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Knowledge Sharing in Multicultural Organizations

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This is to certify that the doctoral dissertation by

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Walden University
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Abstract

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MBA, Webster University, 2003

MA, Webster University, 1995

Dissertation Submitted in Partial Fulfillment

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Abstract

Knowledge management is critical to achieving competitive advantage in the marketplace. The prominence of multicultural organizations also requires an understanding of knowledge-sharing behavior in multicultural teams. In spite of the need to accommodate these new conditions, a gap exists in the research on knowledge sharing in multicultural organizations. The purpose of this study was to examine factors that affect knowledge sharing in a multicultural context. In the research questions I examined the role that culture, monetary rewards, social units, and diversity play in knowledge sharing in a multicultural environment. This study used Hofstede's cultural dimension theory, Sveiby's knowledge-based theory, and agency theory as the theoretical foundation. A cross-sectional survey design was used for data collection. Data were collected from line managers in multicultural organizations in the United Arab Emirates (n=79). Sampling consisted of a nonprobability sample using convenience sampling. Multiple regression and path analyses were used to analyze the data. Results of this study indicated a positive relationship between the combined effect of rewards, social units, and cultural diversity on knowledge sharing in a multicultural context. There was also a positive relationship between rewards and knowledge sharing. However, no statistically significant relationship between social units or cultural diversity and knowledge sharing was found. This study may promote positive social change by improving understanding of how knowledge is shared in multicultural teams and by contributing to better cross-cultural communication. This study may be useful to managers of multicultural teams who want to improve knowledge sharing in their teams.

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Chapter 1: Introduction to the Study

Introduction

In today's global market place, competitive advantage no longer comes exclusively from efficient methods of production and delivery; it also derives from leveraging knowledge (Fey & Furu, 2008). In this knowledge-based economy, every industry can be considered global, and every organization, knowledge-based. In a recent survey of business executives, 69% of respondents reported plans to use knowledge management (KM) as a tool for growth in the upcoming year (Rigby & Bilodeau, 2011). According to the knowledge-based view of the firm, knowledge-based assets create value, making KM a source of competitive advantage (Fey & Furu, 2008; Wang & Noe, 2010).

Workers form communities of practice (CoPs) in which they organically share knowledge (Krishnaveni & Sujatha, 2012; Marouf & Al-Attabi, 2010; Oye, Salleh, & Iahad, 2011); however, organizations can meet the need for knowledge and gain competitive advantage by enabling employees to share knowledge efficiently. Understanding what motivates and moderates effective knowledge sharing is critical to developing knowledge as a strategic resource.

This study examined the role of culture, social units (i.e., organizations that are part of the larger society), and rewards with knowledge sharing among managers in Dubai, United Arab Emirates (U.A.E.). Dubai is an important hub for international business. It also has a human resource shortage and therefore relies on expatriate

managers and workers to meet its human resource needs, creating a highly diverse workforce (Al-Esia & Skok, 2014). The findings from this study are useful to managers of multicultural teams and contribute to positive social change by improving our understanding of cross-cultural knowledge sharing and by aiding the development of knowledge-sharing tools that take into consideration the cultural makeup of a team.

Background

Knowledge sharing has been positively linked to improved firm performance (Jayasingam, Ansari, Ramayah, & Jantan, 2013; Kuzu & Özilhan, 2014; Sheng & Hartono, 2015; Singh & Power, 2014; Vij & Farooq, 2014; Wang & Wang, 2012). KM strategies that emphasize trust and management support and that increase confidence have been found to improve performance (Wang & Noe, 2010). However, few cross-cultural knowledge-sharing studies have been conducted to date, so multinational or multicultural organizations have no universal practices for knowledge sharing (Wang & Noe, 2010). Understanding how culture affects knowledge-sharing behavior in a multicultural context along with the effect of rewards and social units on this relationship is critical to improving performance in today's multicultural organizations.

Previous research has shown that the demographic diversity of groups can have a positive or negative effect on performance (Park Michael & Overby, 2012). Diversity can have a positive relationship to performance by bringing a broader range of knowledge and experience to the group. Other research has found that the relationship between diversity and group variables—such as communication, integration, and cooperation—is

negative and reduces performance because communication is more difficult (Park Michael & Overby, 2012).

In a global economy, KM involves cross-cultural management (Albescu, Pugna, & Paraschiv, 2009). The key task in this environment is to transfer knowledge across boundaries and through multicultural filters (Albescu et al., 2009). Indeed, according to Albescu et al. (2009), cross-cultural management will improve knowledge sharing in multinational organizations. Culture, therefore, can be a source of both organizational knowledge and core competence. However, knowledge sharing is not just a communication system; it is also about the people who use the system (Yaacob et al., 2011). Several psychological and behavioral issues influence these people and warrant critical consideration (Kettinger, Li, Davis, & Kettinger, 2015; Yaacob et al., 2011).

Previous research has also shown that national, cultural, and communication differences can cause problems that, in turn, influence knowledge sharing (Wei, 2010). Cultural differences can also lead to different ideas of logic and the perceived credibility of voluntarily sharing knowledge (Wei, 2010). Certain cultural values have also been found to effect knowledge-sharing motivations (Zhang, de Pablos, Xu, 2014).

One of the most popular methods of increasing knowledge sharing in organizations is through CoPs (Krishnaveni & Sujatha, 2012; Marouf & Al-Attabi, 2010; Oye et al., 2011). Liao and Xiong (2011) found that strong bonds among members of a CoP network promote sharing of implicit knowledge whereas weak ties promote sharing of explicit knowledge. Oye et al. (2011) also conducted a review of the critical literature

on knowledge sharing in the workplace and concluded that social ties are the key to knowledge sharing in CoPs. For example, employees in the same CoP only shared minimal information or none at all with other members of their CoP with whom they did not have strong social ties (Oye et al., 2011). These results demonstrate the social nature of knowledge.

To improve knowledge sharing, understanding what motivates members of a team or organization to share knowledge is crucial; however, the literature is not in harmony about what the knowledge-sharing motivators are. A research gap also exists in understanding knowledge sharing in a multicultural context. To redress this dearth, this research was conducted to study knowledge-sharing motivators in multicultural teams.

Problem Statement

Understanding what motivates members of a team or organization to share knowledge is essential to improving knowledge sharing (Lam & Lambermont-Ford, 2010). Existing research has identified several motivators, including national, cultural, and institutional factors; however, research findings in the field of knowledge management are inconclusive in regard to motivators to share knowledge. Not surprisingly, there is also a research gap on knowledge sharing in non-Western and multicultural contexts. Liu (2010) identified cultural dimensions that influence knowledge transfer and even proposed a theoretical framework for knowledge transfer based on cultural differences but did not present any data. Finestone and Snyman (2005) found that multiculturalism can benefit knowledge sharing when certain factors are

present; however, their study did not identify the cultural backgrounds of participants. Additionally, other studies have found no relationship between cultural diversity and knowledge sharing (Horak, 2010). This study fills the gap by examining the motivators of knowledge sharing in a multicultural team context in a non-Western country.

Purpose of the Study

The purpose of this quantitative study was to understand how knowledge is shared in organizations and, specifically, the role of rewards and social units in knowledge transfer in a multicultural context. In this study, I examined how knowledge is shared and sought to determine possible motivators and inhibitors of knowledge sharing in multicultural organizations in the U.A.E.

Research Questions and Hypotheses

This study explored the relationship and impact of monetary rewards, social units, and cultural diversity on knowledge sharing in multicultural teams. The following multiple regression model was used to describe the relationship between the dependent variable (knowledge sharing, represented by y) and each independent variable (monetary rewards, social units, and cultural diversity represented by x_i) while controlling for the effect of the others:

$$y = b0 + b1*x1 + b2*x2 + b3*x3 + e;$$

where b = regression weights to minimize the sum of squared deviations and e = the residual error. The following research questions and hypotheses were developed to determine if there is a relationship between the variables:

1. What is the nature of the relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams?

    $H_1$1: There is a positive relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams.

    $H_0$1: There is no relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multinational teams.

2. What is the nature of the relationship between managers' membership in social units outside the organization such as families, religions, or clubs and their knowledge-sharing behavior?

    $H_1$2: There is a positive relationship between managers' membership in social units and knowledge sharing with fellow members.

    $H_0$2: There is no relationship between managers' membership in social units and knowledge sharing.

3. Does greater cultural diversity promote knowledge-sharing behavior?

    $H_1$3: There is a positive relationship between the cultural diversity of the organization and knowledge sharing.

    $H_0$3: There is no relationship between the cultural diversity of the organization and knowledge sharing.

Theoretical Foundation

The literature conceptualizes knowledge as simple or complex, tacit or explicit (or both), and independent or systemic. The type of knowledge affects the amount of information required to describe it and the effort required to transfer it. Tacit, complex, and systemic knowledge is the most difficult to transfer (Liu, 2010).

In addition to the type of knowledge, national culture plays a role in determining the efficacy of knowledge transfer within organizations. Liu (2010) has explicated four dimensions of culture believed to influence knowledge sharing: power distance, individualism/collectivism, uncertainty avoidance, and masculinity/femininity. Because national culture serves as the context for knowledge sharing, researchers must achieve greater understanding of how culture affects knowledge sharing in organizations with members from multiple national cultures.

In addition to cultural dimension, the theories I used to explore KM in multicultural organizations were the knowledge-based view theory and agency theory. According to the knowledge-based view of the firm, value is created from intangible or knowledge-based assets (Fey & Furu, 2008; Sveiby, 2001) and increases each time knowledge is transferred (Sveiby, 2001). This knowledge creation and sharing then leads to new products and services, which improve the firm's market position and form a basis for organizational change (Fey & Furu, 2008). This ability to transfer knowledge can also create competitive advantage and sustain superior performance (Albescu et al., 2009; Almahamid, Awwad, & McAdams, 2010; Sheng & Hartono, 2015; Yaacob et al., 2011).

Management should therefore focus on creating knowledge and sharing it within the organization.

Agency theory can explain how compensation systems for managers are used to align the interests of the manager with those of the organization. Agency theory focuses on how contracts can be written between parties in conflict to achieve an objective (Fey & Furu, 2008). Because people are self-interested, they inevitably have conflicts of interest. More broadly applied, agency theory can be used to understand any principle-agent relationship. This study focused on CEOs as the principals and the first-level managers as the agents. According to agency theory, agents are rational actors motivated by their own self-interest. As applied to my study, this theory holds that I would expect compensation, as one of my independent variables, to influence or explain the dependent variable of knowledge sharing.

Nature of the Study

This study used a quantitative research method with cross-sectional design. Used in social sciences survey research, the cross-sectional design surveys a random sample and identifies patterns between variables (Frankfort-Nachmias & Nachmias, 2008). Based on this design, a survey was completed by single respondents at a single point in time. This method represents the most common form of empirical research in the social sciences (Rindfleisch, Malter, Ganesan, & Moorman, 2008).

The independent variables for this study were monetary rewards, membership in social units, and cultural diversity. The dependent variable was knowledge sharing. A

survey instrument was prepared with questions for each of the research variables, as shown in Figure 1. The instrument contained five questions for three of the variables and six questions for one of the variables, in addition to demographic information. A 5-point Likert scale was used to determine the degree to which participants agreed with the questions. (See Appendix A for a copy of the survey instrument.) The survey instrument was used to collect data from first-level managers in Dubai, U.A.E. Data were analyzed using descriptive statistics to represent the demographics and research variables. Multiple regression was conducted to assess if the independent variables predicted the dependent variable. Chapter 3 contains a detailed discussion of the study methodology.

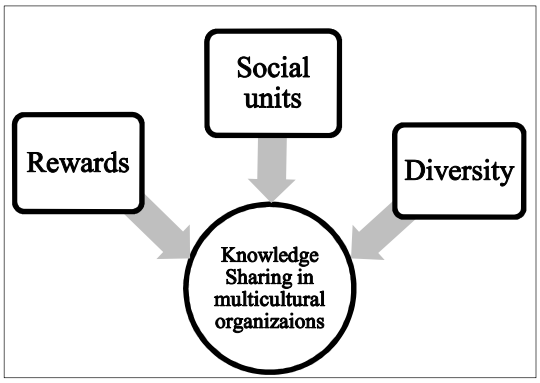

Figure 1. Research variables.

Definitions

Definitions of Terms

Knowledge management: the creation and transfer of knowledge with the goal of turning individual knowledge into organizational knowledge.

Knowledge sharing: communicating knowledge or understanding with the expectation of gaining more insight or understanding (Sohail & Daud, 2009).

Multicultural organization: an organization that values the differences of all group members and seeks their inclusion and participation. By building a multicultural organization, leaders can manage and leverage a diverse workforce (Amaram, 2011).

Operational Definitions of Variables

Cultural diversity: the differences among groups of people with definable cultural backgrounds and different worldviews and beliefs that may affect communication (Sheu & Sedlacek, 2004).

Knowledge sharing: a phenomenon that occurs when individuals communicate information relevant to the organization—such as ideas, expertise, and suggestions—with one another. Knowledge shared may be explicit or tacit (Bartol & Srivastava, 2002). This project measured knowledge sharing by the extent of knowledge flow among first-level managers within their firms.

Monetary rewards: money that is paid as an incentive for behavior or for attaining goals; reward may be paid at individual, group, or organizational level (Doverspike, 2007).

Social units: for this study, social units were defined as groups, families, or organizations to which individuals belong.

Assumptions

This study assumed that knowledge sharing is desirable for organizational health and serves as a source of competitive advantage (Fey & Furu, 2008; Wang & Noe, 2010). However, the nature of the relationship between knowledge sharing and motivating and demotivating factors in multicultural organizations is not known.

It was also assumed that managers would be available for the survey and would complete the survey questionnaire themselves with at least a 50% return rate. I also assumed that the survey instrument was reliable and valid and that respondents would answer honestly. To ensure honesty, participation was voluntary, and anonymity and confidentiality were protected.

Scope and Delimitations

This study examined KM among managers who worked in multicultural organizations in the U.A.E. to understand how culture affects knowledge sharing. The delimitations of the study identified the boundaries and constraints to the scope of the study and impacted the external validity and generalizability of the results (Ellis & Levy, 2009). This study's first delimitation was its focus on first-level managers working in Dubai, U.A.E. Generalization to other managers or other countries may not be warranted. U.A.E. was chosen as the location because of the diversity of managers working in the country and the abundance of multinational organizations.

Limitations

A limitation of this study was common method bias due to self-reporting from managers in a single survey. Due to the apparent correlation among variables from the same source, self-reporting questionnaires that collect data at one time from the same participants create a false internal consistency. These false correlations occur because participants tend to provide consistent answers to questions that are not related, causing systematic measurement errors. Two procedures can be undertaken to compensate for these limitations: one is in the research design (i.e., mixing the order of the questions and using different scales); the other may take place after the research has been conducted (i.e., post hoc Harman one-factor analysis to determine if variance in data can be mostly attributed to a single factor). However, in international business research, common methods cannot always be avoided because some parts of the world—such as the Middle East—have been understudied, and data are scarce.

Another limitation was possible participation bias due to the web-based nature of the survey. Web-based surveys may introduce bias due to low and selective participation (Heiervang & Goodman, 2011). Participation bias may reflect different degrees of literacy and Internet access, immigration from developing countries, or concerns about privacy and security (Coughlan, Cronin, & Ryan, 2009). Language proficiency may also affect participation due to the complexity of terms or sentences. Interviewers in face-to-face interviews can overcome this limitation by rephrasing and giving explanations. My survey overcame this limitation by providing instructions and definitions with the

instrument. Respondents were also able to skip sections and complete the survey in any order they chose. Notably, however, the ease of skipping sections may have increased the likelihood that surveys would be incomplete. Heiervang and Goodman (2011) compared the results of in-person and online surveys for selective participation bias and found that the strength of association was reduced in only four of 18 sets of factors. This finding suggests that cross-sectional studies using web-based surveys are useful for testing causal hypotheses (Heiervang & Goodman, 2011). Participation bias was also reduced through personal contact by telephone with participants who did not respond to the email survey and for whom email addresses were not available.

