and Al-Atawi (2011) who conducted their study in the Saudi the Saudi Telecom context. The Attitude Toward KS had a beta of 0.158 with a p value of 0.029. The significant result implied that the factor of Attitude Toward KS contributes to a person's willingness to share knowledge. The Leadership had a beta of 0.153 with a p value of 0.045. The significant result implied that the factor of Leadership also contributes to a person's willingness to share knowledge.

Table 9

Model Summary of Stepwise Multiple Regression Analysis (N=140)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df 1	df 2	Change Statistics Sig. Change
1	.571[a]	.326	.321	3.757	.326	66.844	1	138	.000
2	.606[b]	.367	.357	3.656	.040	8.721	1	137	.004
3	.624[c]	.390	.376	3.601	.023	5.199	1	136	.024

a. Predictors: (Constant), Trust
b. Predictors: (Constant), Trust, Leadership
c. Predictors: (Constant), Trust, Leadership, Attitude Toward KS

Regression results in Table 9, indicated an overall model of three predictors (Trust, Leadership, and Attitude Toward KS) that significantly predict the willingness to share knowledge [$R^2 = .390$, $R^2_{adj} = 3.76$, $F\ (3, 136) = 28.978$, $p < .001$]. This model accounted for 39% of variance in the willingness to share knowledge. Nevertheless, the other variables of Expected Rewards and Associations, Expected Contribution, Organizational Structure, Information Technology Platform, and Organizational Culture were out of the regression equation.

Table 10

ANOVA Summary Table (N=140)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	943.368	1	943.368	66.844	.000[b]
	Residual	1947.603	138	14.113		
	Total	2890.971	139			
2	Regression	1059.928	2	529.964	39.652	.000[c]
	Residual	1831.044	137	13.365		
	Total	2890.971	139			
3	Regression	1127.350	3	375.783	28.978	.000[d]
	Residual	1763.621	136	12.968		
	Total	2890.971	139			

ANOVA results, presented in Table 10, demonstrated a significant main effect for trust [F (1, 140) = 66.844, p <.001] and the category of both trust and leadership [F (2, 140) = 39.652, p <.001], as well as the interaction between trust, leadership and attitude toward KS [F (3, 140) = 28.978, p <.001]. The ANOVA result for expected rewards and associations, expected contribution, organizational structure, information technology platform, and organizational culture were not significant, which suggested that there is no difference in the results of the DV of willingness to share knowledge.

Qualitative Data Analysis and Results

Qualitative data were obtained from ten open-ended survey questions in order to gain a deeper understanding of KS perceptions and behaviors among academics within the context of Saudi Arabian HEIs. Participant responses assisted in answering the first five research questions, which sought to explore what factors contribute to a person's willingness to share knowledge and develop a profile of the current knowledge sharing culture of academics within HEIs in Saudi Arabia. The data were analyzed and coded using the methods described in Chapter 3 and suggested by Ardichvili and Wentling

(2003) and Miles and Huberman (1994) to identify major themes and categories for each question. The five research questions are as follows:

RQ1: To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing?

RQ2: What attitudes do academics in Saudi Arabian HEIs have toward knowledge sharing?

RQ3: What are the perceived outcomes of knowledge sharing?

RQ4: What types of knowledge are shared among academics in Saudi Arabian HEIs?

RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs?

Response Rate of the Qualitative Data

The response rate to the open-ended survey questions varied from one question to another. Some of the participants responded to the ten open-ended questions, while some of them responses where left blank. Table 11 present the summary results of the open-ended questions.

Table 11

Summary Results of the Open-Ended Questions (N=140)

Questions	N	Valid	Missing	Percentage
QE1: In your own words, how do you describe knowledge sharing within the context of your work?	140	91	49	65%
OE2: How do you share your knowledge with others (e.g., face-to-face, by email, phone, social media, conferences, publication, other)?	140	103	37	73.5%
OE3: How do you feel about sharing knowledge with other members in your university?	140	90	50	64.2%
OE4: What do you expect to gain by sharing your knowledge?	140	89	90	63.57%
OE5: What would increase your trust to share knowledge with others in your	140	75	65	53.5%

university?				
OE6: Why would you contribute to share your knowledge with others in your university?	140	68	72	48.5%
OE7: What types of knowledge do you share among your stakeholders within and outside of your university (e.g., research ideas, research agendas, research reports, teaching strategies, patents, funded proposals, discipline expertise, organizational acumen, other)?	140	66	74	47.1%
OE8: What is your perspective of the university's structure about exchanging knowledge?	140	53	87	37.8%
OE1O: With whom do you share your knowledge and what barriers exist that keep you from sharing your knowledge?	140	56	84	40%

Qualitative Data Analysis

The qualitative analysis started by coding the answers to open-ended questions, which resulted in classifying categories and themes for each of the five research questions. For example, to answer the first research question, “To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing?” the analysis covered these segments of the transcripts where specific open-ended questions about the awareness of the concept of KS were asked. To continue with the example of participants awareness of KS, several categories were identified based on the participant’s responses to the open-ended questions.

Qualitative Data Results

The qualitative data results are organized and presented according to the five research questions. One or two open-ended survey questions were added to classify the categories for each of the research questions. Tables 12 to 16 presents how the qualitative data were analyzed and grouped according to the five research questions. Figure 5 illustrate the ten open-ended questions that grouped to answer the fives research questions.

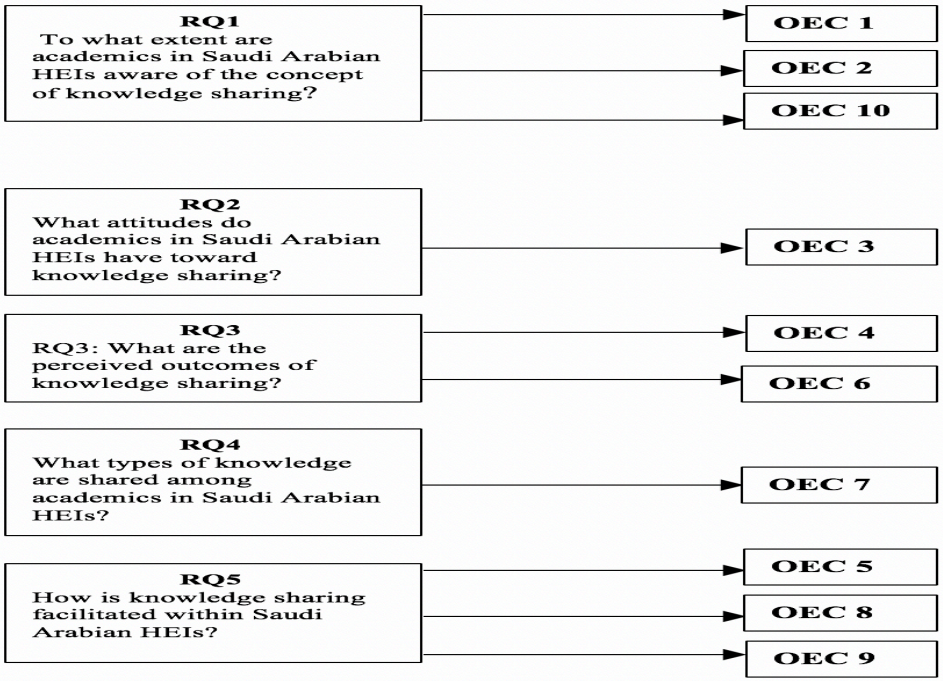

Figure 5. Five research questions and the related ten open-ended questions

RQ1: To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing?

To answer the first research question of the academics' awareness of the concept of KS, three related open-ended questions (OE1, OE2, OE10) were asked to gather data on this subject. Table 12 presents the related three open-ended questions as well as the themes and categories that were grouped according to the participants' responses. The qualitative data obtained from the open-ended question number one (OC1), suggested

that participants described KS within the context of their work which was based on different categories. The majority of participants viewed KS based on the general definition of KS, while others provided a specific description of KS. For example, a few participants stated that KS is all about sharing general thoughts and opinions. This definition corresponds to how Cheng, Yin, and Lau (2009) described KS. While other participants tended to be more specific when they defined KS. For example, they described KS as sharing what the individual possesses with others. This included teaching expertise, techniques, research, ideas, academic experience, and knowledge that related to their work. Another set of participants described KS within the context of their work which was based on the benefits of KS. For instance, among all the known benefits of KS, increasing self-knowledge, confidence, and gaining more experience were the most common responses among participants' answers. In addition, other participants described KS within the context of their work which was based on how knowledge is shared within their institutions as well as how KS is perceived and facilitated within their HEIs. Finally, several participants explained KS within the context of their work which was based on the importance of KS. For instance, several participants stated that there was a lack of sharing knowledge in their work, while others believed that KS was good for their institutions.

Another set of the qualitative data was collected from the open-ended question two (OC2) to address the research question one. These data demonstrated that most of the participants preferred to share their knowledge through a face-to-face meeting. Meanwhile, social media platforms such as WhatsApp and Facebook came in as the second favorite way of sharing knowledge among academics in Saudi's universities. In addition, communication through phone calls and emails is a popular method that

academics used to share and exchange knowledge. The majority of participants used all types of communication methods to share knowledge; however, a face-to-face meeting was the most effective way to transfer knowledge. For example, these participants stated that “we use all ways to share knowledge, however a face to face approach is more direct and productive for us”.