Another limitation of the study was the possibility of individual or item nonresponses. Individual or item nonresponses can lead to nonresponse errors (Coughlan et al., 2009). Low individual response rates can lead to response errors, which result in responses not representing the population. Item nonresponse errors occur when questions are not answered (Coughlan et al., 2009). These limitations can be overcome with techniques to increase responses and by weighting the survey to compensate for nonresponses (Porter, 2004). Techniques to decrease nonresponse rates include multiple contacts with participants, personalized contact, and incentives. Techniques to reduce item nonresponse rates include short questionnaires and clear survey items (Porter, 2004). This study used all of these techniques to decrease the nonresponse rate.

Significance and Social Change Implications

This study has implications for effecting positive social change at the societal, organizational, and team level in increasing understanding of how knowledge is shared by people from different cultures and in contributing to better cross-cultural communication in organizations.

Due to both the importance of KM to achieving competitive advantage and the prominence of multicultural organizations in the global marketplace, managers must understand how knowledge is shared within their multicultural teams. Managers of multicultural teams will be able to use this study to improve knowledge sharing in their teams. In gaining a better understanding of knowledge-sharing behaviors and factors that influence knowledge sharing, managers will be able to achieve more effective KM.

Summary

In Chapter 1 I introduced this study, which sought to examine how knowledge was shared in multicultural organizations. KM is a source of competitive advantage; however, to gain the most from this resource, knowledge must be shared. The motivators and demotivators of knowledge sharing have previously been studied. Nonetheless, a lack of information on how cultural backgrounds in a diverse workforce affect knowledge sharing remains. In today's global economy in which multicultural organizations are increasingly common, managers can benefit from gaining a better understanding of the role of culture and diversity in knowledge sharing. This study examined how culture, diversity, rewards, and social units affect knowledge sharing in a multicultural context.

In Chapter 2 of the study I review the literature on KM and on the role of culture, diversity, rewards, and social units in knowledge sharing. Chapter 2 also includes a review of the theories used in the study. In Chapter 3 I cover the research approach and design for the study. In Chapter 4 I present the data and discuss the results of the analysis. In Chapter 5 I discuss the findings, conclusions, and recommendations of the study.

Chapter 2: Literature Review

Introduction

Knowledge management (KM) is the creation, collection, documentation, application, and transfer of knowledge (Sohail & Daud, 2009). KM depends on motivators for knowledge sharing (Oye et al., 2011). To improve knowledge sharing, understanding what motivates members of a team or organization to share knowledge is essential (Bartol & Srivastava, 2002; Oye et al., 2011). Oye et al. (2011) identified age of employees, national and organizational culture, and industry as some of the factors affecting knowledge sharing. Argote, McEvily, and Reagans (2003) found that successful KM also depends on ability, motivation, and opportunity, and they determined that incentives and rewards—including social rewards—served as important motivation for KM. Indeed, social rewards were found to be as strong a motivator as monetary rewards. Fey and Furu (2008) also found a link between incentive pay for top managers based on collective performance of the organization and increased knowledge sharing. However, Bock and Kim (2002) studied knowledge-sharing behavior and found that rewards were not significantly related to knowledge sharing—a finding that is consistent with other research that has found no relationship between pay and performance (Kumar & Rose, 2012; Rahman, 2011; Seba, Rowley, & Lambert, 2012).

Culture has also been found to influence knowledge sharing. Liu (2010) studied the influence of different cultural dimensions on knowledge transfer and theorized that the cultural background of managers affected their role in interorganizational knowledge

transfers. According to Finestone and Snyman (2005), multiculturalism benefits knowledge sharing if a culture of trust, understanding, support, and openness is present, and if management actively encourages knowledge sharing. Al-Esia and Skok (2014) also found that the Arab culture was detrimential to knowledge sharing when sharing knowledge with non-Arabs. However, all of these studies were conducted in one country or with one industry or the teams were not culturally diverse. In this chapter I will discuss the strategy used for the literature search and review the current literature, including literature on the theoretical foundation for the study, and I will also provide a literature-based description of the research variables.

Literature Search Strategy

The literature review for this study was primarily conducted in three domains: knowledge sharing, multicultural management, and their intersection. Electronic databases, chiefly Business Source Complete, Academic Source Complete, and JSTOR Arts & Sciences, were the main sources of the search. Keywords used in the search on knowledge sharing included *knowledge management, knowledge sharing, knowledge-based view, agency theory*, and *monetary rewards*. The terms *cultural diversity, multicultural management,* and *social units* were used for the search on multicultural management. A total of 234 peer-reviewed journal articles and one book were found relevant and used in this literature review.

Knowledge sharing is a domain first researched in the field of management and business. Nine management and business journals accounted for about 14% of the 234

articles related to knowledge sharing. The next three most referenced journals were *Social Behavior and Personality, Knowledge Management & E Learning*, and *Library Review*. From the list of journals referenced, knowledge sharing was found across many disciplines, including finance, economics, social science, leadership, and organizational behavior. This review revealed references to knowledge sharing across many fields, which indicated that having a better understanding of knowledge sharing could have wide influence and application, creating a significant positive social impact. As revealed in the search of databases, knowledge sharing was particularly relevant in the field of management, and many studies were found in journals such as Strategic Management Journal, Interdisciplinary Journal of Contemporary Research in Business, International Business Review, and the Journal of Leadership and Organizational Studies. The number of international journals reveals the global interest in the subject.

Of the 234 referenced literature sources, 200, or 85%, were published within the past five years, from 2011 to 2015. Table 1 shows a summary of literature reviewed for this chapter by publication year.

Table 1

Details of Literature Reviewed by Year of Publication

Publication type	Older than 5 years	2011	2012	2013	2014	2015	Total
Peer-reviewed articles	34	44	37	30	66	23	234
Non-peer-reviewed articles							0
Books	1						1
Web pages							0
Totals	35	44	37	30	66	23	235

Additionally, the entire paper contains a total 287 references, 274 (95%) of which are peer-reviewed articles, 11 are books, and two are websites. Of the total peer-reviewed articles used in the study, 225 (82%) were published in the last five years (2011-2015).

Review of Related Research and Literature

Knowledge is a crucial driver in the new global knowledge-based economy. Knowledge management (KM) consists of acquiring, transferring, creating, and applying knowledge (Sohail & Daud, 2009). This knowledge can be based upon experiences, events, or an understanding of anything in general. People share knowledge with the expectation of gaining insight or understanding about something or to satisfy curiosity (Sohail & Daud, 2009). Sharing different types of knowledge is necessary to transforming individual knowledge into organizational knowledge. Understanding the processes involved and the important role of cultural context will help managers of multicultural organizations make their transfer efforts more effective.

Knowledge can be classified as *tacit* or *explicit*. Tacit knowledge is intuitional and unarticulated mental models whose transferal requires face-to-face interaction. This transmission can occur through socialization, observation, and apprenticeship. Alternately, explicit knowledge is articulated information and may be transferred verbally or electronically (Bartol & Srivastava, 2002; Sohail & Daud, 2009). Explicit knowledge is often impersonal, formal, and easily articulated and shared. Tacit knowledge, on the other hand, is personal, often undocumented, and difficult to share (Holste & Fields, 2010). In a study of knowledge sharing at a power plant construction project in Africa, Ravu and Parker (2015) found that the type of knowledge impacted knowledge transfer between local employees and expatriates. In this study, locals were likely to transfer explicit knowledge to expatriates but there was little sharing of tacit knowledge between either group. Ravu and Parker (2015) observed that locals did not share knowledge because they did not have confidence in the competence of the expatriates; further, expatriates did not share knowledge because they considered the locals to be unskilled and inept. Xu, Hsieh, and Wei (2014) also found that when team members had dissimilar expertise, they were more creative when they shared more tacit knowledge, and when they had similar expertise, they were more creative when they shared more explicit knowledge.

Both tacit and explicit knowledge sharing can contribute to organizational performance by creating a competitive advantage. Knowledge sharing has been found to explain .43 of the variance (R Square) in an organization's competitive advantage

(Almahamid et al., 2010). In knowledge-based organizations, to gain the most from intellectual capital, employees must share knowledge to compete in the global market. Knowledge sharing occurs when individuals exchange relevant information, ideas, suggestions, and expertise (Bartol & Srivastava, 2002), and requires careful transmission by the sender and careful absorption by the receiver to be effective (Sohail & Daud, 2009). The literature shows that motivators and demotivators influence this sharing.

Motivators and demotivators—like age, culture, and industry—have all been found to influence knowledge sharing (Oye et al., 2011). Oye et al. (2011) also identified *intrinsic* and *extrinsic motivators* and *demotivators* to share knowledge. Intrinsic motivators included a sharing nature in the organization, job security, professionalism, and social ties. Intrinsic demotivators consisted of protecting one's "edge," job security, personal ties, and personal animosity. Extrinsic motivators included mutual benefit and performance review. Extrinsic demotivators included knowledge that is not accepted or comprehended, harm to one's self or others, confidentiality, lack of a sharing culture, and wanting to make others discover knowledge themselves (Oye et al., 2011). This finding is consistent with research that has found both intrinsic and extrinsic factors affecting knowledge sharing, with intrinsic factors having the strongest relationship (Jeon, Kim, & Koh, 2011a; Salim, Javed, Sharif, & Riaz, 2011; Tan & Ramayah, 2014; Tangaraja, Mohd Rasdi, Ismail, & Abu Samah, 2015; Wang & Hou, 2015). Chou, Lin, Lu, Chang, and Chou (2014) also found that intrinsic motivation had a significant positive effect on knowledge sharing; however, contrary to other research, they found the relationship

between extrinsic motivation and knowledge sharing to be insignificant in Taiwanese companies.

Minbaeva, Makela, and Rabbiosi (2012) studied how intrinsic and extrinsic motivation affected knowledge sharing in multinational corporations in Denmark. They found that extrinsic motivation directly influenced knowledge exchange and intrinsic motivation significantly positively influenced knowledge exchange across group boundaries. Wang and Hou (2015) also learned that both intrinsic and extrinsic rewards positively influenced knowledge sharing. Understanding these motivational factors is critical to influencing individuals to engage in knowledge sharing.

Demographic characteristics such as age, gender, and education have all been found to be both motivators and demotivators to knowledge sharing. However, Dulayami and Robinson (2015) found that in Saudi Arabian companies these characteristics had no significant effect on knowledge-sharing behavior. On the other hand, Lwoga (2011) found that genderwas an important determinant to knowledge sharing among natives in Tanzania. Boateng, Dzandu, and Agyemang (2015) found gender to be a significant factor in knowledge sharing also in Ghana. Additionally, Maina (2012) found that age was a significant factor among natives in Canada, and Sanaei, Javernick-Will, and Chinowsky (2013) found that generational attributes influenced knowledge-sharing connections in American engineering and construction firms. This finding may suggest that demographics are not as important to knowledge sharing in the context of more developed nations in the post-Internet world or that there are other factors at play. Worth

noting is that the survey sample in Saudi Arabia had a highly skewed representation of men and younger employees (Dulayami & Robinson, 2015).

Some research has shown that the attitudes of immediate supervisors and employees were also primary contributors to successful knowledge sharing, as were organizational culture and work group support (Buch, Dysvik, Kuvass, & Nerstad, 2014; Lavanya, 2012; Mueller, 2015; Pool, Asadi, Forte, & Ansari, 2014; Tong, Tak, & Wong, 2013; Chin Wei, Siong Choy, Geok Chew, & Yee Yen, 2012). Other studies have found that learning from experience, organizational structure, leadership, trust, rewards and recognition, technology process, human resources policies, communication, and networks all contributed to successful knowledge sharing (Ahmadi & Eskandari, 2011; Al-Adaileh, 2011; Cai, Goh, de Souza, & Li, 2013; Holste & Fields, 2010; Hsu & Chang, 2014; Littlejohn, Milligan, & Margaryan, 2011; Liu & Fang, 2010; Seba et al., 2012; Sohail & Daud, 2009; Solli-Sæther & Karlsen, 2014; Teimouri, Emami, & Hamidipour, 2011; Yeo & Gold, 2014; Yong Woon; 2014). In a study of employees in paint companies in Iran, Negahdari and Sobhani (2014) also found a positive relationship between knowledge sharing and innovation and support mechanisms.

The organizational culture traits of involvement, consistency, adaptability, and mission have all been found to be predictors of knowledge-sharing behavior in small and medium-sized organizations (Pool et al., 2014). This finding would indicate that developing these traits would improve the organizational culture with regard to knowledge sharing (Pool et al. 2014). Ferreira Peralta and Francisca Saldanha (2014) also

found that a knowledge-centered culture promoted knowledge sharing when individuals had high levels of trust propensity, but not when they had low levels. However, Ferreira Peralta and Francisca Saldanha (2014) found that a knowledge-sharing culture was insufficient to promote knowledge sharing if a low propensity to trust was present.

In a study of knowledge sharing in a private mining company in Jordon, Al-Adaileh (2011) found that the four cultural factors of trust, collaborative working environment, shared vision, and managerial practices accounted for 59.6% of the variance in knowledge sharing. Additionally, a study of knowledge sharing in Saudi Arabia found a negative relationship between trust and knowledge sharing but a positive relationship between collaborative climate, management support, openness, and rewards and knowledge sharing (Yeo & Gold, 2014). These studies are significant because of the lack of literature concerning knowledge sharing in Arab countries.

Holste and Fields (2010) found that both affect-based and cognition-based trust were associated with employees' willingness to share and use tacit knowledge. However, in a survey of Chinese organizations, Huang, Davison, and Gu (2011) found that affect-based trust had a significant effect on both tacit and explicit knowledge but cognition-based trust had no significant effect on either. This finding suggests that personal relationships, although important, are not enough to predict knowledge sharing alone; there must also be confidence that the knowledge will be used. However, Holste and Fields (2010) did not measure ethnicity, so how different cultural backgrounds may have influenced results is not known.

Chang, Huang, Chiang, Hsu, and Chang (2012) found that trust and shared vision had a significant effect on knowledge sharing among nurses in Taiwan. Park and Lee (2014) also discovered a positive relationship between trust and knowledge sharing on project teams in IT firms. As they concluded, this relationship was influenced by the frequency of communication, the similarity of perceptions of the project's value, and perceived expertise of the individuals (Park & Lee, 2014). This conclusion is consistent with findings by Rusly, Yih-Tong Sun, and Corner (2014) that individual expertise determines individual readiness to share knowledge.

Theoretical Foundation

The literature conceptualizes knowledge as *simple* or *complex*, *tacit* or *explicit* (or both), and *independent* or *systemic*. The type of knowledge affects the amount of information required to describe it and the effort required to transfer it. According to the literature, tacit, complex, and systemic knowledge is the most difficult to transfer (Liu, 2010).

In addition to the type of knowledge, national culture is believed to play a role in determining the efficacy of knowledge transfer within organizations. Four dimensions of culture are believed to influence knowledge sharing; they are: power distance, individualism/collectivism, uncertainty avoidance, and masculinity/femininity (Liu, 2010). Because national culture functions as the context for knowledge sharing, greater understanding is needed of how culture affects knowledge sharing in organizations with members from multiple national cultures.

In addition to using the lens of cultural dimension, I explored knowledge management in multicultural organizations through the knowledge-based view and agency theory. According to the knowledge-based view of the firm, intangible or knowledge-based assets create value (Fey & Furu, 2008). According to Fey and Furu (2008), "By intensifying and expanding new knowledge creation and sharing, not only can a company develop new tangible products and services that improve its market position, but it can also form the basis for organizational change and renewal" (p. 1302). This ability to transfer knowledge has also been shown to produce competitive advantage and sustain superior performance (Almahamid et al., 2010). The focus of management should, therefore, be on creating and sharing knowledge within the organization.

Agency Theory

Agency theory has been used to study how compensation systems for managers are used to align the interests of the manager with those of the organization (Fey & Furu, 2008). Agency theory focuses on how contracts can be written between parties in conflict to achieve an objective. Employment contracts and human resource practices have been positively linked to knowledge-sharing behavior (Camelo-Ordaz, Garcia-Cruz, Sousa-Ginel, & Valle-Cabrera, 2011; Koriat & Gelbard, 2014; Yong Woon, 2014), and because people are self-interested, they will have conflicts of interests. More broadly applied, agency theory can be used to understand any principal-agent relationship.