Finally, the qualitative data that were gathered from the open-ended question ten (OC10) aimed to address the research question 1. The data revealed numerous barriers to KS. The majority of participants proved that trust was the key element of KS. For example, many of the participants specified that they will only share their knowledge with people whom they trust to protect their information and ideas from getting stolen and exposed. This finding is similar to other research studies in the fields of KM and KS. For instance, Xue, Bradley, and Liang (2011) indicated that trust was the most determinant factor that positively affected both externally and internally KS behavior of individuals.

Time tended to affect the transfer of knowledge in Saudi’s HEIs. For example, one participant stated, “Time is also a barrier where I have so much on my plate that it is difficult to find the time to sit down with colleagues and brainstorm, share research ideas, etc.” Here the participant was referring to lack of time to share knowledge. Furthermore, the results showed that the organizational structure was a crucial factor that could impede the sharing of knowledge. When it comes to sharing knowledge across HEIs, information technology arises as a barrier. According to some participants responses, there are no clear technological systems of sharing knowledge. The advancement in technology identified as a barrier due to the lack of experiences that some faculty members have. Other barriers included lack of reward, lack of assistance, close-minded people, attitude

and favoritism, and lack of knowledge. Table 12 presents the related open-ended questions and categories that were grouped according to the first research question.

Table 12

Research Question 1 Analysis and Result

Research Question	Open-Ended Questions	Themes / Categories
RQ1: To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing?	OE1: In your own words, how do you describe knowledge sharing within the context of your work?	KS Definition-General KS Definition-Specific KS Benefit KS Process/How knowledge is shared Perceptions of KS KS as perceived within HEIs How to facilitate KS Importance of KS
	OE2: How do you share your knowledge with others? (e.g., face-to-face, by email, phone, social media, conferences, publication, other)?	Face to face Email Phone Social media Conferences Publication Other
	OE1O: With whom do you share your knowledge and what barriers exist that keep you from sharing your knowledge?	Trust Organizational structure Lack of reward Time Lack of assistance and close-minded people No barriers IT barriers Attitude and favoritism Lack of knowledge

RQ2: What attitudes do academics in Saudi Arabian HEIs have toward knowledge sharing?

To shed light on the second question of the academics' attitudes toward KS, the open-ended question (OE3) was applied. The data obtained from the open-ended question (OE3) were classified into several categories which are presented in Table 13. These categories included, affirmative perceptions of participants, negative perceptions of participants, expected benefits, willingness to share knowledge, affiliation with others inside the institution, and the Importance of KS.

The majority of participants' answers related to the category of affirmative perceptions. Participants believed that sharing knowledge feels good. Conversely, a small minority felt dissatisfied by the current level of KS in their institutions. For example, a few participants felt uncomfortable sharing knowledge with others because they might be judged and criticized. In some cases, participants believed that they do not share knowledge because they have nothing to share or might not be important or relevant enough to share. Others stated that they would be more open to sharing their knowledge if they were going to be rewarded or if it might help improve their departments. Other participants are willing to share their knowledge if their effort is going to be respected and recognized. In addition, several participants noted that sharing knowledge is crucial and they have to keep sharing it for both individual and institution interests. Table 13 presents the related open-ended questions, and categories that are grouped according to the second research question.

Table 13

Research Question 2 Analysis and Result

Research Question	Open-Ended Questions	Categories
RQ2: What attitudes do academics in Saudi Arabian HEIs have toward knowledge sharing?	OE3: How do you feel about sharing knowledge with other members in your university?	• Perceptions- affirmative • Perceptions- negative • KS benefit • Willingness to share • Affiliation with others • Importance of KS

RQ3: What are the perceived outcomes of knowledge sharing?

To address the third research question of the perceived outcomes of KS, responses to the open-ended question (OE4, OC6) were analyzed. Table 14 highlights the categories that represent perceived outcomes. These categories include self-fulfillment, monetary promotion, higher performance, intrinsic benefits, religious reward, gain knowledge, nothing, higher position, and building a relationship.

The majority of the participants specified that gaining more knowledge was the most important reason for sharing their knowledge with others. For instance, responses such as “sharing knowledge increases my knowledge and experience” were most common. Ma, Huang, Wu, Dong, and Qi, (2014) also found that sharing knowledge for knowledge gain was important. They stated that sharing knowledge among team members results in gaining more knowledge not only for the whole team but also for the individual. General and monetary rewards were the second most common reasons reported for why knowledge is shared. However, more than twenty percent of participants believed that monetary and general rewards as well as intrinsic benefits play a significant role in motivating academics to share knowledge with others. In addition, a few

participants suggested that religious reward was their purpose for sharing knowledge and experiences with others.

Another set of the qualitative data gained from the open-ended question six (OC6) to address the research question three, presented different reasons that encourage academics to share their knowledge with others. Importance of improving the university performance as well as achieving personal goals were the key reasons behind academics' contribution to share knowledge. Statement such as "to help the university improve and to contribute to assist my department and my university achieve their goals and vision" was a common participant response. Other reasons for contributing knowledge were associated with various self-based thoughts. First, participants pointed the need to gain more knowledge (e.g. through practicing and sharing experience as well as getting others experience as well). Second, several participants pointed out that both general reward and monetary reward have significant influences on their attitude about KS, which in turn directs their behavior toward sharing knowledge with each other. This result is similar to Asrar-ul-hag and Anwar's (2016) findings that revealed individuals tend to hide the knowledge they possess and do not reveal or share it with others when there is no reward for them. Table 14 presents the related open-ended questions, and categories that grouped according to the third research question.

Table 14

Research Question 3 Analysis and Result

Research Question	Open-Ended Questions	Categories
RQ3: What are the perceived outcomes of knowledge sharing?	OE4: What do you expect to gain by sharing your knowledge?	Self-fulfillment Monetary reward Higher performance Intrinsic benefits Religious reward Gain knowledge Nothing Higher position Building a relationship
	OE6: Why would you contribute to share your knowledge with others in your university?	University's performance Team achievement Department's improvement Right thing to do Personal goals Gain knowledge and experience Self-satisfaction Self-improvement Better environment Money reward

RQ4: What types of knowledge are shared among academics in Saudi Arabian HEIs?

Participants' responses to the open-ended question 7 (OE7), assisted in answering the fourth research question. Based on careful analysis of participants' responses, the majority of academicians prefer sharing knowledge that related to teaching whether it is a teaching strategies, materials, or skills that may end up benefiting students. Other types of knowledge shared included research ideas, research agendas, and research reports. As an academic in HEIs, research is very important, and sharing knowledge about research is as important as the research itself. The following quote exemplified the importance of

sharing knowledge that relates to research "I would like to share knowledge that relates to research ideas, research outcome, publications, and project proposals." Some participants were very specific about the type and variety of knowledge they would like to share, such as discipline expertise, and organizational acumen. Table 15 presents the related open-ended questions, and categories that are grouped according to the fourth research question.

Table 15

Research Question 4 Analysis and Result

Research Question	**Open-Ended Questions**	**Categories**
RQ4: What types of knowledge are shared among academics in Saudi Arabian HEIs?	OE7: What types of knowledge do you share among your stakeholders within and outside of your university (e.g., research ideas, research agendas, research reports, teaching strategies, patents, funded proposals, discipline expertise, organizational acumen, other)?	Research ideas, agendas and reports, teaching strategies, expertise All the above Other

RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs?

To address the fifth research question, data from three open-ended questions (OE5, 0E8, OE9) were collected and analyzed. Overall, the responses to the open-ended question (OE5) fell into five categories as it is shown in Table 16. Honesty was the most frequently mentioned factor for increasing person's trust to share knowledge. It is not surprising that participants chose honesty as an important factor. This finding corresponds to the findings of McDermott and O'Dell (2001) and Rai (2011), who stated that honesty and high degree of mutual trust are important and critical dimensions for knowledge sharing and knowledge management in any organization. Openness in communication was another important dimension of increasing trust among academics.

Openness in communication refers to the ease in which individuals can to each other (Schiller & Cui, 2010). Yu, Lu, and Liu, (2010) argued that openness in communication is an essential factor for sharing knowledge. Knowledge transfers easily when the individuals are more open to one another. The other remaining categories such as willingness to improve, integrity, respect, collaboration, self-recognition, transparency, professional environment, networking, encouragement, credibility, and organized system were equally mentioned.

Since the organizational structure is an important aspect of KS within HEIs in Saudi Arabia, it is important to know the academics' perspective of their university's structure for sharing knowledge. Data obtained from the (OE8), helped answer research question five of the participants' perspective of their university's structure on KS. Participant's responses were divided into two categories, positive and negative perspectives. The responses of participants who perceived the organizational structure in a positive way varied from very encouraging to the need to be more effective. For example, several participants stated that the structure of their universities encourages them to share and exchange knowledge whether it is within their department or with the management. They think that their universities provided a good structure but not everyone is aware of it. Here they refer to the absence of good communication between universities' management and the academic members. On the other hand, those who suggested that their universities' structure needs to be clarified and solidified, and the frequent changes distort the knowledge exchange. Another group of participants perceived the organizational structure in a negative way. They expressed the desire to have a supportive KS policy. With regard to organizational structure, one participant stated, "It's not supporting or encouraging. Knowledge sharing across the university

colleges and departments must be more flexible to gain the most positive outcomes of exchanging knowledge."

Information technology platform was another important dimension that facilities KS within HEIs. Data from the open-ended question nine (OE9) were collected to determine what types of technologies needed to be implemented to encourage academics to share their knowledge. Among the participants' responses, electronic research forum was the most frequently mentioned. For example, this participant provided a specific example of an effective system such as PIVOT, a popular online research repository, stating, "Perhaps a knowledge repository like PIVOT for research. Some type of repository that lists faculty and their research agenda." Others suggested that it would be more effective if their universities implemented a general electronic academic forum that includes all faculty members where everyone can share their knowledge. In addition, several participants believed that smartphone applications are very efficient nowadays. Other suggestions such as, electronic communication systems, research blogs, electronic knowledge management systems, electronic email systems, electronic meeting systems, and Blackboard (a popular learning management system) were provided in participants' responses. Table 16 presents the related open-ended questions, and categories that grouped according to the fifth research question.

Table 16

Research Question 5 Analysis and Result

Research Question	Open-Ended Questions	Categories
RQ5: How is knowledge sharing facilitated within Saudi Arabian HEIs?	OE5: What would increase your trust to share knowledge with others in your university?	Openness in communication Willingness to improve Integrity Honesty Respect Collaboration Self-recognition Professional environment Networking
	OE8: What is your perspective of the university's structure about exchanging knowledge?	Encouraging Not supportive Flexible Supportive Good No structure Not clear Limited Not good Not innovative
	OE9: What types of technologies need to be implemented to encourage academics to share their knowledge in your university?	Electronic research forum Electronic communication system Research blogs Electronic knowledge management systems (e.g., Blackboard) Smart phone applications Satisfied with current Software

Summary of Results

This chapter outlined the data analysis and the detailed results of this research study. That chapter begins with a presentation of the six research questions. Then, results are reported including the survey analysis and the data analysis. Survey analysis including the response rate, demographic information, multivariate outliers, normality, and linearity. Results of both of the quantitative and qualitative data collection and analysis were presented. Analysis of validity, reliability, descriptive statistics, and MLR analysis were performed to present the results of the quantitative data. Analysis of the qualitative data started by coding the responses to open-ended questions, which resulted in classifying categories and themes for each of the five research questions. Chapter 5 presents the conclusions, implications, and recommendations for future practice and research and it concludes with a summary of this research.

Chapter 5

Conclusions, Implications, Recommendations, and Summary

Introduction

This study sought to explore what factors contribute to a person's willingness to share knowledge and develop a profile of the current KS culture of academics within HEIs in Saudi Arabia. Conclusions, implications, recommendations for practice and research are reported. This report concludes with a summary of the research study.

Conclusions

The research problem was there is limited understanding concerning if and how academics in Saudi's HEIs share knowledge (Fullwood, Rowley, & Delbridge, 2013; Sohail & Daud, 2009). This study extended Sohail and Daud's (2009) and Fullwood et al.'s (2013) work by surveying academics from a non-Western culture, as well as, gaining a deeper understanding of KS factors through the collection and analysis of both closed-ended and open-ended survey questions. Analysis of survey results from a sample of 140 academics from Saudi HEIs were in order to draw inferences on this population that may be generalized to a broader Saudi HEI population (Creswell, 2014).

A Web-based survey was used to determine the conrtbution of the eight IVs of leadership, organizational structure, information technology platform, organizational culture, attitude, trust, expected rewards and associations, and expected contribution on the single DV of willingness to share knowledge. A total of 140 surveys were used for data analysis. All items were measured by using five-point Likert scales in which a one means "strongly disagree" and a five means "strongly agree."

The qualitative data that were collected from the participants' responses to the open-ended questions aimed to answer the following five research questions of this study:

RQ1. To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing?

RQ2. What attitudes do academics in Saudi Arabian HEIs have toward knowledge sharing?

RQ3. What are the perceived outcomes of knowledge sharing?

RQ4. What types of knowledge are shared among academics in Saudi Arabian HEIs?

RQ5. How is knowledge sharing facilitated within Saudi Arabian HEIs?

Analysis of quantitative data sought to identify what factors among the IVs contribute to the single DV. Specifically, it helped answering the sixth question of this research:

RQ6. To what extent do organizational factors include leadership (L), organizational structure (OS), information technology platform (IT), and organizational culture (OC) and individual factors including attitude (A), trust (T), expected rewards and associations (ERA), and expected contribution (EC) contribute to willingness to share knowledge (WIL)?

To draw the conclusions of the contribution between the eight IVs and the single DV, this research focused on the flow of knowledge amongst academics in HEIs. Furthermore, six research questions were addressed. The following conclusions were organized by each of the six research questions. The results from these questions were based on the quantitative and qualitative data analysis as well as the review of the literature. The findings derived from the qualitative data helped to answer the five research questions (RQ1, RQ2, RQ3, RQ4, RQ5). These findings indicated categories and themes for each of the five research questions.

The first research question examined academics' awareness of the concept of KS in Saudi's HEIs. The qualitative data obtained from the three open-ended questions (OE1, OE2, OE10) found that the majority of participants that were aware of KS considered it as a way of sharing general thoughts and opinions. Meanwhile, others had a specific description of KS as a way of sharing what the individual possesses with others including teaching expertise, techniques, research, ideas, academic experience, and knowledge that related to their work. This finding corresponds to how Cheng, Yin, and Lau (2009) described KS. Other categories such as the benefits of KS, the importance of KS, how KS was facilitated within HEIs, and the process of KS were nearly mentioned as how participant's described KS in their institutions. The majority of participants used all types of communication methods to share knowledge, such as social media platforms, a face to face meeting, phone calls, emails, conferences, publication, however, a face to face meeting was the most effective way to transfer knowledge in Saudi' HEIs. Finally, nine main groups of barriers for sharing knowledge included trust, organizational structure, lack of reward, time, attitude and favoritism, close-minded people, information technology barriers, lack of knowledge, and, lack of assistance were mentioned by participants. Trust proved to be key element of KS. This finding corresponds with Xue, Bradley, and Liang's (2011) findings where they suggested that trust plays as a determinant factor that positively affected both externally and internally KS behavior of individuals.

The second question investigated the academics' attitudes toward KS in Saudi's HEIs. The qualitative data gained from the open-ended questions 3 (OE3) found that the majority of participants feel good when they share knowledge with others. They think that the more they share their knowledge, the more effective the outcomes will be for

both the individual and the university. However, some participants felt dissatisfied with the current level of KS in their institutions especially when the other faculty were not as willing to share what they knew. Less than 2% of participants were unwilling to share their knowledge and by doing that they believed that they were protecting their ideas and information. In addition, several participants were willing and more open to share their knowledge if their efforts were going to be rewarded and recognized. Another set of participants were willing to share their knowledge if the outcomes would help improve their department. These findings correspond to Jeon's, Kim's, and Koh's (2011) statement that extrinsic and intrinsic motivation as well as reward have a positive influence on the individuals' attitude towards KS.

The third research question examined the perceived outcomes of KS. The data gathered from the open-ended question 4 and 6 (OE4, OC6) concluded that gaining more knowledge was the number one reason that would motivate academics to share their knowledge with others. This finding agreed with the conclusions of Huang, Wu, Dong, and Qi (2014) who stated that sharing knowledge among team members results in gaining more knowledge for both the individual member as well as the whole team. Other reasons such as monetary reward, self-fulfillment, monetary promotion, higher performance, intrinsic benefits, religious reward, gaining knowledge, higher position, and building a relationship were mentioned by participants.

The fourth research question examined the types of knowledge that academics in Saudi's HEIs shared. The data gained from the open-ended question 7 (OE7) determined that the majority of academicians prefer sharing teaching-related knowledge such as teaching strategies, materials, or skills that may end up benefiting students. This is because the type of knowledge desired to be shared between faculty members is teaching-

related knowledge rather than personal knowledge. Al-Alawi, Al-Marzooqi, Mohammed, (2007) pointed out that individuals desired to share knowledge related to their work rather than personal knowledge. Other types of knowledge such as research ideas, research agendas, and research reports were mentioned as the most frequent types of knowledge that academics share in Saudi's HEIs.

The fifth research question investigated how KS is facilitated within Saudi's HEIs. The data gained from the open-ended questions 5, 8, and 9 (OE5, OE8, OE9) demonstrated that trust, organizational structure, and information technology platforms were positive elements that enabled KS in HEIs. First, data gathered from OE5 revealed that trust was the most important element that facilitated the creation and sharing of knowledge in HEIs. Nakano, Muniz, and Dias Batista (2013) indicated that trust helped in facilitating KS in organizations. Data gained from OE5 showed that honesty played a significant role in increasing a person's trust to share knowledge. It is not surprising that participants chose honesty as an important factor. This finding corresponds to the findings of McDermott and O'Dell, (2001); Brown and Woodland (1999); Curry and Stancich (2000); Rastogi (2000) and Rai (2011), where they stated that honesty and a high degree of mutual trust are critical dimensions for knowledge sharing, knowledge creation, and knowledge conversion, and knowledge management in any organization.