The current focused on the CEOs as the principals and the first-level managers as the agents. According to agency theory, agents are rational actors motivated by their own

self-interest. As applied to my study, this theory holds that I should have expected compensation—as one of my independent variables—to influence or explain the dependent variable of knowledge sharing.

Social Exchange Theory

Social exchange theory proposes that behavior involves the maximization of benefit and minimization of cost (Hung, Durcikova, Lai, & Lin, 2011). According to social exchange theory, reciprocity is based on a history of exchanges occurring over time, and positive benefit is not necessarily reciprocated immediately (Bartol, Liu, Zeng, & Wu, 2009). Reciprocity has been positively linked to knowledge sharing (Khalil, Atieh, Mohammad, & Bagdadlian, 2014; Lee & Hong, 2014). However, individuals will share knowledge based on an expectation of future rewards and only when they trust that their dealings with others will not cost them (Okyere-Kwakye & Nor, 2011). Benefit factors may be either extrinsic or intrinsic benefits (Hung et al., 2011). In the context of this study, the extrinsic benefit was rewards for sharing knowledge.

Tsai and Cheng (2012) used social exchange theory, combined with social cognitive theory, to study knowledge sharing among IT professionals in Taiwan. They found that building organizational trust was the main determinant of knowledge sharing, and that trust and commitment fostered organizational commitment, which helped build individual knowledge-sharing self-efficacy and positively affected intentions to share knowledge (Tsai & Cheng, 2012).

Bartol et al. (2009) also used social exchange theory as a theoretical basis for identifying perceived job security as having a moderating effect on knowledge sharing; the association between perceived organizational support and knowledge sharing was significant only with employees with high-perceived job security. This finding is consistent with theories that propose that limited investment by employers leads to lower contributions from workers (Bartol et al., 2009), and other research that has found that perceived organizational support had a positive mediating effect on knowledge-sharing behavior (Muneer, Javed Iqbal, Khan, & Choi Sang, 2014; Yen, Mohd, Yee, & Boon, 2013). However, Swift and Virick (2013) did not find a significant relationship between perceived organizational support and knowledge sharing.

Abzari, Barzaki, and Abbasi (2011) used social exchange theory as a theoretical base to test the effect of perceived reputation on attitudes toward knowledge sharing. In a survey of bank employees in the state of Fars, Iran, they found that a higher level of perceived reputation enhancement contributed to positive employee attitudes toward knowledge sharing (Abzari et al., 2011). Selmer, Jonasson, and Lauring (2014) also used social exchange theory to test the relationship between knowledge sharing and faculty engagement at multicultural universities in Denmark and found strong positive associations with all indicators studied. These findings suggest that social exchange theory could be useful for predicting knowledge-sharing behavior in other multicultural contexts.

Leader-member exchange (LMX) has been positively linked to knowledge sharing (Farzaneh Hassanzadeh, 2014; Hu, Ou, Chiou, & Lin, 2012; Li, Shang, Liu, & Xi, 2014; Taoyong, Zeming, Xinghui, & Tingting, 2013; Whisnant & Khasawneh, 2014). In LMX research based on social exchange theory, Hu et al. (2012) found that high-quality LMX relationships and team-member exchange (TMX) relationships served as a conduit for better knowledge sharing in the service industry in Taiwan. They also found that these relationships moderated employees' willingness to share knowledge (Hu et al., 2012). LMX has also been found to be a mediator for knowledge sharing (Farzaneh Hassanzadeh, 2014; Li et al., 2014) and to create a high level of tacit knowledge sharing (Whisnant & Khasawneh, 2014). These findings are consistent with research that suggests that trust is important to knowledge sharing and the social exchange relationship (Connelly, Zweig, Webster, & Trougakos, 2012; Evans, 2013; Hussein & Nassuora, 2011; Muneer et al., 2014; Seba et al., 2012). However, knowledge-sharing system quality and incentives to share knowledge are also important to reinforcing social exchanges (Ho & Kuo, 2013).

Knowledge-Based View of the Firm

According to the knowledge-based view of the firm, firms obtain sustainable competitive advantage through their ability to create and use knowledge (Zheng, Yang, & McLean, 2010). It views organizations as knowing communities of practice that foster learning by focusing on the social and collective dimension of learning (Lam & Lambermont-Ford, 2010). Furthermore, this theory assumes that individuals are

benevolent and will voluntarily give up knowledge without reward (Lam & Lambermont-Ford, 2010).

Mueller (2015) found that certain organizational cultural characteristics that stimulate informal knowledge-sharing practices increase knowledge-sharing behavior. Several studies have also found a significant positive relationship between organizational learning and knowledge-sharing behavior (Abu-Shanab, Knight, & Haddad, 2014; Dulayami & Robinson, 2015; Islam, Jasimuddin, & Hasan, 2015; Jo & Joo, 2011; Moon & Lee, 2013; Saghari, Gilanipour, & Cherati, 2013).

Organizational citizenship behavior has been found to be positively and significantly related to knowledge sharing (Ramasamy & Thamaraiselvan, 2011; Teh & Yong, 2011; Xu, Li, & Shao, 2012). Jo and Joo (2011) also found that organizational citizenship mediates the relationship between organizational commitment and intention to share knowledge. This discovery is consistent with findings by Teh and Sun (2012), who found that organizational citizenship behavior is positively related to knowledge sharing in Malaysia. However, they also found that organizational commitment has a negative effect on knowledge-sharing behavior (Teh & Sun, 2012). Gupta, Agarwal, Samaria, Sarda, and Bucha (2012) also found that organizational commitment did not have a significant influence on knowledge-sharing behavior.

Using the knowledge-based view of the firm as a theoretical foundation, Zheng et al. (2010) also found that knowledge management mediates the influence of organizational culture on organizational effectiveness. This finding suggests that how

well knowledge is managed is determined by how well organizational cultural values are converted into value to the organization (Zheng et al., 2010). According to Zheng et al. (2010), this result could be because culture determines why and how knowledge is generated and shared. This finding is consistent with findings by Tong et al. (2013), who found that knowledge sharing plays a mediating role between organizational culture and job satisfaction and with findings by others who found that the type of organizational culture can effect knowledge sharing (Cavaliere & Lombardi, 2015; Islam et al., 2015; Ling, 2011; Wiewiora, Murphy, Trigunarsyah, & Brown, 2014). Zhang and Wang (2013) also observed that knowledge sharing mediates the relationship between process orientation degree and organizational culture and successful knowledge management.

Knowledge sharing has also been found to moderate the effect of job satisfaction and workplace friendship on innovation (Kuo, Kuo, & Ho, 2014). In a study of knowledge sharing in the oil and gas sector in the U.A.E., Suliman and Al-Hosani (2014) also found a positive relationship between job satisfaction and knowledge-sharing behavior. However, Michailova and Minbaeva (2012) found that organizational values did not influence knowledge sharing per se but by the degree that values were internalized by members of the organization.

Regnér and Zander (2011) extended the knowledge-based view to suggest that a multitude of diverse social-identity frames in multinational corporations creates new knowledge. Temporary tension in these diverse subgroups creates knowledge that is then transferred by a common corporate social identity. Multinational corporations are,

therefore, particularly well-suited for knowledge creation in comparison to local companies because they have different social-identity frames that provide sustainable competitive advantage (Regnér & Zander, 2011).

Determinants of Knowledge Sharing

The literature identifies several determinants of knowledge sharing. Gross and Kluge (2014) found that intention, organizational communication, and social ties all positively affected knowledge-sharing behavior. Ramayah, Yeap, and Ignatius (2014) also learned that contributions, organizational communications, personal interaction, and CoPs all predicted both tacit and explicit knowledge sharing. Cyril Eze, Guan Gan Goh, Yih Goh, and Ling Tan (2013) found that knowledge technology, motivation, empowering leadership, trust, and rewards positively affected knowledge sharing. In a study of knowledge sharing among academicians in Malaysia, Ramayah, Yeap, and Ignatius (2013) also found external motivation, reciprocal relationships, self-worth, and subjective norms all to be determinants of knowledge sharing. Also in Malaysia, Zaqout, and Abbas (2012) found that trust, social networks, and communication technology positively affected knowledge sharing among university students. Teh and Yong (2011) also found that sense of self-worth and in-role behavior positively related to attitude toward knowledge sharing and subjective norms, and that organizational citizenship positively related to intention to share knowledge in Malaysia. This discovery is consistent with other research that found a positive relationship between subjective norms and intention to share knowledge (Aktharsha, Ali, & Anisa, 2012; Wu & Zhu, 2012).

However, Zhang and Ng (2012) found that knowledge sharing was only weakly influenced by subjective norms in construction companies in Hong Kong.

In a study of IT professionals, Tsai, Chang, Cheng, and Lien (2013) found trust, self-efficacy, and reciprocal relationship expectancy to be significantly associated with knowledge sharing through knowledge-sharing systems. Wu and Zhu (2012) also found a positive relationship between subjective norm, reciprocal benefits, reputation enhancement, loss of power, organizational climate, and technology and knowledge sharing in Chinese companies. Shan, Xin, Wang, Li, and Li (2013) also found that event characteristics, outcome expectations, trust, and shared knowledge had positive and significant effects on knowledge sharing in emergency events in virtual communities, and Chennamaneni, Teng, and Raja (2012) found perceived loss of power to have a significant effect on knowledge sharing among knowledge workers.

Additionally, Wipawayangkool and Teng (2014) found a positive relationship between knowledge internalization and "individual-task-technology fit" and knowledge sharing. Knowledge internalization is the process individuals use to transform declarative knowledge into procedural knowledge; individual-task-technology fit is the combination of knowledge self-efficacy, preference for personalization knowledge management strategy, availability of a knowledge management system, and task variety (Wipawayangkool & Teng, 2014).

According to Cheung, Lee, and Lee (2013), when members of online CoPs received expected reciprocity and helped other members as expected by contributing

knowledge, their knowledge self-efficacy and satisfaction were enhanced. This self-efficacy and satisfaction, in turn, increased their intention to share knowledge. Self-efficacy was also found to have a positive impact on attitudes toward knowledge sharing among teachers in Holland (Van Acker, Vermeulen, Kreijns, Lutgerink, & van Buuren, 2014) and among university students in Taiwan (Huang, Chang, & Lou, 2015). Self-efficacy was also found to be significantly associated with knowledge sharing thorough knowledge management systems with IT professionals (Tsai & Cheng, 2012; Tsai et al., 2013) and a mediator of the relationship between users' knowledge acquisition and contribution in online communities (Zhou, Zuo, Yu, & Chai, 2014). In a study of knowledge sharing among academic staff in Malaysia, self-efficacy also significantly affected attitude toward knowledge sharing (Jolaee, Nor, Khani, & Yusoff, 2014).

Reinholt, Pedersen, and Foss (2011) found that individuals engaged in knowledge sharing when motivation and ability were high. In a survey of British educators, Fullwood, Rowley, and Delbridge (2013) found that one source of this motivation was a feeling that sharing knowledge would improve relationships. This finding is consistent with research that found that organizational socialization increased the variance of knowledge sharing (Gross & Kluge, 2014; Makela, Andersson, & Seppala, 2012; Tangaraja et al, 2015). These results confirm that social ties and good social relationships enhance knowledge sharing.

According to social categorization theory, people categorize themselves into social categories. Social identity theory states that people strive for a positive self-image

when comparing their social category to other groups. Social capital is resources in a social relationship that can be an asset in obtaining benefits for individuals and organizations. Previous research has established that social capital facilitates knowledge sharing (Akhavan & Mahdi Hosseini, 2015; Chou, Lin, Lu, Chang, & Chou, 2014; Sheng & Hartono, 2015; Yu, Hao, Dong, & Khalifa, 2013). Research also shows that tacit knowledge sharing mediates the relationship between cognitive social capital and team innovation whereas explicit knowledge sharing mediates the relationship between relational social capital and team innovation (Hu & Randel, 2014). This outcome is consistent with other findings on the effect of the cognitive component of knowledge-sharing attitude on behavioral to share knowledge (Chen & Lin, 2013) and findings that cognitive social capital significantly affects knowledge sharing (Akhavan & Mahdi Hosseini, 2015; Hung, Chen, & Chung, 2014).

Social capital theory has also been used to understand factors that influence knowledge-sharing behavior in virtual communities (Chang & Chuang, 2011; Chumg, Cooke, Fry, & Hung, 2015). Using social capital theory to study knowledge sharing in a virtual community in Taiwan, Chumg et al. (2015) fond that employees' sense of well-being improved when they had higher levels of social capital tendency; and, when employees had a greater sense of social capital, they increasingly shared tacit and explicit knowledge. Jolaee et al. (2014) also found that attitude was positively related to knowledge-sharing intention and that social network and self-efficacy affect attitude. Moreover, Chang and Chuang (2011) found that altruism, reciprocity, identification, and

a shared language had a positive effect on knowledge sharing in online social networks. Additionally, reputation, social interaction, and trust had a positive effect on the quality of knowledge shared but not on the quantity of shared knowledge (Chang & Chuang, 2011). This finding is inconsistent with other research that found that altruism (Wang & Hou, 2015) and social relations (Lee, Kim, & Ahn, 2014) had a positive effect on the quantity of knowledge shared.

In a study of an online CoP, Lee et al. (2014) found that both the quality and quantity of knowledge had positive effects on knowledge utilization. In another study of online knowledge sharing, Ma and Yuen (2011) found that perceived online attachment motivation and perceived online relationship commitment had a significant relationship to online knowledge-sharing behavior.

In Arab societies, socialization is the basic rule of business. All business activity revolves around interpersonal social networks, which are central to exercising influence and sharing knowledge. Managers and other members of organizations only share knowledge with those whom they trust and have a social relationship. Knowledge sharing among Arabs cannot be taken for granted outside these social ties (Weir & Hutchings, 2005). Al-Esia and Skok (2014) found that Arab culture had a negative effect on knowledge sharing with coworkers from other countries due to the importance of trust, social networks, and informal communications in the Arab culture—qualities that are difficult to achieve with foreign workers who are only in the organization for a short time.

In a study of telecommunication workers and managers in Jordan, Al-Sha'ar (2012) found that knowledge management—including knowledge sharing—had a significant effect on achieving service quality; however, no significant difference was attributed to sex, age, experience, education, or job title. These results are in contrast with Boateng et al.'s (2015) findings that sex and education significantly affected knowledge sharing and suggests that other mediating factors may be involved.

C. Chen (2011) found that attitudes affected knowledge-sharing intentions among high school teachers. There was also a significant relationship between teachers' knowledge-sharing behavior and superiors' and colleagues' approval of knowledge sharing as well as between organizational climate and knowledge-sharing intentions (C. Chen, 2011). These relationships were stronger when fairness, innovation, and connection were part of the organizational atmosphere (C. Chen, 2011). This finding is consistent with other recent research linking organizational climate to knowledge sharing (Khalil et al., 2014; Li et al., 2014; Ramayah et al., 2013; Santosh & Muthiah, 2012; Villamizar Reyes & Castañeda Zapata, 2014). However, other research has found that organizational innovation climate did not act as a moderator between knowledge sharing and innovative behavior (Chien, Tsai-Fang, & Chin-Cheh, 2013; Yu, Yu-Fang, & Yu-Cheh, 2013).

Wang, Tseng, and Yen (2014) found a positive relationship between institutional norms and knowledge sharing, with trust serving as a mediator in the relationship. Hashim and Tan (2015) also found that trust—along with user's level of satisfaction and

affective commitment—mediated continuous knowledge sharing in an online community. These findings are consistent with other research that has found that trust is a significant factor in increased knowledge-sharing behavior (Lee & Hong, 2014; Rahman & Hussain, 2014).

Kettinger et al. (2015) found that psychological climate impacts knowledge-sharing behavior. Gupta et al. (2012) also found that rational psychological contact positively influenced knowledge-sharing behavior; however, transactional psychological contract and psychological contract breach did not.

Training has also been found to be the most significant factor predicting knowledge-sharing behavior in multinational enterprises (Ekore, 2014). A significant positive relationship between the perceived intensity of this training and knowledge sharing was found where perceived job autonomy and perceived supervisor support was also present (Buch et al., 2014). Fong, Ooi, Tan, Lee, and Yee-Loong Chong (2011) also found that training and development had a significant effect on knowledge sharing in Malaysia.