Other factors such as openness in communication, willingness to improve, integrity, respect, collaboration, self-recognition, transparency, professional environment, networking, encouragement, credibility, and an organized system were essential dimensions of increasing trust among academics. Second, data gained from OE8 concluded that the organizational structure was significant in how KS facilitated within HEIs in Saudi Arabia. It was very important to know the academics' perspective of their

university's structure for sharing knowledge. Data obtained from the OE8 illustrated that the majority of participants have a negative perspective on how knowledge is facilitated within their universities. They said that their universities were not supporting or encouraging knowledge sharing across the university colleges and departments. They recommended that their universities' structure needs to be clarified and solidified. Other participants suggested that making frequent changes may affect and distort the exchange of KS. Conversely, other participants thought that the structure of their universities encouraged them to share their knowledge. They thought that their universities provided a good structure but not everyone was aware of it. Here they referred to the absence of good communication between the universities' administrators and the academic staff in HEIs.

Finally, data obtained from (OE9) found that the information technology platform was another important dimension that facilities KS within HEIs. Participants provided a specific example of an effective system that will help them to share their knowledge with each other. An electronic research forum was the most frequently suggested platform for KS. In addition, several participants believed that smartphone applications are very efficient and easy to use to share knowledge. Other suggestions included electronic communication systems, research blogs, electronic knowledge management systems such as Blackboard, electronic email systems, electronic meeting systems.

For the sixth research question, there were also distinct conclusions for the relationships between the nine IVs including leadership (L), organizational structure (OS), information technology platform (IT), and organizational culture (OC) and individual factors including attitude (A), trust (T), expected rewards and associations (ERA), and expected contribution (EC). A SEM analyses of the survey responses

received from 140 academics was conducted to determine their contributions on the single DV of willingness to share knowledge (WIL). All survey items were measured using five-point Likert scales in which one means "strongly disagree" and five means "strongly agree."

Correspondingly, the link between organizational and individual factors that influence KS in a HEIs context has been well documented (Bock et al., 2005; Fong Boh, Nguyen, & Xu, 2013; Fullwood et al., 2013; Sohail & Daud, 2009). Based on other studies in private and public HEIs, organizational and individual factors were found to have a significant influence on knowledge sharing (Fullwood & Rowley, 2017; and Sohail, & Daud, 2009). Fullwood and Rowley (2017) showcased that individual factors amongst academics were more influential on KS than organizational factors.

This research study proved a significant relationship between organizational and individual factors and KS within the context of HEIs in Saudi Arabia. The degree of reliability was determined by using the Cronbach Alpha test, which resulted in a reliability coefficient of (0. 722) of the organizational factors, and (0.842) of the individual factors. Statistical findings of this research indicated that the three independent variables of trust, attitude toward KS, and leadership were statistically significant predicting the DV willingness to share knowledge. Also, independent variables of expected rewards and associations, expected contribution, organizational structure, information technology platform, and organizational culture did not have a significant impact on the DV of willingness to share knowledge.

This study used four items to measure the construct of attitude toward KS. The influence of attitude toward KS on willingness to share knowledge was positive and significant at $p < 0.029$. This finding consistent with the findings of previous studies

(Hislop, 2003; Sohail & Daud, 2009) that identified that individuals' attitude toward KS have a significant influence on sharing their knowledge with colleagues.

Six items were used to measure the construct of trust. The influence of trust on willingness to share knowledge was positive and significant at $p < 0.000$. This finding is consistent with the findings of previous studies such as Al-Adaileh and Al-Atawi (2011) and Fullwood et al., (2013) who found that trust plays a significant role in KS behaviors.

The construct of leadership was measured using six items. The influence of leadership on willingness to share knowledge was positive and significant at $p < .043$. Yielder and Codling (2004) found that leadership has a positive impact the KS within HEIs. This finding is not consistent with the findings of Fullwood et al. (2013) who found that leadership was not identified to be central to KS. Wang and Noe (2010), however, did conclude that leadership plays a central role to KS.

Six items were used to measure the construct of expected reward and association. The influence of expected reward and association on willingness to share knowledge was not significant at $p < .137$. This finding perhaps was surprising given the qualitative data gathered from participants where they indicated that expected reward does play an important role in sharing their knowledge with others. Also, this finding is not consistent with the findings of Al-Adaileh and Al-Atawi (2011), where they found that reward has an impact on KS within the context of Saudi's organization.

The relationship between expected reward and association and willingness to share knowledge was not significant at $p < .137$. This finding is not consistent with the findings of Al-Adaileh, and Al-Atawi (2011), where they found that reward has an impact on KS within the context of Saudi's organization.

The relationship between expected contribution and the willingness to share knowledge was the weakest among the all the individual factors at $p > 0.887$ and organizational structure was found to have the weakest relationship with willingness to share knowledge among the organizational factors at $p > 0.848$. Information technology was found to have non-significant relationship with the willingness to share knowledge at $p > 0.183$. However, this considered to be slightly surprising given the access that academics have to information technology. The marginally non-significant relationship between organizational culture and the willingness to share knowledge at $p > .645$ was not surprising given the fact that organizational culture identifies a system of shared values (Cameron & Quinn, 1999).

Limitations

There are several limitations was drawn from this research study. First, this study was limited to the context of HEIs in Saudi Arabia. Thus, the data collected from these institutions would limit the generalizability of the results achieved. Second, all of the quantitative survey questions were based on a five-point Likert scale. This scale (in contrast to a seven-point scale) could have presented a limitation to the accuracy of results. Third, the level of participants' commitment to complete the survey was a limitation due to the survey length and short timeframe for completing the survey. Finally, the language of the survey was a limitation. Arabic is the primary language used in HEIs within Saudi Arabia, and English is considered as a second language that not everyone speaks which may impact the amount of the responses received from the targeted population.

Implications

According to Alavi and Leidner, 2001, the purpose of the KM research is to "support the creation, transfer, and application of knowledge in organizations" (p. 107). In this research study Knowledge Sharing (KS) as a major element of KM was investigated within the context of HEIs in Saudi Arabia. The focus of this study was to explore what factors contribute to a person's willingness to share knowledge and develop a profile of the current KS culture of academics within HEIs in Saudi Arabia. Implications of this research study is discussed in this section. The first sub-section presents the contributions of this research to the KM and KS Literature. The second sub-section covers the impacts of this research on Higher Education Institutions (HEIs) in Saudi Arabia.

Contribution to the KM and KS Literature

This research extended the findings of previous research studies of Sohail and Daud's (2009) and Fullwood et al.'s (2013) by surveying academics from a non-Western culture, as well as, gaining a deeper understanding of KS factors through the collection and analysis of both closed-ended and open-ended survey questions. Sohail and Daud's (2009) examined what factors facilitate successful KS and what factors inhibit KS among teaching staff in public and private universities in Malaysia. Fullwood et al. (2013) studied the factors that facilitate KS among academics in the United Kingdom (UK). This study, to the best of the authors' knowledge, makes an original contribution to the existing body of KM and KS by bridging the gap on KS literature that addresses what factors contribute to the academics' willingness to share knowledge and develop a profile of the current KS culture of academics within HEIs in Saudi Arabia. Furthermore, the concepts in this research emphasizes the importance of the organizational and individual factors in understanding KS in Saudis' HEIs. The findings of this study demonstrated that

variables of trust, attuited toward KS, and leadership had a significant influence on the persons' willingness to share knowledge within HEI in Saudi Arabia. Results of the research study can be leveraged by future research that aims to explore the concept of KM and KS in universities in Saudi Arabia or other countries.

Impact for Higher Education Institutions

From a practical perspective, the results of this research study aimed to assist the Ministry of Higher Education (MOHE) in Saudi Arabia in their continuous efforts to accelerate the achievement of their goals that moving toward a knowledge-based economy. In the context of this research study management of HEIs in Saudi Arabia can use this empirical evidence to initially determine what factors play a significant role in KS and develop effective courses of action to improve KS behavior among their academics.

Another practical implication of this study is that although what individual possess of knowledge is not entirely under the direct control of management, it is important to maintain a healthy encouraging environment for academics to share their knowledge with each other. Leaders should be aware that the expansion of unplanned KM and KS strategy could impede the performance of sharing individual knowledge within their HEI. Therefore, they should focus on developing an effective KS strategy that enhances the process of acquiring and sharing knowledge within their institutions. Focusing on designing a compatible KS strategy will not only have a direct impact on the HEI performance, but also an indirect impact on the other institutional components. Thus, the most effective element toward developing a strong KM strategy in any organization is through KS. This study also finds that Improvements in the technological infrastructure

will result in improvements in KS activities among academics. Thus, this improvement will have a positive influence on the performance of the institutions as a whole.

Recommendations for Future Research

This section presents numerous areas for future research studies. First, this research is a Saudi- based context of a study and it would be interesting to explore duplicating this research in HEIs in other countries, in order to understand the impact of certain knowledge sharing factors on different cultures. Second, this study investigated the factors that influence KS among academics. Further research might, for example, investigate the perspectives of senior managers and support staff within HEIs in Saudi Arabia. Third, the findings of this research demonstrated that the factors of trust, attitude toward KS, and leadership have a positive impact on the academics' willingness to share knowledge with each other. Future research can focus more in-depth on the factors of trust, attitude toward KS, and leadership to arrive at a richer understanding of the significant role they play in the success of KS within HEIs. Fourth, Future studies could consider replicating this study on a bigger sample size from another public and private industrial organizations. Finally, future studies may create another copy of the survey instrument in Arabic in order to recruit more participants from different across the country to increase the generalizability of the findings. There is hope that this research study can provide a useful starting point for future research on the concept of the KS.

Summary

The problem addressed in this research was the limited understanding regarding if and how Saudi Arabian academics in HEI's share knowledge (Fullwood, Rowley, & Delbridge, 2013; Sohail & Daud, 2009). The main goal was to explore what factors contribute to a person's willingness to share knowledge and develop a profile of the

current knowledge sharing culture of academics within HEIs in Saudi Arabia. The significance of this research proved that KS was considered as the significant element that contributes to the success and survival of the HEIs in highly competitive environments in KM literature (Muscio, Quaglione, & Scarpinato, 2012; Ramayah et al., 2014; Yassin et al., 2013). Accordingly, the investigation of factors that influence KS among academics within HEIs was seen as important as the knowledge itself. The findings are pertinent and will contribute to the existing body of KM and KS literature as well as to assist the Ministry of Higher Education (MOHE) in Saudi Arabia in their continuous efforts to accelerate the achievement of their goals that moving toward a knowledge-based economy. The following six research questions were used to guide the investigation.

RQ1. To what extent are academics in Saudi Arabian HEIs aware of the concept of knowledge sharing?

RQ2. What attitudes do academics in Saudi Arabian HEIs have toward knowledge sharing?

RQ3. What are the perceived outcomes of knowledge sharing?

RQ4. What types of knowledge are shared among academics in Saudi Arabian HEIs?

RQ5. How is knowledge sharing facilitated within Saudi Arabian HEIs?

RQ6. To what extent do organizational factors including leadership (L), organizational structure (OS), information technology platform (IT), and organizational culture (OC) and individual factors including attitude (A), trust (T), expected rewards and associations (ERA), and expected contribution (EC) contribute to willingness to share knowledge (WIL)?

Prior to distributing the survey to the target population, a pilot test was conducted with a subset of the target popoulation and person's with expertise in survey design and knowledge management. Results of the pilot test were used to revise the survey and ensure its reliability and validity for the target audience. A questionnaire-based survey was distributed through Google Forms to academics who are currently working in various disciplines in Saudi HEIs through Google Forms. Quantitative data were gathered through close-ended questions that addressed all the nine constructs of this study. The qualitative data were obtained by way of ten open-ended questions, to gain a deeper understanding of KS perceptions and behaviors among academics within the context of Saudi Arabian HEIs. A total of 140 participants completed the survey. Tests for multivariate outliers, normality, linearity, descriptive statistics and multiple linear regression analysis were performed to present the quantitative result of this study.

A coding process was used to analyze the responses to the open-ended questions. First, data from the survey responses were hand coded. These codes were then organized into themes and categories that represented the major qualitative findings. Both of the quantitative and qualitative analysis resulted in a general description (or profile) of Saudi academics' knowledge sharing culture.

Appendix A

Summary of Knowledge Literature

Study	Methodology	Construct	Findings or Contributions
Polanyi (1966)	Theoretical	Tacit knowledge	This research contrbuted to expand and understand the theory of knowledge in new directions.
Huber (1991)	Theoretical	Knowledge Acquisition Information Distribution	This research used four constructs to a understand the organizational learning process as well as evaluating the literatures more critically.
Kogut and Zander (1992)	Theoretical	Organizational Knowledge Technology Transfer Intellectual Capital	This research developed an argument that firms distinct from markets by sharing the individual and team knowledge within the organization
Nonaka (1994)	Theoretical	Tacit Knowledge Explicit Knowledge	This research proposed a paradigm for managing the dynamic aspects of organizational knowledge-creating processes. The nature of this dialogue examined

			four patterns of interaction between tacit and explicit knowledge
Nonaka, Byosiere, Borucki and Konno (1994)	Multivariate Methodology	Socialization, Externalization Combination Internalization	This result of this study provided a strong support for viewing organizational knowledge creation as a higher-order construct comprised of four knowledge conversion processes: socialization, externalization, combination, and internalization.
Aamodt and Nygård (1995)	Theoretical	Data Information Knowledge	This research proposed a conceptual framework that focuses on data, information, and knowledge based on their roles in computational and cognitive information processing for the development of integrated systems.
Zander and Kogut (1995)	Empirical Study	Codifiability Teachability	This study focused on the horizontal transfer of

		Complexity System Dependence Product Observability	knowledge from one manufacturing site to another. They presented that the degree of codification and how easily capabilities taught has a significant influence on the speed of transfer. They suggested that the transfer and recombination of organizational capa- bilities are the foundation of an evolutionary theory of the firm.
Grant (1996)	Theoretical	Appropriability Capacity for Aggregation Transferability	The primary contribution of the paper is in exploring the coordination mechanisms through which firms integrate the specialist knowledge of their members.
Leonard and Sensiper (1998)	Theoretical	Tacit Knowkledge	This article contributed to the understanding of tacit knowledge and how it is a crucial source of competitive advantage. They claimed that

			the tacit knowledge that created in individual group are relevant to innovation. They argued that to understand the potential and complexity of collective tacit knowledge, we shall need to practice what we study interacting through metaphor as well as analysis and mutual apprenticeship as well as structured intellectual exchanges.
Alavi and Leidner (1999)	Theoretical	Knowledge KMS Orgnaizational Knowledge	This study focused on contributing to the understanding of the perceptions of knowledge management and knowledge management systems from the perspective of individuals in organizations. This study identified both technologies and knowledge domains that were used to build KMS.

			They suggested that the interest in KMS across a variety of industries is very high, but the main concerns were related to achieving the correct amount as well as having the proper type of knowledge that contribute to the success of KMS.
Gupta and Govindarajan (2000)	Empirical Study	Value of Knowledge Stock Motivational Disposition to Share Knowledge Existence and Richness of Transmission Channels Motivational Disposition to Acquire Knowledge Absorptive Capacity	This study tested the overarching theoretical framework pertaining to intracorporate knowledge transfers within 374 multinational corporations in the U.S., Europe, and Japan.
Nonaka (2000)	Theoretical	Orgnaizational	This paper proposed a

and Stenmark (2000)		Knowledge	framework that applied in two operational models for managing the dynamic aspects of organizational knowledge creating processes.
Alavi and Leidner (2001)	Theoretical	Knowledge Kowledge Management Systems	This paper provided a review and interpretation of knowledge management literatures in different fields. They presented a detailed process of organizational knowledge management with a focus on the potential role of information technology in this process.
Bontis (2001)	Theoretical	Knowledge	This paper provided a review of the literature that related to the assessment of knowledge assets. Also highlighted the strengths, weaknesses, and operationalizations of a variety of models that used to measure the intellectual capital.

Stenmark (2001)	Theoretical	Knowledge and Information	This reseached analysed the concepts of information and knowledge and, from an IT perspective, and established a working relationship between these two important entities.
Hislop (2003)	Theoretical	Knowledge Management Human Resource Management	This paper contributed to the development of the knowledge management and human resource management literatures through developing the linkages between them.
Ipe (2003)	Theoretical	Knowledge and Knowledge sharing	This article examined knowledge sharing between individuals in organizations. A model presented to identify factors that most significantly influence knowledge sharing among individuals in organizations.
Bellinger, Castro and Mills (2004)	Theoretical	Knowledge Information Data	This study presented the relationships between data, information, knowledge, wisdom and the new theory

			on meta-synthesis of wisdom proposed by Qian Xuesen in 1992.
Hey (2004)	Metaphorical Analysis	Knowledge, Information, Data, and Wisdom Chain	This research study provided a model that explaine relationship between knowledge, information, data, and wisdom Chain
Bock, Zmud, Kim and Lee (2005)	Theoretical	Attribute toward KS Organizational climate Intention to share knowledge	This study aimed to develop a theoretical framework that invistigate the factors supporting or inhibiting individuals' KS intentions.
Chen and Edgington (2005)	Simulation	Organizational Knowledge Creation	They investigated the importance of active governance of strategic knowledge creation for organizations seeking sustainable competitive advantage. Their model contributed as one of the first to quantify the decision criteria required by managers

			and knowledge workers with regard to knowledge creation process investment decisions using organizational and economic theory.
Cho, Zheng, and Su (2007)	Emperical	KS intention Type of knowledge	This study focusesd on indivisual level factors such as personality trait, indiviusal ability, and level of extrinsics, and intrinsic motiviation that affect individual's intention to share knowledge.
Liew (2007)	Theoretical	Data Information Knowledge	This study contributed to the current research by investigating the reasons for ambiguity and confusion commonly associated with terms such as data, information, and knowledge.
Chen et al., (2009)	-	Information Knowledge	This research examined the current and future role of information and knowledge in the development of visualization technology.