Leader support through knowledge sharing was also found to be both directly and indirectly positively related to creative problem solving on the part of employees (Carmeli, Gelbard, & Reiter-Palmon, 2013). Xue, Bradley, and Liang (2011) and Cyril Eze et al. (2013) also found that empowering leadership had a positive impact on knowledge-sharing behavior. Additionally, Whisnant and Khasawneh (2014) found that leadership supported knowledge sharing with a partial mediation effect between servant

leadership and tacit knowledge sharing. Transformational leadership climate has also been found to affect employees' intention to share knowledge through team identity (Liu & Phillips, 2011).

Previous research has also established a relationship between personality traits and knowledge sharing (Chong, Teh, & Tan, 2014; Karkoulian & Mahseredjian, 2012; Matzler, Renzl, Mooradian, von Krogh, & Mueller, 2011). In a study of Lebanese organizations, the personality traits of the internal locus of control significantly and positively related to knowledge sharing but no relationship existed between the external locus of control and knowledge sharing (Karkoulian & Mahseredjian, 2012). Additionally, in a study of a utility company in Austria, the traits of agreeableness and conscientiousness were positively associated with knowledge sharing (Matzler et al., 2011). In a study of university students in Malaysia, conscientiousness also had a positive relationship to knowledge sharing, however, there was no relationship to agreeableness (Chong et al. 2014). In this study, the personality trait extroversion also had a positive relationship to knowledge sharing. Additionally, instructor support, competition, and technology also had a positive relationship, and emotional stability had a negative relationship to knowledge sharing among the Malaysian students (Chong et al., 2014).

In addition to personality traits, emotions have been found to influence attitudes and intentions toward knowledge sharing (van den Hooff, Schouten, & Simonovski, 2012). In a study of knowledge sharing at a Dutch IT company, van den Hoof et al.

(2012) found that pride and empathy affected the eagerness and willingness to share knowledge.

Kumar and Rose (2012) found that the Islamic work ethic moderately influenced the relationship between knowledge-sharing capability and innovation capability of employees and officers in the Malaysian Diplomatic Service. According to Kumar and Rose (2012), the Islamic work ethic is key to creating value and improving knowledge-sharing behavior within public sector organizations. The results of this study imply that certain human, cultural, and/or religious values may influence knowledge sharing; that knowledge sharing may be more effective in some countries than others; and that religious diversity may be detrimental to knowledge sharing. However, Sidani and Thornberry (2009) noted that whereas Islam is the primary value system in Arab societies, other values impacted Arab culture, causing deterioration in the work ethic. Because Arabs are hesitant to trust those outside their social circles, are less cooperative, are adverse to uncertainty, and hoard knowledge, Arab workers did best when there was less diversity, as such environments maximize conformity and minimize conflict (Sidani & Thornberry, 2009). These finds are consistent with Al-Esia and Skok's (2014) findings regarding Arab knowledge sharing in multicultural environments. Al-Esia and Skok (2014) found that U.AE. nationals shared knowledge more with other U.A.E. nationals than with coworkers from other countries because they had more trust and social connections with their fellow citizens. However, the sample in this study was all U.A.E.

nationals. More research is needed to determine the moderating effect of these factors on knowledge sharing in the Arab context.

"Knowledge hiding" exists in organizations when individuals withhold or conceal knowledge even after someone has requested it (Connelly et al., 2012). Knowledge is seen as a source of power and a guarantee of job security (Sidani & Thomberry, 2009; Skok & Tahir, 2010). Qureshi and Evans (2015) identified knowledge hiding as one of the deterrents to knowledge sharing in the pharmaceutical industry. Connelly et al. (2012) identified three types of knowledge hiding: playing dumb, rationalized hiding, and evasive hiding. This behavior is often driven by distrust, which is therefore an important predictor of knowledge sharing (Connelly et al., 2012). However, the targets of knowledge hiding do not always view the behavior to be harmful, and knowledge hiding may even sometimes improve relationships (Connelly & Zweig, 2015).

In a study of the effects of demographics on knowledge sharing among teachers in Ghana, Boateng et al. (2015) found that male teachers and teachers with first degrees shared more knowledge. Chai, Das, and Rao (2011) also found gender differences in online knowledge-sharing behavior. In a study of American university blog users, they found that trust, reciprocity, and social ties had more of an effect on women's knowledge-sharing behavior than men's (Chai et al., 2011). This finding suggests that offline social norms persist in online blogs and that gender differences should be considered when adopting blogs as knowledge-sharing tools (Chai et al., 2011). These studies also demonstrate that organizational demographic variables may be critical to

successfully implementing a knowledge management program and to improving organizational performance. However, Ain Baig, Khan, and Chaudhry (2014) found no relationship between the demographic factors of age, sex, education, language, or residential status and online knowledge sharing in Pakistan.

Hsu, Wu, and Yeh (2011) also found a correlation between the composition of teams and knowledge sharing. Specifically, they found a relationship between team personality composition based on the five-factor personality, team process, and knowledge sharing (Hsu et al., 2011). However, this study was conducted with research and development teams in Taiwan and did not report cultural background or national origin on the demographic section of the instrument (Hsu et al., 2011).

Openness to value diversity, linguistic diversity, and knowledge diversity has also been found to have a positive relationship to knowledge processing (Lauring & Selmer, 2013). Diversity encourages the use of information in teams and thus enhances performance (Lauring & Selmer, 2011b, 2012). Therefore, information sharing is an important process for improving the performance of diverse teams. Sharing a common language can also improve knowledge sharing in multicultural teams (Lauring & Selmer, 2011a; Shan et al., 2013). A study of multicultural teams in universities in Denmark found a relationship between the number of languages spoken and knowledge sharing, with consistency in English and English language management communication having the strongest association with knowledge sharing and performance (Lauring & Selmer, 2011a). Wilkesmann, Fischer, and Wilkesmann (2009) also found that poor English skills

were a barrier to knowledge sharing in Hong Kong because of fear of losing face. Kivrak, Arslan, Tuncan, and Birgonul (2014) also found language and communication problems to be barriers to knowledge sharing on multicultural construction teams in joint ventures in Qatar, Libya, and Bulgaria, and Shan et al. (2013) found that shared language positively and significantly influenced knowledge sharing in virtual communities in China. However, Fletcher-Chen (2015) found that language *diversity* positively affected knowledge transfer in multinational corporations in Asia.

Park Michael and Overby (2012) proposed that the disparity among research results on the relationship between demographic diversity and performance was due to the moderating effect of group processes. This finding suggests that, in some situations, diversity increases communication and brings more integration to the group process.

Although demographically diverse teams can improve performance, if they do not communicate and share their diverse knowledge, team members will not achieve high performance (Park Michael & Overby, 2012). Park Michael and Overby (2012) have argued that increased performance is due to the flow of diverse knowledge—not because of the diversity of the group or the mere presence of diverse knowledge. Without the flow of diverse knowledge, demographic diversity will not improve performance. Park Michael and Overby (2012) suggested that teams must be highly integrated for improved performance to occur. Moreover, this integration must go beyond increased communication to "behavior integration," in which mutual and collective interaction

takes place (Park Michael & Overby, 2012, p. 61). This group cohesion has been shown to have a positive effect on individual-level knowledge sharing (Lin, Ye, & Bi, 2014).

Employees' willingness to share knowledge is related to the usage and preference for knowledge-sharing tools (Schwaer, Bienmann, & Voelpel, 2012). Snyder and Lee-Partridge (2013) examined communication choices for knowledge sharing and found that face-to-face communication, telephone, and email were the preferred methods. It was interesting to note that Internet-based channels such as blogs and Web 2.0 were not preferred channels. In a study of the medical sector in Kuwait, the primary mechanisms for sharing knowledge were also face-to-face communication in CoPs with modern communication methods such as SMS messages; online forums were the least preferred methods of communicating (Marouf & Al-Attabi, 2010). Additionally, the main motivator for doctors in Kuwait to share their knowledge was a desire to learn and help others; the vast majority reported they did not receive financial rewards for sharing knowledge (Marouf & Al-Attabi, 2010).

Sanaei et al. (2013) also studied generational methods for sharing knowledge in American engineering and constructions firms and found no differences between generations for sharing knowledge by one-one, personal communication, or email but significant generational differences for the use of instant messaging and meetings. Solli-Sæther and Karlsen (2014) also found that face-to-face communication at daily meetings enabled communication and knowledge sharing in firms with projects outsourced offshore. However, in a study in Saudi Arabia, Dulayami and Robinson (2015) found no

significant difference in the preference for sharing knowledge in person or through electronic means. According to Snyder and Lee-Partridge (2013), knowledge-sharing communication channel choice was determined by the type of knowledge, ease of use, reliability, convenience, and the ability of the channel to document communications. However, these studies also suggest that nationality, culture, demographics, or complexity of the knowledge may affect which channel is chosen for communication.

Knowledge-Sharing Barriers

The literature also identifies several factors that negatively impact knowledge sharing; they include barriers, lack of trust, lack of communication, lack of incentives, lack of focus, lack of commitment by management, lack of hierarchical structure, differences in the nature of the business, different knowledge requirements, lack of cross-departmental communication, and lack of information technology support (Chong & Besharati, 2014; Lavanya, 2012; Qureshi & Evans, 2015; Sharma & Singh, 2015; Sohail & Daud, 2009). Loss of power, lack of motivation, personal relationships, fear of losing superiority, perception of not being rewarded, and lack of time and resources to effect a transfer have also been identified as factors that impede knowledge sharing (Analoui, Sambrook, & Doloriert, 2014; Bartol & Srivastava, 2002; Ford, Myrden, & Jones, 2015; Khalil et al., 2014; Kivrak et al., 2014). These barriers can be divided into three main categories: *individual*, *organizational*, and *technological* (Chong & Besharati, 2014; Mtega, Dulle, & Ronald, 2013).

Individual knowledge-sharing barriers include trust, power, time, and communication. Mutual trust improves the interaction between employees and results in increased knowledge sharing; however, if employees feel the knowledge will be misused, they are less likely to share (Bengoa & Neuhauser, 2014; Chong & Besharati, 2014). Individuals are also reluctant to share knowledge if they feel it will cause them to lose power. They feel that knowledge is a source of power, and if they share it they will lose ownership or privilege (Chong & Besharati, 2014). The perception of lack of time or time pressure has also been linked to reduced knowledge sharing (Connelly, Ford, Turel, Gallupe, & Zweig, 2014; Qureshi & Evans, 2015). Low task self-efficacy can contribute to this pressure and cause people to feel "too busy" to share knowledge when requested to do so (Connelly et al., 2014). Finally, the less communication among employees the less knowledge sharing there will be (Chong & Besharati, 2014). According to Chen, Lin, and Yen (2014), trust can be increased by developing shared goals, forming social relational embeddedness, and initiating influence strategies. Higher levels of trust and goal congruence also can lead to more knowledge sharing (De Clercq, Dimov, & Thongpapanl, 2013).

Organizational barriers to knowledge sharing include organizational hierarchy, lack of commitment, and lack of rewards. In hierarchy organizations, structure and power relationships prevent knowledge from being shared (Chong & Besharati, 2014; Suppiah & Singh Sandhu, 2011), and in organizations that do not reward knowledge sharing, there is less motivation for employees to share knowledge (Chong & Besharati, 2014; Fathi,

Eze, & Goh, 2011; Sandhu, Jain, & bte Ahmad, 2011). However, reward systems must be designed to fit employees' needs to provide adequate incentive (Sandhu et al., 2011). In a study of knowledge-sharing barriers in the engineering industry, a lack of commitment by top management was also found to be the primary barrier to knowledge sharing (Sharma & Singh, 2015). Dube and Ngulube (2012) also found the organization barriers to knowledge sharing in a university in South Africa to be an absence of policy, lack of reward system, labor laws, and the underutilization of information technology.

According to Husted, Michailova, Minbaeva, and Pedersen (2012), organizational barriers to knowledge sharing can be reduced with governance mechanisms. They found that transaction-based knowledge-sharing mechanisms promoted hostility toward knowledge sharing and increased knowledge hoarding. However, commitment-based mechanisms diminished this hostility and increased knowledge sharing (Husted et al., 2012).

Technology is one of the primary means of disseminating knowledge (Han, Zhou, & Yang, 2011; Mtega et al., 2013; Tan, Lye, Ng, & Lim, 2010). When a knowledge management information system is present, more knowledge sharing takes place (Chong & Besharati, 2014). However, inadequate information technology has been identified as one of the main barriers to knowledge sharing (Santos, Soares, & Carvalho, 21012). Ali, Whiddett, Tretiakov, and Hunter (2012) also found that information technological systems for sharing explicit knowledge were much more common than systems for sharing tacit knowledge. The level of usage of the system has also been found to effect

knowledge-sharing behavior (Kumar Goel, Rana, & Chanda, 2014). However, according to one finding, the mere presence of a technology-based knowledge management system was not sufficient for knowledge sharing to take place; other factors had to be present for the technology to be used (Obrenovic & Qin, 2014). These systems were also more effective when users were better trained and felt comfortable with the technology (Chong & Besharati, 2014).

In a study of knowledge sharing among doctoral students in Japan, the main barriers were found to be language, psychological differences, lack of knowledge of the process, lack of time, and lack of a formal forum (Islam, Kunifuji, Hayama, & Miura, 2013). However, a survey of students in Jordan showed that the main barriers to sharing knowledge were lack of time, lack of relationships, fear that others would perform better, and lack of trust (Hussein & Nassuora, 2011). Additionally, a survey of managers in the U.A.E. found that the main barriers to knowledge sharing were short-term contracts, reliance on verbal communication, and lack of education about knowledge management (Skok & Tahir, 2010). This range of results suggests that other factors are involved in the knowledge-sharing process.

Zhou and Nunes (2012) found four categories of knowledge-sharing barriers between traditional and Western medical professionals in a Chinese hospital: philosophical divergence, interprofessional tensions, lack of interprofessional common ground, and insufficient professional education and training. According to Zhou and Nunes (2012), these barriers can be overcome by top-down policies for mutual

understanding, beginning with healthcare higher education and in the hospitals through dialogue and training.

A study of knowledge sharing in Romanian companies found the main barriers to be lack of rewards, lack of interest, lack of time, the power structure, ownership of intellectual property, and lack of trust (Pugna & Boldeanu, 2014). Remarkably, respondents in this study did not report some of the barriers identified in other contexts such as knowledge hording or a lack of social network (Evans, Hendron, & Oldroyd, 2014). This difference suggests culture could be a mediating factor. Romania is a collectivist culture, in which social networks are well developed and high-context communication facilitates the conversion of tacit knowledge into explicit knowledge. Also in this study all respondents identified lack of interest and lack of trust as barriers (Evans et al., 2014). This result could also be due to cultural factors. Romania is a high-power distance culture, where power is distributed unequally, and uncertainty avoidance culture, making knowledge conversion more difficult (Pugna & Boldeanu, 2014).

According to Gupta and Polonsky (2014), multinational firms operated more efficiently when knowledge was shared with outsourced firms. Bengoa and Kaufmann (2014) studied barriers to knowledge sharing in multinational corporations in Austria and Russia. They found that not tailoring knowledge-sharing methodologies to the local business environment and culture produced alienation and resistance of knowledge. According to Bengoa and Kaufmann (2014), “The knowledge that is going to be transferred has to be embedded to the local context” (p. 23). The knowledge transmitter

also must be prepared for cultural shock in order to avoid negative consequences. Individuals working in a different cultural environment may become socially withdrawn and isolated, which can have a detrimental effect on relationships and trust, both of which are known to be important to knowledge sharing. This situation can be alleviated with cross-cultural awareness training (Bengoa & Kaufmann, 2014) and through the use of social media (Ray, 2014. In a study of knowledge-sharing barriers in multinational firms, Haas and Cummings (2014) also found that position-based differences—such as geographic location and structural differences—created greater barriers than person-based differences—such as nationality and demographic differences.