Holste and Fields (2010)	Theoretical	Tacit knowledge	This study aimed to explore the impact of affect-based and cognition-based trust of co-workers on the willingness of professionals to share and use tacit knowledge.
Donate and Canales (2012)	Empirical Analysis	Types of knowledge strategy include; Proactive Moderate Passive Inconsistent	This paper presented a novel way to conceive knowledge strategy. They studied the effect of knowledge strategy on business performance and innovation based on a cross-sectional sample of Spanish firms.
Jifa (2013)	-	Data Information Knowledge Wisdom	This study introduced the relationships between data, information, knowledge, wisdom and the new theory on meta-synthesis of wisdom proposed by Qian Xuesen in 1992.
Eaves (2014)	Theoretical	Knowledge Type Task Equivocality Task Uniqueness	This study explored the impact of the individual on intra-organisational tacit and

		Task Interdependence Knowledge Auditing	explicit ks behavior of the middle management level
Davies (2015) and Wang (2015)	Theoretical	Explicit Implicit Tacit	This research proposed various requirements for a test of conscious knowledge.
Chuang, Jackson and Jiang (2016)	Theoretical	HRM Systems Leadership Tacit Knowledge	This study investigated the influence of the Human Resource Management (HRM) systems for knowledge intensive teamwork on external team knowledge acquisition and internal team KS.
Fred (2017)	Theoretical	Explicit Knowledge Tacit Knowledge	This research developed a quantitative approach for measuring explicit and tacit knowledge.
Jin-Feng, Ming-Yan, Li-Jie and Jun-Ju (2017)	Theoretical	Tacit knowledge Explicit knowledge	This paper provided construction of enterprise tacit knowledge sharing stimulation system oriented to employee individual.

Spraggon and Bodolica (2017)	Conceptual	Tacit Knowledge Social Iudic Activities	This paper contributed to the literature by examining the generation of collective tacit knowledge (CTK) in organizations through social ludic activities (SLAs) that carried out by employees.
De Silva, Howells and Meyer (2018)	Theoretical	Knowledge Capitalization Knowledge Advancement Knowledge Spanning Knowledge Worker Empowerment Innovation Ecosystem Knowledge Access Innovation Ecosystem Knowledge Shaping	This paper investigated how knowledge-based practices adopted by innovation intermediaries enable them to generate internal value for themselves when collaborating with their clients.

Appendix B

Summary of KM in HEIs

Study	Methodology	Construct	Findings or Contributions	Country
Kidwell, Vander Linde, and Johnson (2000)	Theoretical	KM, Knowledge Type "Tacit and Explicit"	This research identified the basic concepts of knowledge management as it is applied in the public sectors considers trends and explores how it might be applied in higher education and whether higher education is ready to embrace it.	General
Rowley (2000)	Theoretical	KM and HEI	This research examined the applicability of the concepts of knowledge	UK

			management to higher education institutions in the UK.	
Luan (2002)	Survey	KMS	This study discussed the results of a recent project for development of a KMS in university environment.	Bulgaria
Petrides and Nodine (2003)	-	People Process Technologies	This study presented a set of emerging theories, along with practices and recommendations that explore a set of simple designs for linking people, process, and technologies in educational institutions to understand how to	USA

			share and manage knowledge.	
Corbitt, Bradley, and Thanasankit, (2005)	Case Study	Knowledge Volume Knowledge Quality Knowledge Dissemination Information System Management.	This study explored factors influencing knowledge sharing by providing a conceptual framework consisting of four (4) dimensions: knowledge volume, knowledge quality, knowledge dissemination, and information system management.	General
Moss, Kubacki, Hersh and Gunn (2007)	Theoretical	HEIs Teamwork Influence of National Culture	This study explored the extent to which national culture may influence the process of KM.	General
Cranfield and Taylor (2008)	Theoretical	KM	This study investigated the application of KM	UK

			within the HEI context in United Kingdom (UK).	
Lee and Roth (2009)	Theoretical	Leadership Culture Technology Measurement	This research presented a conceptual framework to help researchers examine KM strategies in higher education contexts.	South Korea
Omona, van der Weide and Lubega (2010)	Theoretical	Usefulness External Variables Intention / Attitudes Ease of Use	This study identified several research issues to bridge the gap that currently exists between the requirements of theory building and testing to address the different emerging challenges in using ICT to enhance KM in higher education.	Uganda
Omerzel,	Empirical	KM	This study explored	Slovenia

Biloslavo, Trnavčevič and Trnavčevič (2011)		Organizational Culture HEIs	the concept of culture and KM at the university level. It contributed to the body of literature in central and eastern European countries.	
Eid and Nuhu (2011)	Cross Sectional	Learning Culture IT Use	This study investigated the influence of social and technological factors such as learning culture and IT use, could have on KM and KS among students of the King Fahd University of Petroleum and Minerals in Saudi Arabia.	Saudi Arabia
Songsangyos (2012)	Comparative Review	KM Organizational Culture	This study provided a comparative review of KM in	Thailand

			higher education. They investigated the relationship between organizational culture and knowledge management process in a university environment	
Ramachandran, Chong and Wong (2013)	Empirical	KM practices KM enablers	This study examined the gap between KM practices and key strategic enablers in public universities.	Malaysia
Demchig (2015)	Theoretical	Organizational knowledge KM Maturity KM Capability	This paper studied KM capability and determined the current position of the KM maturity in Mongolian university.	Mongolia
Sunalai and Beyerlein (2015)	Theoretical	KM processes, influences	This study explored three KM themes	USA

		outcomes	KM processes, influences, and outcomes on performance in existing HEI studies.	
Trivella and Dimitrios (2015)	Empirical	KM strategy	This study explored the KM strategy and its importance in public universities although it is difficult to be implemented.	Greece
Ojo (2016)	Conceptual	KM Processes: Identification Storage Sharing Application Evaluation	This paper proposed a conceptual model to examine the concept of KM and its application in HEIs.	Nigeria
Masa'deh, Shannak, Maqableh and Tarhini (2017)	Empirical	KM process KM performance job performance	This study investigated the relationship between KM process, KM	Jordan

			performance and job performance	
Veer Ramjeawon and Rowley (2017)	Theoretical	KM processes Enablers Barriers	This study contributed to research on KM in HEIs by studying the enablers and barriers to KM	Mauritius

Appendix C

Summary of Theories Underlying KS

Theory	References	Definition
Agency Theory	Eisenhardt (1989), Jensen and Meckling (1976) and Ross (1973)	Agency theory is directed at the ubiquitous agency relationship, in which one party (the principal) delegates work to an-other (the agent), who performs that work. Agency theory attempts to describe this relationship using the metaphor of a contract.
Attribution Theory	Kelley (1967) and Kelley and Michela (1980)	Attribution theory proposes that the attributions people make about events and behavior can be classed as either internal or external. In an internal, people infer that an event or a person's behavior is due to personal factors such as traits, abilities, or feelings. In an external, people infer that a person's behavior is due to situational factors.
Knowledge-Based Theory of the Firm	Grant (1996)	Knowledge-Based Theory of the Firm (KBTF) considers knowledge as the most significant resource of a firm and its the main determinants of sustained competitive advantage and superior corporate performance.
Organizational Support Theory	Eisenberger, Cummings,	Organizational Support Theory suggest that employees form a general perception concerning

	Armeli and Lynch (1997) and Eisenberger, Huntington, Hutchison and Sowa (1986)	the degree to which the organization values their contributions and cares about their well-being.
Social Cognitive Theory	Bandura (1986) and Chen and Hung (2010)	A person's behavior is partially shaped and controlled by the influences of contextual factors and the person's cognition.
Social Exchange Theory	Cook and Emerson (1987) and Emerson (1976)	Social Exchange Theory explains human behavior in social exchanges where each party exchanges interest with each other to attain the most favorable outcomes and to maximize rewards and minimize costs.
Theory of Reasoned Action	Ajzen and Fishbein (1980) and Fishbein and Ajzen (1975)	Theory of Reasoned Action (TRA) is a social psychology model, which explained the intention behavior reasons. This theory represents the attitude and social norms influences the individual intention of KS behavior.
Theory of Planned Behavior	Ajzen (1985)	The basis of the theory was formed by Ajzen (1985) and guided by three kinds of considerations including the behavioral beliefs, normative beliefs, and control beliefs to predict

an individual's intention and their willingness to engage in a specific behavior.

Appendix D

Survey Instrument

Section 1: Demographics Information
Would you please take a moment and tell us about yourself?

D1: What is your gender?

1	**Female**	◯
2	**Male**	◯

D2: What is your age?

1	**2**	**3**	**4**	**5**	**6**	**7**
25 or under	**26 - 35**	**36 - 45**	**46 - 55**	**56 - 65**	**66 - 75**	**76 or Older**
◯	◯	◯	◯	◯	◯	◯

D3. What is your current Academics category?

1	**Professor**	◯
2	**Assistant Professor**	◯
3	**Lecturer**	◯
4	**Senior Lecturer**	◯
5	**Researcher Associate**	◯
6	**Teacher Assistant**	◯
7	**Other**	…….

D4. What is your total years of work experience as an academic in HEIs?

1	2	3	4	5	6	7	8	9
<1	1-5	6 -10	11-15	16-20	21-25	26-30	31-35	>35
⬭	⬭	⬭	⬭	⬭	⬭	⬭	⬭	⬭

Section 2: Willingness to Share Knowledge (WIL)

Please respond to the following statements from "1" to "5", with "1" indicating "Strongly Disagree" and "5" indicating "Strongly Agree."