In a study of bank employees in Malaysia, Tan et al. (2010) found that both intrinsic and extrinsic factors encouraged knowledge sharing, which may compensate for knowledge-sharing barriers. Intrinsic factors included trust, learning, and behavior. Extrinsic factors included organizational culture, reward system, and information technology. Of these variables, only behavior was not found to have a significant effect on the knowledge-sharing process (Tan et al., 2010). This outcome is consistent with findings by Wang and Hou (2015), who found that both intrinsic and extrinsic rewards positively affected knowledge sharing in Taiwan.

In a study of student work groups, Analoui et al. (2014) found that group allocation methods affected knowledge sharing and that students shared more knowledge when they were allowed to choose the allocation method that best met their needs rather

than having the instructor assign groups randomly or by demographic factors to achieve diversity.

Finally, Kim, Son, Han, Cho, and Mah (2014) found a negative relationship between abusive supervision and knowledge sharing in Korea. This relationship was stronger for supervisors with longer tenure (Kim et al., 2014).

The Role of Reward Systems

Consistent with expectancy theory, the intent to carry out an action is, to some degree, determined by the prospects of a particular result (Vroom, 1964). The more an individual associates affirmative results with a known deed, the more likely the individual will be to carry out that deed. If recognized rewards predict individuals on the lookout for guidance and improvement, they may also forecast the possibility of an individual on the lookout for information and thoughts from peers—one of the key constituents of the knowledge-sharing activities. The literature on intended guidance and improvement and prosocial performance provides insight into the plausible consequences of rewards on knowledge management conduct. In particular, studies have indicated that when individuals recognize an association between knowledge-sharing conduct and organizational rewards (e.g., professional progression, worldwide assignments, and motivating projects), they will be further inclined to contribute to knowledge-sharing actions. Additionally, researchers have assumed that when individuals think about an association supported by knowledge-sharing conduct and intrinsic rewards (e.g., attaining one's complete individual and specialized potential and sense of satisfaction and

gratification in learning from peers), they are more likely to participate in knowledge-sharing activities (Bock & Kim, 2002).

Several studies have positively linked intrinsic rewards to knowledge sharing (Z. Chen, 2011; Jahani, Ramayah, & Effendi, 2011; Ma & Chan, 2014; Salim et al., 2011; Wang & Hou, 2015; Wei-Li, 2013). In a study of online knowledge sharing and social media, Ma and Chan (2014) found that high school students were motivated by the intrinsic rewards of belonging and altruism. Wang and Hou (2015) also found that intrinsic rewards and altruism for organizational benefits significantly influenced knowledge sharing in 34 organizations in Taiwan. Also, in a study of knowledge sharing among academics in Iran, an intrinsic reward system, combined with a mentoring leadership style, accounted for 19% of the variation in knowledge-sharing behavior ($F = 8.796$, $p<0.01$) (Jahani et al., 2011). However, this study was limited to Iranian academics, and further research is needed to determine the impact of culture and for comparative study in other countries. Z. Chen (2011) also found that rewards could have a moderating effect on knowledge sharing when relationship conflict is present. In a survey of 170 managers in China, the negative effect of relationship conflict on knowledge sharing was weaker when rewards were high ($\beta = -.15$) than when they were low ($\beta = -.43$) (Z. Chen, 2011). This study suggests that managers can use rewards to buffer negative influences on knowledge sharing; however, further research is needed to establish causal relationships.

Zhang, Chen, Vogel, Yuan, and Guo (2010) used game theory to study knowledge-sharing problems and the effectiveness of rewards in a Chinese firm. They found that rewards did not improve the quality of tacit knowledge because participants contributed low-quality knowledge. Based on a comparison of this case study to other case studies where rewards were effective, Zhang et al. (2010) concluded that in cases where rewards were not effective, new employees felt they have nothing valuable to contribute, monetary rewards were too small, and there was a lack of time. This finding suggests that rewards alone are not effective for increasing knowledge sharing in an Asian context but should be combined with other mechanisms such as evaluation systems, an improved knowledge management support system, and a supportive organizational policy (Zhang et al., 2010). Similar results were found by Wang, Noe, and Wang (2014) in a Chinese software company. They found that the combination of evaluation and rewards had a positive relationship with knowledge sharing. They also noted that the interaction of evaluation plus rewards and conscientiousness, neuroticism, and openness to experience influenced knowledge sharing (Wang et al., 2014). Further research is needed to determine if this strategy will be successful in other contexts.

Incentive pay based on the collective performance of multinational corporations (MNC) has also been linked to greater knowledge sharing (Fey & Furu, 2008). Using the knowledge-based view of the MNC and agency theory as a theoretical foundation, Fey and Furu (2008) studied 164 foreign-owned subsidiaries located in Finland and China to identify the relationship between subsidiary bonus pay based on MNC performance and

knowledge sharing among the units of the MNC. They found that compensating the top subsidiary managers based on the performance of the MNC as a whole facilitated knowledge transfer. In addition to top managers themselves sharing more knowledge, subsidiary managers motivated their subordinates to share knowledge (Fey & Furu, 2008). In studies of knowledge sharing among academics and staff in Iran and Malaysia, rewards were also found to have a positive influence on knowledge sharing; however, these studies did not report the nationality and/or cultural background of participants (Heydari, Armesh, Behjatie, & Manafi, 2011; Jahani et al., 2011; Zawawi et al., 2011).

Rewards have also been shown to buffer the negative effect of relationship conflict on knowledge sharing (Z. Chen, 2011). According to social exchange theory, rewards have a compensatory effect on the detrimental effects of negative factors—in this case, relationship conflict (Z. Chen, 2011). In a study of knowledge sharing in family-owned business in China, Lai and Tong (2010) also found rewards to be a significant mediator between the family-owned factor and knowledge sharing. This research suggests the possibility that other factors also mediate this relationship.

Bartol and Srivastava (2002) examined four mechanisms of knowledge sharing; these included contributing to a database, formal interactions, informal interactions, and communities of practice. They have argued that recording and measuring are prerequisites for knowledge sharing and that knowledge contributions to databases meet this requirement. Therefore, organizations should have rewards contingent on contributing to databases. In formal interactions, team leaders could also observe and

track the knowledge-sharing behaviors of individuals and include their evaluations in performance appraisals. In informal interactions, knowledge sharing could be evaluated by feedback from peers as part of a 360-degree appraisal system. However, rewards are expected to be less effective in communities of practice (CoPs) because individuals are motivated to participate by intrinsic motivation (Bartol & Srivastava, 2002; Ma & Chan, 2014).

In study of knowledge sharing in an online CoP of teachers in Sryia, Khalil et al. (2014) found that extrinsic rewards were positively associated with knowledge sharing. Fullwood et al. (2013) also found that that one of the motivators for educators in the U.K. to share knowledge is the extrinsic motivation of promotion. However, in a survey of medical professionals in Kuwait, a majority of respondents reported that they did not receive financial rewards for sharing knowledge and that their main motivation for sharing was a desire to learn and help others (Marouf & Al-Attabi, 2010). This finding suggests that other factors such as the context of culture or industry may moderate the relationship between rewards and knowledge sharing.

Although rewards are thought to be a major determinant in attitudes toward knowledge sharing, in a study of employees in public organizations in Korea, expected rewards did not, in fact, have a substantial impact (Bock & Kim, 2002). Similar results were found in a study of information technology workers in India (Gupta, Joshi, & Agarwal, 2012), which indicated a negative relationship between expected rewards and knowledge sharing and expected contribution to the organization, and a positive

relationship between knowledge sharing and expected contribution to the organization and expected improved social relations. These results suggest that social factors influence knowledge sharing more than economic factors do; however, these findings could be specific to the Indian culture or the information technology industry.

In a survey of researchers in a healthcare institute in Malaysia, 61.5% of respondents indicated that monetary rewards were an important factor in encouraging knowledge sharing (Rahman, 2011). This finding is consistent with other research in Malaysia that has found that effective reward systems contributed to attitude toward knowledge sharing in SMEs (Cyril Eze et al., 2013). However, in one survey, the two main motivators for improved knowledge sharing were effective communication channels and improving work processes (Rahman, 2011).

Jiacheng, Lu, and Francesco (2010) also found that rewards had little direct effect on knowledge sharing but influenced attitudes toward knowledge sharing indirectly via identification. In this study conducted in China and the United States, punishment for not sharing information was split by culture: the Chinese supported acquiescence to knowledge sharing to avoid punishment, whereas the Americans did not fear punishment. In this study, the Chinese also tended to share knowledge as a means of achieving group harmony whereas the Americans engaged in knowledge sharing because they viewed self-worth as a manifestation of individual determinations (Jiacheng et al., 2010). Self-worth has also been found to be one of the main influences on knowledge-sharing

behavior in Saudi Arabia (Dulayami & Robinson, 2015) and Malaysia (Ramayah et al., 2013; Teh & Yong, 2011).

Liu and Fang (2010) had similar results in Taiwan, where their study showed that extrinsic motivation, including rewards, was unrelated to knowledge sharing. Separate studies of knowledge sharing in Iran, Pakistan, and Kuwait also all found that organizational rewards did not significantly influence knowledge-sharing behaviors or attitudes (Salim et al., 2011; Seba et al., 2012). Also, in a study of on-line students in Beijing, Hong Kong, and Netherlands, rewards did not motivate participants from the Netherlands to share knowledge as much as participants from the other locations (Zhang et al., 2014). Additionally, Hau, Kim, Lee, and Kim (2013) found that organizational rewards have a negative effect on tacit knowledge sharing but a positive effect on explicit knowledge sharing in Korea. However, Ramayah et al. (2013) found that extrinsic rewards were one of the determinants of academicians' attitude toward sharing knowledge in Malaysia. The results of these studies suggest that the effects of rewards and punishment may be culturally specific and that more research is needed in cross-cultural contexts.

In a study of MBA student in Taiwan, Hung et al. (2011) also found that rewards were not an adequate motivator for knowledge sharing. However, when rewards were combined with reciprocity and altruism, knowledge sharing increased because participants experienced a sense of satisfaction. This finding suggests that reputation feedback is a strong incentive for knowledge sharing and that knowledge management

systems should have built-in feedback features to improve their quality and quantity of shared knowledge (Hung et al., 2011). Also when rewards and knowledge-sharing behavior are misaligned, there is a loss of motivation toward knowledge sharing—however, this loss can be mitigated by providing an environment that fosters high employee-coworker relationship quality consensual norms (Auh & Menguc, 2013).

Due to inconsistent results, more research is needed to determine the individual and contextual variables that mediate the relationship between knowledge sharing and rewards.

The Role of Social Factors

In addition to intrinsic and extrinsic motivators, social factors have been found to influence knowledge sharing (Boh & Wong, 2015; Gross & Kluge, 2014; Jeon, Kim, & Koh, 2011b; Lee, Kim, & Ahn, 2014). Managers and coworkers act as social referents for knowledge-sharing behavior within organizations (Boh & Wong, 2015). According to the theory of reasoned action, individuals' social factors affect their behavior. In a study of knowledge sharing among CoPs in a multinational electronics company in Korea, Jeon et al. (2011b) found that social factors positively affected knowledge-sharing behavior—that is, the stronger the social factors were in the CoP, the more active knowledge sharing was within it. This finding is consistent with results from a study in a German steel mill, which found that social ties had a positive effect on knowledge sharing (Gross & Kluge, 2014). Engagement in social interaction was also found to positively influence knowledge sharing in multinational corporations in Denmark (Minbaeva et al., 2012).

In a study of social participation and knowledge sharing in online CoPs among teachers in Taiwan, Tseng and Kuo (2014) found that when members of online communities felt closer connections, they had greater recognition and altruism toward each other. These social relationships were a source of resources and support and fostered a prosocial attitude (Tseng & Kuo, 2014). This finding is consistent with research that has found that social ties positively affected knowledge sharing (Gross & Kluge, 2014) and that prosocial commitment was a significant predictor of knowledge-sharing behavior (Tseng & Kuo, 2014).

Technological developments have also changed the role of social units or factors in knowledge sharing. This factor is incorporated into one of the most useful knowledge-sharing practices but can also be considered a barrier if misused or not implemented correctly. Peng, Quan, Zhang, and Dubinsky (2015) found that social relationships had a significant positive impact on knowledge sharing. They also found that this relationship was moderated by IT competence (Peng et al., 2015). This finding suggests that social relationships and IT training can enhance knowledge sharing.

Paroutis and Al Saleh (2009) studied the reasons for—and barriers to—knowledge sharing using Web 2.0 at a multinational technology corporation. They identified four determinates of knowledge sharing using Web 2.0: history, trust, perceived support, and outcome expectations. This finding is consistent with research that found trust and outcome expectations positively affected knowledge sharing in virtual communities in China (Shan et al., 2013). Outcome expectations included sociopersonal

outcomes such as recognition from superiors and enjoyment from helping others. Chennamaneni et al. (2012) also found that perceived enjoyment in helping others had a strong positive influence on knowledge sharing among knowledge workers and Tan and Ramayah (2014) found the intrinsic motivators of commitment and enjoyment in helping others positively affected knowledge sharing among academics in Malaysia. The finding regarding the intrinsic nature of psychosocial rewards and incentives from using Web 2.0 is consistent with social exchange theory, which states that individuals engage in social interaction based on the expectation that it will lead to social rewards (Paroutis & Al Saleh, 2009). In a study of Web 2.0 technologies among university students in Malaysia, Kaeomanee, Dominic, and Rias (2015) also found that the factors of informal setting, communication, network and community, and user-generated content positively influenced students' knowledge-sharing behavior. The combination of these factors was also a good predictor of knowledge-sharing behavior using Web 2.0 social software (Kaeomanee et al., 2015).

Mtega et al. (2013) studied the role of social-cultural practices in knowledge creation and sharing in rural communities in Tanzania. They found that knowledge was created through observations, experiences, and social interactions and shared through discussions and conversations. This process was influenced by institutional, social-cultural, and technological factors (Mtega et al., 2013). This finding is consistent with other studies conducted in different contexts.

The theory of social interdependence has also been used to understand the role of social factors in knowledge sharing. According to this theory, "Interdependencies in goals, tasks, and rewards between subgroups result in promotive interaction, which refers to subgroups' simultaneous or sequential actions that influence the immediate and future outcomes of the other subgroups involved" (Pee, Kankanhalli, & Kim, 2010). In a study of information systems development teams involved in external information technology consulting, Pee et al. (2010) found that perceived social interdependencies such as goals, tasks, and rewards influenced knowledge sharing among subgroups. Mueller (2014) also found that time, structure, output orientation, and openness all had a positive effect on knowledge sharing between teams. These research finding are consistent with other research using the social learning approach. A study of international students in England also found desired outcomes to be the major factor in knowledge sharing among student work groups (Analoui, et al., 2014). In this study, outcomes had a more significant relationship to knowledge sharing than interpersonal relationships (Analoui et al., 2014). Aslam, Siddiqi, Shahzad, and Bajwa (2014) also found that community-related outcome expectations had a more significant impact on knowledge sharing among college students than personal outcome expectations.

He and Wei (2009) studied knowledge sharing from the perspectives of knowledge contribution and knowledge seeking in an international IT company. They found that employees both contributed to a knowledge management system (KMS) and sought knowledge because of social relationships and were not motivated by reciprocity,

rewards, or reasons of image. However, Javernick-Will (2012) found intrinsic motivations and social motivations to be among the primary factors related to knowledge sharing in multinational firms. Fullwood et al. (2013) also found that educators in the U.K. shared knowledge to improve relationships with colleagues. This finding supports research by Lee and Yu (2011), who found that relationships between employees improved knowledge sharing, and by Morris, Odroyd, and Ramaswami (2015), who found that employees looked to others in determining interest in knowledge being shared, suggesting that the usefulness of knowledge is socially constructed.

According to social learning theory, knowledge is not a physical object that can be passed from one person to another; rather, people create knowledge through conversations, social interactions, and collaborative efforts with others who have shared objectives (Noorderhaven & Harzing, 2009). Using social learning theory as a theoretical basis, in a study of 169 multinational corporation (MNC) subsidiaries, Noorderhaven and Harzing (2009) found that social interaction had a significant main effect on all intra-MNC knowledge flows, thus confirming the social learning mode. This finding suggests that more attention should be paid to the social constitution of knowledge in organizations.

The Role of National Culture

Social and cultural factors influence knowledge sharing and are critical to the success of knowledge-sharing activities; among these factors are ease of communication, informal interactions, cooperation, and channels of information transmission (Mtega et

al., 2013; Obrenovic & Qin, 2014). The cultural value of concern for face also has been found to effect knowledge sharing behavior in Asian cultures (Huang et al., 2011; Young, 2014; Zhang et al., 2014). National or regional cultural influences can also influence attitudes toward sharing knowledge (Liu, 2010; Rivera-Vazquez, Ortiz-Fournier, & Flores, 2009; Xi, 2011; Zhang et al., 2014). Liu (2010) has suggested that different dimensions of national culture influence knowledge transfer. According to Liu (2010), the nature of transacting cultural patterns moderates the transfer of knowledge. "Hence, managers with different cultural backgrounds might play different roles in the process of inter-organizational knowledge transfer" (Liu, 2010, p. 163). Also, according to research, managers in collectivist societies were more likely to create a context for knowledge sharing because of their desire to maintain respect, harmony, and group loyalty and to support order and centralized authority (Liu, 2010; Zhang et al., 2014). However, Liu (2010) only proposed a theoretical framework for knowledge transfer based on culture and did not offer any empirical data.

Certain cultural characteristics can also influence knowledge transfer (Sandhu & Ching, 2014; Wilkesmann et al., 2009; Xi, 2011). Wilkesmann et al. (2009) found that in-group collectivism, power distance, performance orientation, and uncertainty avoidance affected knowledge sharing in Hong Kong and Germany. Additionally, Xi (2011) found that in Hong Kong, which has the cultural characteristic of low uncertainty avoidance, participants were more influenced to share knowledge by extrinsic benefits; however, in Beijing, which is a high power distance culture, intrinsic benefits had more of an

influence. This result is consistent with findings by Hsu and Chang (2014), who also found that uncertainty had a negative effect on knowledge sharing.

In a study of senior managers in Malaysia, Sandhu and Ching (2014) also found that horizontal collectivism (low power distance) and vertical collectivism (high power distance) had a positive impact on knowledge sharing but that vertical individualism (emphasis on hierarchy) had a negative effect. These finds are consistent with findings from a study of on-line classes with students in Hong Kong, Beijing, and the Netherlands, which found that students from high collectivist cultures were more likely to share knowledge in groups than students from low collectivist cultures and that power distance and uncertainty avoidance were moderators to the relationship between rewards and knowledge sharing (Zhang et al., 2014). Yen et al. (2013) also found cultural differences in knowledge-sharing behavior in Malaysia where local employees' behavior was positively affected by goals and collectivism but foreign employees' behavior was not. In a study of knowledge sharing in Ghana, four power distance themes were also identified as crucial for knowledge sharing: power and status, respect and fairness, decision making, and involvement (Boateng & Agyemang, 2015).

The process of knowledge sharing is deeply embedded in social and cultural structures (Zaidman & Brock, 2009). For example, hierarchical societies tend to transfer knowledge in a top-down direction through hierarchical chains, whereas egalitarian societies share knowledge in all directions (Zaidman & Brock, 2009). Along these lines, in a study of knowledge management in the U.A.E., Skok and Tahir (2010) found that

cultural and social beliefs were barriers to knowledge sharing. A majority of respondents replied that the Arab culture discourages knowledge sharing because of its reliance on verbal communication, the dominance of the social aspect of knowledge management, and the culture's high level of privacy and secrecy (Skok & Tahir, 2010). However, it is not known if organizational culture or the wider Arab culture was the cause of the study's cultural findings because the sample was very small (N = 31) and only involved one organization. However, this finding is consistent with another study of 40 Emeriti managers in the construction industry in the U.A.E., which also found that the Arab culture had a negative impact on knowledge sharing with foreign coworkers due to the importance of trust, power status, and social networks to the U.A.E. and Arab culture (Al-Esia & Skok, 2014).

National culture also has been found to influence knowledge sharing in a cross-cultural business context. Li (2010) found that national cultural differences impacted online knowledge sharing among Chinese and American employees of the same multinational firm. She concluded that three significant culture-related differences caused Chinese participants to contribute knowledge less often than their American peers: language, differences in perceived credibility of knowledge to be shared, and different thinking logic (Li, 2010).

Siau, Erickson, and Nah (2010) also studied the effect of national culture on knowledge sharing and found that culture impacted knowledge sharing in virtual communities. They examined virtual communities hosted on Yahoo! in China and the

United States. Their findings indicate that differences can be attributed to the two main differences between these cultures: individualism and power distance. Chinese users participated in virtual communities less than Americans and their messages were shorter and contained more greetings rather than the detailed and long procedural-sharing messages by American users. Siau et al. (2010) attributed this distinction to the Chinese national culture, which emphasizes personal relations and prefers face-to-face communication. The findings of this study are consistent with other research that found that culture impacted knowledge sharing, and showed that Hofstede's findings on culture also apply to virtual communities (Siau et al., 2010).

Kim and McLean (2014) examined how cultural traits influenced informal learning, including knowledge sharing, in the workplace under various cultural settings. They found that national cultural dimensions influenced informal learning. People from collectivistic cultures preferred group activities for informal learning, and people from masculine cultures emphasized goals and outcomes rather than social approval as did people from feminine cultures (Kim & McLean, 2014). This study was based on the assumption that informal learning factors are different in different cultural settings but did not examine the possibility that the factors themselves may be different in different cultural contexts. Davison, Ou, and Martinsons (2013) also found that employees in China—a collectivist culture—preferred informal and personal knowledge-sharing practices. According to Davison et al. (2013), "The Chinese value the richness of context that can be preserved and reflected in informal personalized processes" (p. 106). Also,

Rocha Flores, Antonsen, and Ekstedt (2014) found that in Sweden, a feminine country, managers aligned knowledge-sharing controls with business activities and employees' needs, whereas in the US, a masculine country, knowledge was established through formal arrangements and structure. These findings suggest that knowledge-sharing systems must be culturally appropriate (Davison et al., 2013).

Ryan, Windsor, Ibragimova, and Prybutok (2010) used the knowledge-based view of the firm as a theoretical foundation to study organizational practices that fostered knowledge sharing across national cultures. They found a positive relationship between strategy, technology, and decision-making and knowledge sharing in the United States and Japan. This finding suggests that some organizational practices that foster knowledge sharing are transferable across national cultures and that general theories on knowledge sharing are not limited by national context (Ryan et al., 2010).

Rivera-Vazquez et al. (2009) identified four cultural barriers to sharing knowledge in organizations in Puerto Rico: organizational environment, manager commitment, localization of experts, and emotional intelligence. Of these, emotional intelligence had the most significant relationship with knowledge sharing. Rivera-Vazquez et al. (2009) concluded that willingness to share knowledge is influenced by national culture as well as by certain cultural dimensions in the external environment and organizational cultural in the internal environment. Organizational culture can also be used to overcome cultural barriers to knowledge sharing. In a global market, global cultural values integrate national and organizational cultural values (Rivera-Vazquez et

al., 2009). The multicultural manager's role, then, must go beyond the traditional social exchange between manager and employee to create environments for knowledge creation and sharing.

Managing cultural knowledge is crucial to team success in multicultural environments (Albescu et al., 2009). As such, knowledge management must provide technological support to the cross-cultural supervision of knowledge sharing (Albescu et al., 2009). Albescu et al. (2009) proposed a unified model of knowledge organization as a structured global management system. Intercultural management is the key to success for global companies, and IT-supported cross-cultural knowledge management ensures the success of multicultural teams in delivering goods to multicultural customers (Albescu et al., 2009).

Knowledge sharing in multicultural teams can be limited by a lack of interaction across group boundaries and a socially fragmented environment in which individuals have little in common and speak different languages (Kivrak et. al., 2014). The ability to create and share knowledge across cultural boundaries depends on the organization's ability to cocreate tacit knowledge across cultures and throughout networks (Glisby & Holden, 2011). Glisby and Holden (2011) proposed extending the domain of tacit knowledge to include influencing firms' international/cross-cultural networks. According to Glisby and Holden (2011), individuals cocreated tacit knowledge as they interacted in networks. They presented a model to show how knowledge is created and shared across three interconnected entities: the individual, the organization, and the network.

Knowledge advantage arises from creating and sharing knowledge across the three entities. In international firms, tacit knowledge is cross-culturally created during various interfaces, and influences relationships and networks (Glisby & Holden, 2011).

Researchers have assumed that multicultural teams have higher performance due to synergy effects and cultural diversity; however, two studies found that diversity was not related to knowledge sharing (Horak, 2010). However, both of these studies' samples consisted of students. The results from Horak (2010) could be due to the small sample and the fact that many of the students had international experience and were younger, more educated, and better informed than the population. More research is needed using larger and more diverse samples to validate these results.

Ravu and Parker (2015) also found national culture to be a barrier to knowledge sharing at a construction project in Africa where expatriates were employed to deal with a shortage of skilled managers and technical employees. Reasons identified for this impediment included high turnover, lack of motivation, lack of loyalty, and different norms of communication (Ravu & Parker, 2015). According to Ray (2014), social media tools can help to overcome these barriers.

A great deal of knowledge management literature is dedicated to a somewhat global acceptance of knowledge sharing; however, such work often condenses culture into one colossal category, which does not take into account cultural aspects related to parameters of knowing and ways of knowledge sharing (Pauleen, Rooney, & Holden, 2010). McAdam, Moffett, and Peng (2012) also found that cultural differences in

interpretations of knowledge-sharing behavior resulted in misleading attempts to promote knowledge sharing when non-Chinese conceptions of knowledge sharing were applied in a Chinese context.

Over the past two decades, most cross-culture studies conducted to expand the boundaries of organizational behavior theories considered culture as the only predictor. Research that includes alternative predictors—such as other social and organizational factors on behavior and the interaction between culture and other factors—is needed to determine how culture and noncultural factors influence behavior—simultaneously or independently (Gibson & McDaniel, 2010).

Summary and Conclusions

Numerous studies have examined the factors affecting knowledge sharing in a variety of organizations and national contexts in order to develop models. Some of the dependent variables most commonly measured were attitude, intention, and behavior. Independent variables have included motivation, barriers (including cultural barriers), and enablers. Several empirical studies have also been conducted to measure individual variables. For example, Lam and Lambermont-Ford (2010) studied motivators and Hu et al. (2012) studied the effects of social exchange and trust on knowledge sharing.

The literature also contains a number of studies on the effects of culture on knowledge sharing (Jiacheng et al., 2010; Liu, 2010; Weir & Hutchings, 2005; Wilkesmann et al., 2009). The effects of diversity on knowledge sharing have also been studied (Lauring & Selmer, 2011b, 2012). Of note, however, these studies were

conducted in only one country or one industry. This review of related literature discussed the barriers commonly observed in knowledge sharing as well as the common knowledge-sharing practices for further development in implementation.

Many of the studies on factors affecting knowledge sharing have found different results. For example, Fey and Furu (2008) found that rewards positively affected knowledge sharing; however, Bock and Kim (2002), Gupta et al. (2012), and Kumar and Rose (2012) did not find a significant relationship between rewards and knowledge sharing. Moreover, most of the previous studies were conducted in organizations that were not culturally diverse.

There is a gap in the literature on knowledge sharing in diverse organizations, specifically in the context of the Middle East. To accomplish successful knowledge sharing in multinational, multicultural organizations, understanding the factors that affect knowledge sharing in this context is necessary. This study redresses this dearth of analysis in the literature. The research design and method for this study are addressed in Chapter 3.

Chapter 3: Research Method

Introduction

The purpose of this quantitative study was to understand how knowledge is shared in multicultural organizations. Three research questions guided the study. The first question concerned determining the nature of the relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams. The hypothesis was that a positive relationship exists between monetary rewards for knowledge sharing and knowledge-sharing behavior. The second question dealt with the nature of the relationship between a corporate manager's membership in social units and knowledge sharing. The hypothesis was that a positive relationship exists between managers' membership in social units and knowledge sharing. The third question sought to determine if cultural diversity promotes knowledge-sharing behavior. The hypothesis was that a positive relationship exists between the cultural diversity of the organization and knowledge sharing.

The independent variables for the study were rewards, social units, and cultural diversity. The dependent variable was knowledge sharing. Variables were measured with a sample survey using a 5-point Likert scale. Figure 2 illustrates the variables for the study.

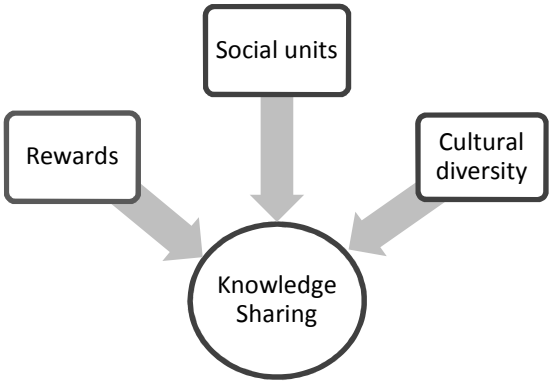

Figure 2. Research variables.

Research Design and Rationale

To describe a pattern of relationships among variables, I used a cross-sectional survey design to answer the research questions. The cross-sectional survey design uses surveys to collect data and make inferences about a population (Hall, 2008). Data are assumed to have been collected at the same time and can represent individuals, groups, organizations, behaviors, or other unit of analysis (Bourque, 2004). This design is used when the independent variable cannot be manipulated, and before and after comparisons cannot be made. Because manipulation and control could not be incorporated into this research design, causality could not be established. Statistical analysis was used to overcome this limitation (Frankfort-Nachmias & Nachmias, 2008).

Cross-sectional designs often assume that the population is heterogeneous in order to properly represent its diversity. Frequency distributions of single variables and associations between variables are used because data are collected at one point in time. Explanatory cross-sectional designs are employed to examine conclusions about how

certain things influence change (Bourque, 2004). The current study looked at first-level managers in Dubai to gain an understanding of how knowledge was shared in their organizations.

An advantage of the cross-sectional design is the low cost and rapid turnaround time. A disadvantage is that it examines a group at one point in time and does not provide information about changes over time. Another disadvantage is "confounding." Confounding occurs when you cannot determine which variable is responsible for observed results, or the effects of two or more variables cannot be determined (Salkind, 2010).

Research Questions and Hypotheses

The following research questions and hypotheses were developed to determine if there is a relationship between monetary rewards, social units, and cultural diversity on knowledge sharing in multicultural teams.

Research Question 1. What is the nature of the relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams?

$H_1$1: There is a positive relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams.

$H_0$1: There is no relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multinational teams.

Research Question 2. What is the nature of the relationship between managers' membership in social units outside the organization such as families, religions, or clubs and their knowledge-sharing behavior?

$H_1$2: There is a positive relationship between managers' membership in social units and knowledge sharing with fellow members.

$H_0$2: There is no relationship between managers' membership in social units and knowledge sharing.

Research Question 3. Does greater cultural diversity promote knowledge-sharing behavior?

$H_1$3: There is a positive relationship between the cultural diversity of the organization and knowledge sharing.

$H_0$3: There is no relationship between the cultural diversity of the organization and knowledge sharing.

Population and Sampling

The population for this study was first-level managers in Dubai, U.A.E. Sampling for this study consisted of a nonprobability sample. In nonprobability sampling, units are not necessarily sampled to learn more about the population but to deepen knowledge about the sample itself (Uprichard, 2013). Nonprobability sampling was used in this study because a list of the sampling population was not available; therefore, the probability of each unit's inclusion in the sample is not known, and it could not be ensured that each unit of the population had the same probability of being included in the

sample. The nonprobability sample design used in this study was random convenience. With a random convenience design, sampling units are selected from whatever units are conveniently available. Because it was not known how representative of the population the units were in this study, the population's parameters could not be estimated from the sample (Frankfort-Nachmias & Nachmias, 2008). The population is very large, and the sample was relatively small; however, samples somewhat smaller than this one have been traditionally recommended as likely to be sufficient when commonalities are high (MacCallum, Widaman, Preacher, & Hong, 2001).