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

WIL 1	I'm willing to collaborate and share my knowledge with other members of my university.	1 ⬭	2 ⬭	3 ⬭	4 ⬭	5 ⬭
WIL 2	I encourage people to attend seminars, events and conferences inside and outside the university.	1 ⬭	2 ⬭	3 ⬭	4 ⬭	5 ⬭
WIL 3	There is a willingness among academics to share their knowledge across my university's colleges and departments.	1 ⬭	2 ⬭	3 ⬭	4 ⬭	5 ⬭
WIL 4	The only type of knowledge I'm willing to share is my research information and teaching and learning resources.	1 ⬭	2 ⬭	3 ⬭	4 ⬭	5 ⬭
WIL 5	I'm willing to work together with other academics to accomplish the goal of our department	1 ⬭	2 ⬭	3 ⬭	4 ⬭	5 ⬭
WIL 6	I would welcome the opportunity to spend a significant time with another academic member of my university to learn from his/her	1 ⬭	2 ⬭	3 ⬭	4 ⬭	5 ⬭

	work.					
WIL 7	**Knowledge sharing with other colleagues in the department increases my willingness to work with others.**	**1**	**2**	**3**	**4**	**5**

In your own words, what is knowledge sharing? – or- How do you define knowledge sharing within the context of your work?

Section 3: Attitude Toward Knowledge Sharing (AT)

Please respond to the following statements from "1" to "5", with "1" indicating "Strongly Disagree" and "5" indicating "Strongly Agree."

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neither Agree or Disagree**	**Agree**	**Strongly Agree**

AT 1	**I do not enjoy sharing my knowledge.**	**1**	**2**	**3**	**4**	**5**
AT 2	**Sharing my knowledge with other university members is a valuable experience.**	**1**	**2**	**3**	**4**	**5**
AT 3	**Sharing my knowledge with other university members is a wise move.**	**1**	**2**	**3**	**4**	**5**
AT 4	**I share my knowledge in an appropriate and effective way.**	**1**	**2**	**3**	**4**	**5**

What is your point of view of sharing knowledge with members in your university?

Section 4: Expected Reward and Associations (ERA)

Please respond to the following statements from "1" to "5", with "1" indicating "Strongly Disagree" and "5" indicating "Strongly Agree."

1	2	3	4	5

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree

ER A1	**I am more likely to be considered for interesting and prestigious projects if I engage in knowledge sharing.**	**1**	**2**	**3**	**4**	**5**
ER A2	**I am more likely to be considered for internal promotions if I engage in knowledge sharing.**	**1**	**2**	**3**	**4**	**5**
ER A3	**I am more likely to be considered for higher positions if I share my knowledge to enhance the performance of my university.**	**1**	**2**	**3**	**4**	**5**
ER A4	**I am more likely to be given the opportunity to attend conferences and other events if I share my knowledge.**	**1**	**2**	**3**	**4**	**5**
ER A5	**My knowledge sharing activities would not improve my sense of self-worth.**	**1**	**2**	**3**	**4**	**5**
ER A6	**I receive monetary rewards in return for my knowledge sharing.**	**1**	**2**	**3**	**4**	**5**

What do you expect to gain by sharing your knowledge?

Section 5: Trust (T)

Please respond to the following statements from "1" to "5", with "1" indicating "Strongly Disagree" and "5" indicating "Strongly Agree."

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neither Agree or Disagree**	**Agree**	**Strongly Agree**

T1	**Academics in my university are**	**1**	**2**	**3**	**4**	**5**

	generally trustworthy.					
T2	**I have reciprocal faith in other members' intentions and behaviors.**	**1**	**2**	**3**	**4**	**5**
T3	**I have reciprocal faith in others' ability.**	**1**	**2**	**3**	**4**	**5**
T4	**I have reciprocal faith in others' behaviors to work toward the university goals.**	**1**	**2**	**3**	**4**	**5**
T5	**I have reciprocal faith in others' decision toward university interests than individual interests.**	**1**	**2**	**3**	**4**	**5**
T6	**My relationships with other academics at my university is based on mutual trust.**	**1**	**2**	**3**	**4**	**5**

What would increase your trust to share knowledge with others in your university?

Section 6: Expected Contribution (EC)

Please respond to the following statements from "1" to "5", with "1" indicating "Strongly Disagree" and "5" indicating "Strongly Agree."

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neither Agree or Disagree**	**Agree**	**Strongly Agree**

EC 1	**My knowledge sharing would not help others in the organization to solve problems.**	**1**	**2**	**3**	**4**	**5**
EC 2	**Sharing my knowledge would create new research opportunities with my colleagues.**	**1**	**2**	**3**	**4**	**5**
EC 3	**My knowledge sharing would improve work processes in the department in particular and the**	**1**	**2**	**3**	**4**	**5**

	university in general.					
EC 4	**My knowledge sharing would increase the productivity in the university.**	**1**	**2**	**3**	**4**	**5**
EC 5	**My knowledge sharing would help the university to achieve its performance objectives.**	**1**	**2**	**3**	**4**	**5**

Why would you contribute to share your knowledge with others in your university?

Section 7: Leadership (L)

Please respond to the following statements from "1" to "5", with "1" indicating "Strongly Disagree" and "5" indicating "Strongly Agree."

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neither Agree or Disagree**	**Agree**	**Strongly Agree**

L1	**Members of my department have a clear view of the direction of the university.**	**1**	**2**	**3**	**4**	**5**
L2	**The opinions of members of my department are not sought and valued by the senior management team.**	**1**	**2**	**3**	**4**	**5**
L3	**The senior management team holds a position of respect amongst members of my department.**	**1**	**2**	**3**	**4**	**5**
L4	**Objectives are given to me which are often unreasonable.**	**1**	**2**	**3**	**4**	**5**
L5	**I trust my manager's judgment to be sound.**	**1**	**2**	**3**	**4**	**5**
L6	**My manager shows favoritism towards specific persons.**	**1**	**2**	**3**	**4**	**5**

What types of knowledge do you share among your stakeholders within and outside of your institution (e.g., research ideas, research agendas, research reports, teaching strategies, patents, funded proposals, discipline expertise, organizational acumen, other?)

Section 8: Organizational Structure (OS)

Please respond to the following statements from "1" to "5", with "1" indicating "Strongly Disagree" and "5" indicating "Strongly Agree."

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neither Agree or Disagree**	**Agree**	**Strongly Agree**

OS 1	**The structure of this department promotes collective rather than individualistic behavior.**	1	2	3	4	5
OS 2	**The university designs processes to facilitate knowledge exchange across departmental boundaries.**	1	2	3	4	5
OS 3	**The university encourages people to go where they need for knowledge regardless of structure.**	1	2	3	4	5
OS 4	**The university's structure for sharing and exchanging knowledge isn't clear.**	1	2	3	4	5

What is your perspective of the university's structure about exchanging knowledge?

Section 9: Information Technology Platform (IT)

Please respond to the following statements from "1" to "5", with "1"

indicating "Strongly Disagree" and "5" indicating "Strongly Agree."

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neither Agree or Disagree**	**Agree**	**Strongly Agree**

IT1	**My university does not foster the development of information technology.**	**1**	**2**	**3**	**4**	**5**
IT2	**The university designs processes to facilitate knowledge exchange across departmental boundaries.**	**1**	**2**	**3**	**4**	**5**
IT3	**The information technology platform in my university links all academics together to exchange knowledge easily.**	**1**	**2**	**3**	**4**	**5**
IT4	**The information technology platform in my university are designed to be user friendly.**	**1**	**2**	**3**	**4**	**5**
IT5	**The difficulties of using the information technology platform in my university is preventing me from sharing my knowledge.**	**1**	**2**	**3**	**4**	**5**
IT6	**I need more training to be able to use the information technology platform effectively.**	**1**	**2**	**3**	**4**	**5**

57. **What types of technologies need to be implemented to encourage academics to share their knowledge in your university?**

Section 10: Organizational Culture (OC)

Please respond to the following statements from "1" to "5", with "1" indicating "Strongly Disagree" and "5" indicating "Strongly Agree."

1	2	3	4	5
Strongly Disagree	**Disagree**	**Neither Agree or Disagree**	**Agree**	**Strongly Agree**

OC 1	**My knowledge sharing would strengthen ties between existing academics and myself**	**1**	**2**	**3**	**4**	**5**
OC 2	**My knowledge sharing would get me well acquainted with new academics.**	**1**	**2**	**3**	**4**	**5**
OC 3	**My knowledge sharing would create strong relationship with other academics in my university.**	**1**	**2**	**3**	**4**	**5**
OC 4	**My college continuously encourages staff to bring new knowledge into this university.**	**1**	**2**	**3**	**4**	**5**
OC 5	**Sharing my knowledge would not result in colleagues sharing their knowledge with me.**	**1**	**2**	**3**	**4**	**5**
OC 6	**My knowledge sharing would create strong bonds with members who have common interests in the university.**	**1**	**2**	**3**	**4**	**5**

With whom do you share your knowledge and what barriers exist that keep you from sharing your knowledge?

_____

Appendix E

Survey Instrument Cover Letter

Dear Participant,

Thank you for taking the time to review and consider participating in my research survey.

I am a Ph.D. student in the College of Engineering and Computing (CEC) at Nova Southeastern University conducting research for my dissertation that will gain an understanding about knowledge sharing based on your perspective as an academic in higher education institutions in Saudi Arabia. The goal of my research is to explore what factors contribute to a person's willingness to share knowledge and develop a profile of the current knowledge sharing culture of academics within HEIs in Saudi Arabia. My doctoral supervisor for this study is Dr. Martha Snyder, an Associate Professor in the College of Engineering and Computing at Nova Southeastern University.

As a survey participant, your identity, as well as all survey responses, will be kept anonymous. Additionally, no personally identifiable information will be asked of, or collected from, a survey participant. Information provided in the survey will be completely anonymous, and you are welcome to opt-out from this survey at any time without penalties or ramifications.
The survey should take you about 10-15 minutes to complete, and please ensure that you hit the "Submit" button to record your participation in the survey. When survey execution and submission are complete, you will receive an on-screen acknowledgment.

Again, thank you for considering taking my survey and providing your feedback.

Sincerely,
Fahad Alsaadi
Ph.D. Student in Information Systems
College of Engineering and Computing
Nova Southeastern University

Appendix F

IRB Approval (NSU)

NOVA SOUTHEASTERN UNIVERSITY
Institutional Review Board

MEMORANDUM

To: **Fahad Alsaadi**

From: **Ling Wang, Ph.D.,**
Center Representative, Institutional Review Board

Date: **June 27, 2018**

Re: **IRB #: 2018-331; Title, "Knowledge Sharing Among Academics in Higher Education Institutions in Saudi Arabia"**

I have reviewed the above-referenced research protocol at the center level. Based on the information provided, I have determined that this study is exempt from further IRB review under **45 CFR 46.101(b) (Exempt 2: Interviews, surveys, focus groups, observations of public behavior, and other similar methodologies)**. You may proceed with your study as described to the IRB. As principal investigator, you must adhere to the following requirements:

1) CONSENT: If recruitment procedures include consent forms, they must be obtained in such a manner that they are clearly understood by the subjects and the process affords subjects the opportunity to ask questions, obtain detailed answers from those directly involved in the research, and have sufficient time to consider their participation after they have been provided this information. The subjects must be given a copy of the signed consent document, and a copy must be placed in a secure file separate from de-identified participant information. Record of informed consent must be retained for a minimum of three years from the conclusion of the study.

2) ADVERSE EVENTS/UNANTICIPATED PROBLEMS: The principal investigator is required to notify the IRB chair and me (954-262-5369 and Ling Wang, Ph.D., respectively) of any adverse reactions or unanticipated events that may develop as a result of this study. Reactions or events may include, but are not limited to, injury, depression as a result of participation in the study, life-threatening situation, death, or loss of confidentiality/anonymity of subject. Approval may be withdrawn if the problem is serious.

3) AMENDMENTS: Any changes in the study (e.g., procedures, number or types of subjects, consent forms, investigators, etc.) must be approved by the IRB prior to implementation. Please be advised that changes in a study may require further review depending on the nature of the change. Please contact me with any questions regarding amendments or changes to your study.

The NSU IRB is in compliance with the requirements for the protection of human subjects prescribed in Part 46 of Title 45 of the Code of Federal Regulations (45 CFR 46) revised June 18, 1991.

Cc: Marti Snyder, Ph.D.
Ling Wang, Ph.D.

Appendix G

Expert's Pilot Study Cover Letter

Expert's Pilot Study Survey

Knowledge Sharing (KS) Among Academics in Higher Education Institutions (HEIs) in Saudi Arabia

Dear Expert,

Thank you for taking the time to review and evaluate my research survey: Knowledge Sharing (KS) Among Academics in Higher Education Institutions (HEIs) in Saudi Arabia.

My name is Fahad Alsaadi, and I am a Ph.D. student in the College of Engineering and Computing (CEC) at Nova Southeastern University conducting research for my dissertation that will gain an understanding about knowledge sharing based on academic's perspective in higher education institutions in Saudi Arabia. The goal of my research is to explore what factors contribute to a person's willingness to share knowledge and develop a profile of the current knowledge sharing culture of academics within HEIs in Saudi Arabia. My doctoral supervisor for this study is Dr. Martha Snyder, an Associate Professor in the College of Engineering and Computing at Nova Southeastern University.

Based on your expertise you were identified as an expert who could provide an evaluation of my survey instrument. I am asking for your volunteer participation as a member of an expert panel for this research. Your participation is completely confidential, and the survey will take about 10 to 20 minutes to complete.

In this evaluation survey, you are asked to provide your expert opinion about the research survey directions and items You should have received an email with a link to the survey. If not, you may use this link: https://docs.google.com/forms/d/1nOF3_Gxo0L0yvMtK47_RbaxzK0fkntXBfJP-mw-461I/edit

Note:
Please answer the following seven questions after you have completed the "Knowledge Sharing (KS) Among Academics in Higher Education Institutions (HEIs) in Saudi Arabia" survey. Once you have answered these questions, please ensure that you hit the "Done" button to record your participation in the survey. Your input will help me ensure that the questions I'm asking are providing me with the information I'm seeking. If you have any comments or questions, feel free to contact me at fa373@mynsu.nova.edu.

Thank you again for taking the time to review and consider participating in this evaluation survey.

Sincerely,
Fahad Alsaadi
Ph.D. Student in Information Systems
College of Engineering and Computing
Nova Southeastern University

OK

Appendix H

Expert Pilot Test Instrument

Expert's Pilot Study Survey

Knowledge Sharing (KS) Among Academics in Higher Education Institutions (HEIs) in Saudi Arabia

Survey Questions:

1. Is the purpose of the study clear?

☐ Yes
☐ No
Comments:

2. Are the instructions clear?

☐ Yes
☐ No
Comments

3. Have any important questions been left out? (If yes, please add other questions that you think I should consider)

☐ Yes
☐ No
Comments:

4. Are any existing questions not relevant? (If yes, please note any irrelevant questions)

☐ Yes
☐ No
Comments:

5. Approximately how long did it take you to complete the survey?

- ☐ Less than 10 minutes
- ☐ 10-20 minutes
- ☐ 21-30 minutes
- ☐ 31 - 60 minutes
- ☐ over an hour

Comments:

6. Are there any questions that need to be reworded? (If yes, please identify question numbers and suggestions for re-wording)

- ☐ Yes
- ☐ No

Comments:

7. What additional suggestions, questions, and comments do you have about the survey?

DONE

Appendix I

Results of Both Skewness and Kurtosis Tests for all Variables

Survey Items	N		Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
	Valid	Missing				
WIL1	140	0	-2.763	.205	8.937	.407
WIL2	140	0	-1.760	.205	2.793	.407
WIL3	140	0	-.208	.205	-.451	.407
WIL4	140	0	.281	.205	-1.148	.407
WIL5	140	0	.156	.205	-1.234	.407
WILL6	140	0	-2.173	.205	5.460	.407
WIL7	140	0	-1.442	.205	2.397	.407
WIL8	140	0	-1.723	.205	3.303	.407
AT1	140	0	1.492	.205	.829	.407
AT2	140	0	-1.561	.205	3.216	.407
AT3	140	0	-1.752	.205	3.834	.407
AT4	140	0	-1.094	.205	1.433	.407
ERA1	140	0	-.694	.205	.198	.407
ERA2	140	0	-.474	.205	-.183	.407
ERA3	140	0	-.837	.205	.466	.407
ERA4	140	0	-.732	.205	-.383	.407
ERA5	140	0	.593	.205	-.732	.407
ERA6	140	0	.374	.205	-.882	.407
T1	140	0	-.580	.205	.014	.407
T2	140	0	-.457	.205	.118	.407
T3	140	0	-.452	.205	.330	.407
T4	140	0	-.405	.205	-.238	.407
T5	140	0	-.314	.205	-.571	.407
T6	140	0	-.504	.205	-.273	.407
EC1	140	0	.586	.205	-.600	.407
EC2	140	0	-.596	.205	-.382	.407
EC3	140	0	-1.205	.205	1.866	.407
EC4	140	0	-1.389	.205	2.656	.407
EC5	140	0	-1.201	.205	2.508	.407
L1	140	0	-.307	.205	-.372	.407
L2	140	0	-.123	.205	-.201	.407
L3	140	0	-.132	.205	-.114	.407
L4	140	0	-.058	.205	-.279	.407
L5	140	0	-.150	.205	-.809	.407
OS1	140	0	-.102	.205	.149	.407
OS2	140	0	-.474	.205	-.243	.407
OS3	140	0	-.255	.205	-.541	.407
OS4	140	0	-.226	.205	-.290	.407
IT1	140	0	.373	.205	-.381	.407

IT2	140	0	-.174	.205	-.213	.407
IT3	140	0	-.106	.205	-.574	.407
IT4	140	0	-.207	.205	-.322	.407
IT5	140	0	.131	.205	-.087	.407
IT6	140	0	-.186	.205	-.898	.407
OC1	140	0	-.873	.205	.843	.407
OC2	140	0	-.757	.205	.350	.407
OC3	140	0	-.943	.205	.628	.407
OC4	140	0	-.616	.205	-.523	.407
OC5	140	0	-.132	.205	-.799	.407
OC6	140	0	-.762	.205	.611	.407

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