The exact sample size was determined using analysis of power. Statistical power detects statistical effects to ensure studies are meaningful and results are not due to inaccurate observation or error (Ellis, 2010). Analysis of power is conducted to determine adequate sample size to detect differences. If a sample size is too small, statistical tests will not have the power to detect differences even if they, in fact, exist (Fitzner & Heckinger, 2010). As sample size decreases, there is a greater probability of accepting a type II error (e.g., accepting a false finding that there is no difference; that is, erroneously accepting the null hypothesis) (Fitzner & Heckinger, 2010). For this study, I used G*Power to conduct sample size calculation and power analysis. G*Power is a power analysis program commonly used in social and behavior sciences (Faul, Erdfelder, Buchner, & Lang, 2009).

Power analyses types differ in parameter or combination (Faul et al., 2009). A priori power analysis is used when the sample size is computed as a function of the

required power level, the significance level is prespecified, and the population effect size to be detected with probability is given (Faul et al., 2009). For this study, A priori power analysis for a linear multiple regression with three predictors was conducted in G*Power to determine a sufficient sample size using an alpha of .05, a power of .80, and a medium effect size (f = .15). Based on these specifications, G*Power calculated a desired sample size of 77.

Data Collection and Analysis

Data Collection

Using public means, I identified and recruited first-level managers in Dubai for the study. They were then contacted by phone or email and sent a letter of invitation to participate in the survey. I then faxed or emailed the consent form and survey instrument to those who indicated interest in being a participant. When completed, the instruments were returned directly to me by participants. A community partner assisted in forwarding invitation letters on my behalf.

The email survey was an appropriate method for this research because of its accessibility and small biasing error (Frankfort-Nachmias & Nachmias, 2008). It was also appropriate because the sample could be enumerated, was literate, and would cooperate. Written questionnaires can also be translated into the native language of participants, who can write their responses in any language. Because the study was conducted in a foreign country, a written questionnaire sent by fax or email made the study more feasible. Disadvantages included low response rates, the inability to ask probing questions, and no

control over who answered the questions (Frankfort-Nachmias & Nachmias, 2008). Another disadvantage in this multicultural study was that some questions in the instrument may have had culturally specific connotations and nuances that could get lost in translation.

Data collection in a cross-sectional survey can be influenced by seasons, natural disasters, wars, or even elections and sports events. Training of surveyors and quality control at all levels is important to ensure data quality (Hall, 2008).

Data collection procedures were approved by the University's Institutional Review Board (IRB). To protect privacy, participants' names and organizations were not included on the survey instrument. Survey instruments are also stored in a secure area and will be destroyed after one year.

Data Analysis

Data was analyzed using SPSS version 19.0 for Windows. I used descriptive statistics to describe the sample demographics and the research variables used in the analysis. For nominal data, I calculated percentages and frequencies and means; for continuous data, I calculated standard deviations.

To examine the research questions, a multiple linear regression was conducted to assess if monetary rewards, social units, and diversity of cultural background significantly predicted knowledge sharing in multicultural teams. Because there are numerous bivariate observations in analyses, multiple regression was performed to determine the collective effect of the independent variables on the dependent variable to

reduce the risk of Type I errors, that is, rejecting the null hypothesis when it is true (Stevens, 2009). Multiple regressions are a proper analysis when the goal is to determine the value of a variable based on two or more other variables (Stevens, 2009).

The independent variables in the analysis were monetary rewards, social units, and diversity of cultural background. "Monetary rewards" was an ordinal variable measured by the survey instrument. Monetary rewards were created by taking the sum of questions 2a, 2b, 2c, 2d, 2e, and 2f from the survey instrument (see Appendix A). "Social units" was an ordinal variable measured by the survey instrument. Social units were created by taking the sum of questions 3a, 3b, 3c, 3d, and 3e from the survey instrument. "Cultural diversity" was an ordinal variable measured by the survey instrument. Cultural diversity was created by taking the sum of questions 4a, 4b, 4c, 4d, and 4e from the survey instrument. The dependent variable was "knowledge sharing," which was an ordinal variable measured by the survey instrument. Knowledge sharing was created by taking the sum of questions 1a, 1b, 1c, 1d, and 1e. These ordinal numbers indicated the rank order only and not absolute quantities or the interval between ranks (Frankfort-Nachmias & Nachmias, 2008).

Because the Likert scale used in the instrument provided ordinal data where conceptual distances between possible responses were not equal (Granberg-Rademacker, 2010), Rasch analysis was used to convert the data to an interval scale. By applying the Rasch rating scale model with WINSTEPS software, numbers from the survey instrument could be used as "labels" to compute a scale score measure for each respondent (Boone,

Townsend, & Staver, 2010). Unlike the raw score totals, this scale score takes into consideration the ordinal aspect of the rating data (Boone et al., 2010). The Rasch model uses mean square fit statistics to assess items' fit to the model. Items with fit statistics greater than one have too much variation from the predicted model and may be unreliable (Davey, Harley, & Elliott, 2013). Items with fit statistics less than one may be too predictable, meaning they do not discriminate between participants (Davey et al., 2013). Misfitting items less than and greater than one were removed from the data. The assumptions of normality, homoscedasticity, and absence of multicollinearity were also assessed prior to conducting the analysis.

Multicollinearity occurs when highly correlated independent variables exist (Zainodin, Noraini, & Yap, 2011) and may produce large standard errors in independent variables that are related (Krul, Daanen, & Choi, 2011). SPSS was used to identify the severity of multicollinearity by measuring the variance inflation factor (VIF). A VIF larger than 10 would indicate that a predictor has a strong relationship with another predictor (Dickinger & Stangl, 2013). Additionally, a tolerance statistic (1/VIF) above .3 is recommended (Dickinger & Stangl, 2013). Remedies for multicollinearity include dropping variables, collecting more data, transforming orthogonally (i.e., introducing another set of variables), adopting biased estimates, and leaving the data as they are (Chang & Mastrangelo, 2011; Krul et al., 2011). If VIF analysis revealed the existence of multicollinearity in this study, I would have used a variable elimination approach to drop a variable at each run until multicollinearity had been eliminated. A disadvantage of

dropping the variable with the largest VIF is that interesting variables may be dropped (Chang & Mastrangelo, 2011). To remedy this potential issue, I was prepared to use a variant of the simple variable elimination approach recommended by Chang and Mastrangelo (2011) where two or more variables with the largest VIFs are selected and the least "interesting" variable is dropped, where "interesting" is defined by user. Table 2 contains a summary of the variables analyzed.

Table 2

Variable List

Variable	Level of measurement	Source	Questions	Variable type
Rewards	Ordinal	Instrument	2a, 2b, 2c, 2d, 2e, 2f	Independent
Social units	Ordinal	Instrument	3a, 3b, 3c, 3d, 3e	Independent
Culture diversity	Ordinal	Instrument	4a, 4b, 4c, 4d, 4e	Independent
Knowledge sharing	Ordinal	Instrument	1a, 1b, 1c, 1d, 1e	Dependent

Justification

Multiple regression analysis was used to determine if the independent variables predict the dependent variable. Multiple regression was the appropriate analysis because the goal of the research was to determine the effect of a set of dichotomous variables on an interval/ratio criterion variable (Stevens, 2009). The following regression equation (main effects model) was used:

$$y = b0 + b1*x1 + b2*x2 + b3*x3 + e;$$

where y = the response variable, $b0$ = constant (which includes the error term), $b1$ = first regression coefficient, $b2$ = second regression coefficient, b3 third regression coefficient, $x1$ = first predictor variable (rewards), $x2$ = second predictor variable (social units), $x3$ =

third predictor variable (cultural diversity), and *e* = the residual error (Tabachnick & Fidell, 2006).

Standard multiple regression—the enter method—was used. The standard method enters all independent variables (predictors) simultaneously into the model. Variables are then evaluated based on what they add to the prediction of the dependent variable that was different from the other predictors (Tabachnick & Fidell, 2006). The *F* test was used to determine if the set of independent variables collectively predicted the dependent variable. R-squared—the multiple correlation coefficient of determination—was used to assess the independent variables effect on the dependent variable's variance. The t-test determined the significance of the predictors and beta coefficients determined the level of prediction for the independent variables.

Instrumentation and Operationalization of Constructs

The instrument used in this study was crucial to the research. I developed an instrument consistent with the quantitative aspect of the study. A 5-point Likert scale was used to quantify the variables. Appendix A contains a copy of the instrument used.

Validity and Reliability

Because my study involved several cultures, "contextual specificity" of measurement validity was a concern. Contextual validity arises when a measure is valid in one context but potentially invalid in another (Adcock & Collier, 2001). This issue can arise in survey research when different cultural groups are involved. Adcock and Collier (2001) have recommended establishing measurement validity with contextual specificity

by both assessing the implications for establishing equivalence across the diverse contexts and adopting context-sensitive measures.

Because English is the *lingua franca* for all levels of society in Dubai, even for written documents (Randall & Samimi, 2010), and, although Arabic is the official language, English is used in business and commerce (Dubai Department of Tourism and Commerce Marketing), the survey was conducted in English.

The instrument was first pilot tested by a panel of eight experts who evaluated the instrument for clarity and internal consistency (Sousa & Rojjanasrirat, 2011). Content validity was then calculated using factor analysis. To examine the four research scales, four Bartlett's Test of Sphericity were conducted along with KMO measures of sampling adequacy to assess if the scales were valid. Data must have a KMO over .60 and a valid Bartlett test result to be considered appropriate (Bicen & Özdamlı, 2011). The panel provided feedback, and questions were modified as necessary. The final step was a full test of 23 subjects from the sample. The 23 results from this pilot test were used to test the reliability of the modified instrument using the split-half reliability method. A reliability coefficient value over .80 is considered good for establishing internal consistency reliability (Bicen & Özdamlı, 2011). To improve interpretation, factor rotation using the varimax method was also conducted.

Expected Outcomes

The expected outcome of this study was an increased understanding of how knowledge is shared by people with different cultural backgrounds when they are

members of the same organization. Findings from this study will contribute to better cross-cultural communication in organizations.

Understanding how knowledge is shared in a multicultural team is important to achieving a competitive advantage in the global marketplace. The results of this study will be used by managers of multicultural teams to improve knowledge sharing in their teams. Improved knowledge sharing will enable them to achieve more effective KM and better performance.

Summary

This was a quantitative study using a cross-sectional survey design. The population for the study was first-level managers in Dubai, U.A.E. A nonprobability convenience sampling design was used to secure a representative sample of the population. Statistical analysis was used to evaluate data. Multiple regression was conducted to assess the collective effect of the independent variables on the dependent variable. In Chapter 4 I will discuss the results of the data collection and analysis.

Chapter 4: Results

Introduction

In Chapter 4 I will present the procedures used to conduct the survey, data analysis undertaken to assess knowledge sharing in multicultural organizations, how the three hypotheses were tested, and conclusions.

A survey was conducted to obtain information on managers' attitudes and influences toward knowledge sharing. Information from the survey was used to answer the research questions and test the hypotheses. The research questions were:

1. What is the nature of the relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams?
2. What is the nature of the relationship between managers' membership in social units outside the organization such as families, religions, or clubs and their knowledge-sharing behavior?
3. Does greater cultural diversity promote knowledge-sharing behavior?

In this chapter I explain the techniques and procedures used to pretest and conduct the survey, present information on the target and sample population, and describe the techniques used to validate the survey instrument and results. Finally, results of the data analysis used to test the hypothesis are presented.

Data Presentation

Survey Administration

Data collection commenced upon approval from the university Institutional Review Board (IRB) to conduct research, approval # 05-19-14-0202328, dated May 19, 2014. First a pilot test of the instrument was conducted with a panel of experts for clarity and internal consistency. It was then validated for content using factor analysis. Based on feedback from the panel, several changes were made to the instrument to improve clarity. The revised instrument was then approved by the IRB. A full test was then conducted with 23 subjects from the sample to test the reliability of the sample. I identified potential participants for the test and survey through public means, such as the Dubai Chamber Directory. I then sent an invitation to participate in the survey to potential participants. After receiving a response stating a desire to participate, I emailed the survey instrument and consent form to those who agreed to participate. Participants then completed the instruments and returned them to me by email. Twenty-three completed responses were received. The 23 results from this full test were used to test the reliability of the modified instrument using the split-half reliability method. A reliability coefficient value over .80 is considered sufficient to establish internal consistency reliability (Bicen & Özdamlı, 2011). Once the instrument was found valid and reliable, the survey was distributed.

To facilitate accuracy of data collection and to confirm that participants met inclusion criteria, the instrument asked participants if they belonged to the sample population, and only those instruments with a positive response to this question were

used for survey data analysis. A definition of the inclusion criteria (i.e., first-level mangers) was included in the introduction of the survey instrument.

To protect the privacy of participants, their names were not included on the survey forms and names will not be included in any report or publication that results from this study, nor do the names appear here. The original survey forms were also destroyed once data were input into the database, along with any information linking the data with the original instrument forms.

This survey was conducted in accordance with research ethics guidelines established by the U.A.E. Ministry of Health.

Population, Sample, and Response Rate

The population for the study was first-level managers in the U.A.E. The survey was conducted by email from October to December 2014 in the same manner as the pilot test. Managers were sent email invitations in groups of about 100. As in the pilot test, managers who indicated a desire to participate were sent the survey instrument and consent form. After one week, if the completed instrument was not returned, a reminder email was sent. This cycle continued until the desired sample size of 77 was exceeded. A total of 370 invitations were sent out, and 83 complete responses were received. Of those, two were eliminated due to being incomplete or because respondents did not indicate that they were first-level managers; two others were removed because the respondents did not belong to a multicultural organization, leaving a final sample size of 79 and a response rate of 21%.

Survey Instrument Validation

The Knowledge Sharing Instrument was designed to measure factors (not subscales) that affected knowledge sharing among first-level managers in multicultural organizations. Data from the instrument test were used to validate the instrument using factor analysis.

Results of the Bartlett's tests showed significance only for cultural diversity (p = .002). Because the test is significant, this finding suggested that the cultural diversity set of questions may have had more than one construct. However, the KMO measure of sampling adequacy of only .43 suggested that the set of questions should not have been tested as multiple factors and only one factor existed. The KMO measure of sampling adequacy for the other three scales also suggested that only one factor existed among the group of questions (Kaiser, 1974). Therefore, with the combination of Bartlett's Test of Sphericity and the KMO measure of sampling adequacy, each of the scales was considered as valid and reliable scales on their own. Results of the pilot study are shown in Table 3.

Table 3

Results for Bartlett's Test of Sphericity and KMO Measures of Sampling Adequacy

Scale	Bartlett's test of sphericity			KMO measure of sampling adequacy
	χ^2	*df*	*p*	
Knowledge sharing	13.89	10	.178	.34
Rewards	21.29	15	.128	.62
Social units	10.82	10	.372	.44
Cultural diversity	28.14	10	.002	.43

The groups of questions for knowledge sharing, rewards, social units, and cultural diversity were split into two sets (see Table 4). Composite scores for each of the scales (for both sets) were computed by taking the average of the questions. Split-half reliability testing was then conducted between both sets of composite scores. Results of the split-half reliability testing showed a Guttman split-half coefficient of .88, suggesting acceptable reliability for both sets of scores.

Table 4

Knowledge Sharing, Rewards, Social Units, and Cultural Diversity Sets of Questions

Scale	Set 1	Set 2
Knowledge sharing	Q1a, Q1c, Q1e	Q1b, Q1d
Rewards	Q2a, Q2c, Q2e	Q2b, Q2d, Q2f
Social units	Q3a, Q3c, Q3e	Q3b, Q3d
Cultural diversity	Q4a, Q4c, Q4e	Q4b, Q4d

Note. Split-half reliability = .88

Factor Analysis

To improve interpretation of the factor analysis, varimax factor rotation was also conducted on the pilot test data. Varimax rotation maximizes dispersion of loadings within factors, resulting in more interpretable factors (Field, 2009).

To determine whether the scale was unidimensional or multidimensional, a principal components analysis (PCA) was performed to uncover the factor structure. The results of the PCA indicated that there were three to four factors. Given the multidimensional nature of these results, a principal factor analysis was conducted.

Initially, the factorability and suitability of the respondent data for factor analysis were examined, using well-recognized criteria for the factorability of a correlation, including the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity. Idowu (2013) recommends the KMO index especially when the cases-to-variable ratio is less than 1:5. The KMO index ranges from 0 to 1, with 0.50 deemed appropriate for factor analysis (Idowu, 2013). The Bartlett's test of sphericity should also be significant ($p < .05$) for factor analysis to be applicablee (Idowu, 2013).

All of the items correlated with a coefficient of at least .30 with at one or more of the other items, suggesting reasonable factorability. Secondly, the Kaiser-Meyer-Olkin measure of sampling adequacy for all factors, except for organization, was above the recommended value of .50. Bartlett’s Test of Sphericity was significant for all factors. Table 5 shows a summary of test results.

Table 5

Results for Bartlett's Test of Sphericity and KMO Measures of Sampling Adequacy

Scale	Bartlett's test of sphericity			KMO measure of sampling adequacy
	χ^2	*Df*	*p*	
Attitude toward Knowledge sharing	42.089	6	.000	.76
Rewards for knowledge sharing	64.41	10	.000	.751
Social effect for knowledge sharing	95.95	15	.000	.655
Organizational factors affecting knowledge sharing	16.56	3	.001	.466

Principal axis factors extraction with varimax rotation was performed using SPSS 22 on 21 items from the knowledge sharing nstrument administered to the pilot sample of 23. Four orthogonal factors were separately extracted based on the scree plot, eigenvalues, and variance accounted for by each factor. The results show that each extracted factored was unidimensional. The percent of variance accounted for by each of the four factors was 69%, 74%, 61%, and 62%, respectively. However, the organizational factor failed to converge in this sample. Table 6 shows the factor loadings after rotation.

Table 6

Summary of Exploratory Factor Analysis with Varimax Rotation All Items (N = 23)

	Factor			
Item	1	2	3	4
2.e. My knowledge sharing improves my expertise.	***.873***			
4.a. I am more likely to share knowledge with other members of the organization from the same country of origin as myself.	***.822***			
2.f. My knowledge sharing provides opportunities for recognition.	***.776***	.430		
3.b. In general, I have good relationships with my peers in the organization.	***.720***			.363
3.d. I am more likely to share knowledge with members of the organization whom I socialize with outside the workplace.	***.686***		.416	
1.e. There is no time to share knowledge with my colleagues.	***-.647***	.515		
3.c. I socialize with members of my organization outside of the work place.	***.536***			.517
2.a. My organization offers rewards for knowledge sharing.		***.967***		
2.b. I am more likely to receive promotions in return for knowledge sharing.		***.931***		
2.c. My organization offers monetary incentives for knowledge sharing.		***.816***		
2.d. My organization offers non-monetary rewards for knowledge sharing (for example, appreciation and recognition)		***.717***		.324
4.c. Most of the other first level managers in my organization have the same cultural background as I do.		***.605***		.310
4.b. My supervisor has the same cultural background as mine.		***.410***		
4.e. I am more likely to share knowledge with colleagues who have more influence and who can help me in return.			***.823***	
3.e. I am more likely to share knowledge with members of my family, religious community, clubs, sports teams, or friend circle than with other members of my organization.			***.803***	
1.d. I make an effort to share knowledge with other members of the organization.	.334		***.688***	.362
4.d. Sharing knowledge is honorable and will increase my prestige.	.633		***.651***	
3.a. I belong to some of the same social units as some other members of my organization.	.525		***.587***	.340
1.a. My organization has a process for sharing knowledge throughout the organization.		.381		***.833***
1.c. My organization has a process for transferring organizational knowledge to individuals such as new employees.		.380		***.591***
1.b. My organization has a process for sharing knowledge with those involved in making decisions.				***.560***

Table 6, continued

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.373
Bartlett's Test of Sphericity	Approx. Chi-Square	511.501
	Df	210
	Sig.	.000

One item was eliminated because it did not contribute to the factor structure and failed to meet a minimum criteria of having a primary factor loading of .30 or above, and no cross loading of .30 or above. The item "4.d. Sharing knowledge is honorable and will increase my prestige" did not load .30 on its respective factor, likely due to the double-barreled nature of the item. In addition, in the original factor analysis with all items, this item had a substantial cross-loading with another factor.

In sum, the four factors on the Knowledge Sharing Instrument for this group of subjects were attitude toward knowledge sharing, rewards for knowledge sharing, social factors affecting knowledge sharing, and organizational factors affecting knowledge sharing.

Results

Descriptive Statistics

A total of 83 participants took part in the study. Of those, two were removed because of incomplete answers and because they did not indicate they were first-level

managers; two others were voided for only having one language spoken within the organization and only one nationality represented, thus their organization was not considered multicultural. Hence, data analysis was conducted on the 79 remaining participants.

Most of the participants were male (53, 67%), and most had come from India (63, 80%). It is noteworthy that participants from India spoke nine different languages as their first language, indicating the cultural diversity of participants from this multicultural country. Also remarkable is that none of the participants was a citizen of the country where the study took place, the U.A.E. The first language for many participants was Hindi (25, 32%), English (16, 20%), or Malayalam (15, 19%). The working language for the majority of the participants was English (74, 94%). Most of the participants came from companies with a local branch of more than 100 employees (41, 52%). All of the participants were first-level managers, and only four participants (5%) had family members working in the same company. Most of the participants had a graduate degree (40, 51%). Frequencies and percentages for participant demographics are shown in Table 7.

Table 7

Frequencies and Percentages for Participant Demographics

Demographic	*N*	%
Gender		
Female	26	33
Male	53	67
Nation of origin		
Egypt	2	3
France	1	1
India	63	80
Jordan	1	1
Lebanon	1	1
Nigeria	3	4
Pakistan	5	6
Thailand	1	1
UK	2	3
First language		
Arabic	4	5
English	16	20
French	1	1
Gujarati	3	4
Hindi	25	32
Konkani	1	1
Malayalam	15	19
Marathi	1	1
Punjabi	1	1

Table 7, continued

Tamil	3	41	
Thai	1	1	
Urdu	6	8	
Yoruba	2	3	
Working language	Arabic, English	3	4
English	74	94	
English, Hindi, Gujrati, Arabic	1	1	
Thai, English, Arabic	1	1	
Employees in local branch	Don't know	4	5
Less than 50	23	29	
50-100	11	14	
More than 100	41	52	
Other members of family work in same company	No	75	95
Yes	4	5	
Education	High School	1	1
2-year college	7	9	
4-year college	28	34	
Graduate degree	40	51	
Post-graduate degree	5	6	

The age of the participants ranged from 21 to 55 years old (M = 31.39, SD = 7.69). Between one and 100 nationalities are represented in each of the organizations, with an average of 13.65 (SD = 18.21). The number of languages spoken daily within the organization ranged from 1 to 26 (M = 4.63, SD = 4.44). Table 8 shows the means and standard deviations for participant demographics.

Table 8

Means and Standard Deviations for Participant Demographics

Demographic	*M*	*SD*
Age	31.39	7.69
Nationalities represented within organization	13.65	18.21
Languages spoken daily within organization	4.63	4.44

Three subscales were created to examine the research questions: knowledge sharing, rewards, social units, and cultural diversity. Cronbach alpha reliability was conducted on each of the scales. Knowledge sharing and social units had acceptable reliability (> .69), whereas rewards had good reliability (> .79). However, cultural diversity had unacceptable reliability (< .60). Because of the poor reliability, caution should be taken in the interpretation of results using the cultural diversity variable. WINSTEPS was used to calculate the knowledge sharing, rewards, social units, and cultural diversity scores. Table 9 presents the results of Cronbach alpha testing.

Table 9

Cronbach Alpha Testing of Reliability

Scale	Number of items	A
Knowledge sharing	5	.70
Rewards	6	.81
Social units	5	.72
Cultural diversity	5	.59

Research Questions

RQ1: What is the nature of the relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams?

$H_1$1: There is a positive relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams.

$H_0$1: There is no relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multinational teams.

RQ2: What is the nature of the relationship between managers' membership in social units outside the organization such as families, religions, or clubs and knowledge-sharing behavior?

$H_1$2: There is a positive relationship between managers' membership in social units and knowledge sharing with fellow members.

$H_0$2: There is no relationship between managers' membership in social units and knowledge sharing.

RQ3: Does greater cultural diversity promote knowledge-sharing behavior?

$H_1$3: There is a positive relationship between the cultural diversity of the organization and knowledge sharing.

$H_0$3: There is no relationship between the cultural diversity of the organization and knowledge sharing.

To examine research questions 1–3, a multiple linear regression was conducted to assess if rewards, social units, and cultural diversity predicted knowledge sharing. The linear model tested was as follows:

$$Y = \beta 0 + \beta 1 X1 + \beta 2 X2 + \beta 3 X3$$

where Y = knowledge sharing, $X1$ = rewards, $X2$ = social units, and $X3$ = cultural diversity. In the model, $\beta 0$ represents the intercept of the model and $\beta 1$ through $\beta 3$ are the coefficients of the respective predictor Xi, i = 1, 2, and 3.

Results of the regression showed a significant model, $F(3, 69) = 8.70$, $p < .001$, $R^2 = .27$, suggesting that rewards, social units, and cultural diversity all accounted for 27% of the variance in knowledge sharing. Because the model was significant, the individual predictors were examined further. Results of the overall regression model significance are presented in Table 10.

Research Question 1 Hypotheses

$H_1$1: There is a positive relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams.

$H_0$1: There is no relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multinational teams.

The results of the multiple linear regression showed that the predictor of rewards was significant ($B = 0.34$, $p = .002$) suggesting that as rewards scores increased, knowledge sharing scores tended to increase.Therefore, the null hypothesis was rejected. Results of the regression are presented in Table 11.

Research Question 2 Hypotheses

$H_1$2: There is a positive relationship between managers' membership in social units and knowledge sharing with fellow members.

$H_0$2: There is no relationship between managers' membership in social units and knowledge sharing.

The results of the multiple linear regression showed that the predictor for social units was not significant ($p = .237$) suggesting that it is not significant in predicting knowledge sharing. Therefore, the null hypothesis is not rejected. Results of the regression are presented in Table 11.

Research Question 3 Hypotheses

$H_1$3: There is a positive relationship between the cultural diversity of the organization and knowledge sharing.

$H_0$3: There is no relationship between the cultural diversity of the organization and knowledge sharing.

The results of the multiple linear regression showed that the predictor for cultural diversity was not significant ($p = .190$) suggesting that it is not significant in predicting knowledge sharing. Therefore, the null hypothesis is not rejected. Results of the regression are presented in Table 11.

Table 10

Results of the Regression Model Significance for Rewards, Social Units, and Cultural Diversity Predicting Knowledge Sharing

Model	*SS*	*df*	*MS*	*F*	*p*
Regression	32.87	3	10.96	8.70	< .001**
Residual	86.95	69	1.26		
Total	119.82	72			

** $p < .001$.

Table 11

Results for Multiple Linear Regression with Rewards, Social Units, and Cultural Diversity Predicting Knowledge Sharing

Source	*B*	*SE*	B	*t*	*p*	VIF
Rewards	0.34	0.11	.37	3.22	.002**	1.23
Social units	0.14	0.12	.14	1.19	.237^{ns}	1.39
Cultural diversity	0.19	0.15	.15	1.32	.190^{ns}	1.26

** $p < .01$. *ns* = non-significant.

Verification of Assumptions for Multiple Linear Regression

Prior to analysis, the assumptions needed to conduct the multiple linear regression were assessed. These assumptions include normality, homoscedasticity, and absence of multicollinearity. Normality was assessed by viewing a P-P scatterplot of the residuals.

The scatterplot showed no strong deviation from normality, and the assumption was met (see Figure 2). Homoscedasticity was assessed by viewing a scatterplot between the residuals and predicted values. The plot showed no indication of a pattern, and thus the assumption was met (see Figure 3). Absence of multicollinearity was assessed by examining Variance Inflation Factors (VIF). The VIF measures the strength of the linear association between a specific predictor and the remaining predictors, with values over 10.00 indicating multicollinearity (Stevens, 2009). The VIF values for rewards, social units, and cultural diversity were below 10.00 (1.23, 1.39, and 1.26 respectively) and thus the assumption was met.

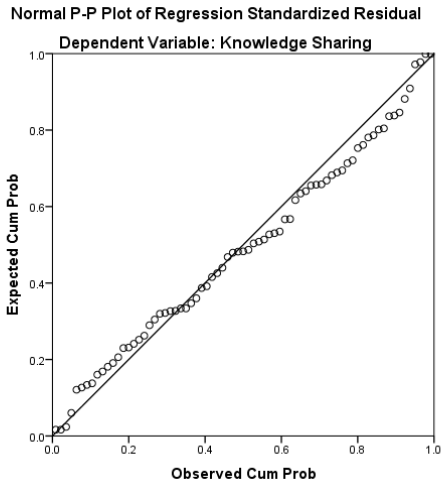

Figure 3. Normal P-P scatterplot for residuals.

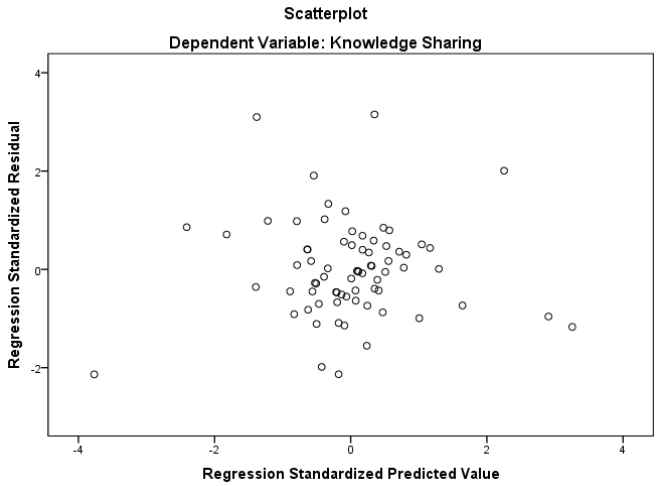

Figure 4. Scatterplot between residuals and predicted values.

Summary

The purpose of this survey was to assess the effect of rewards, social units, and cultural diversity on knowledge transfer in multicultural organizations in Dubai, U.A.E. For the first research question, the null hypothesis was rejected, $B = .34$, $p = .002$, indicating there was a positive relationship between rewards for knowledge sharing and knowledge-sharing behavior in multicultural organizations. The second null hypothesis was not rejected, $p = .190$, indicating there was not sufficient evidence to prefer the alternative hypothesis to the null hypothesis (i.e., the data do not indicate a positive relationship between managers' membership in social units and knowledge sharing with fellow members of the organization). The third null hypothesis was also not rejected, $p = .237$, indicating that there was not sufficient evidence to conclude the presence of a positive relationship between the cultural diversity of the organization and knowledge sharing within the organization. The data also showed a positive relationship between the

combined effect of rewards, social units, and cultural diversity and knowledge sharing. In Chapter 5 I summarize the study, present recommendations and conclusions, and suggest implications for social change.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

In Chapter 5 I provide a summary of the entire dissertation. I discuss the findings in order to explain how knowledge is shared in organizations and, specifically, the role of rewards and social units in knowledge transfer in a multicultural context. The results of the research reveal factors that influence knowledge sharing and can enable managers in multicultural organizations to achieve more effective knowledge management.

The chapter begins with a brief overview of the study, which is followed by a restating of the purpose and the summary of results. The next section contains conclusions for each research question; specific implications for social change and practice are also described. Lastly, recommendations for future research are offered, followed by a summary and conclusion.

Overview of the Study

Competitive advantage is no longer limited to the efficient methods of production and delivery; leveraging knowledge is equally important (Fey & Furu, 2008). In a knowledge-based economy, knowledge-based assets create value, making KM a source of competitive advantage (Fey & Furu, 2008; Wang & Noe, 2010). Understanding what motivates members of a team or organization to share knowledge is essential to improving knowledge sharing (Lam & Lambermont-Ford, 2010); however, research findings in the field of knowledge management are inconclusive in regard to motivators

to share knowledge. This study fills the gap by examining the motivators of knowledge sharing in a multicultural team context in a non-Western country.

The results have implications for effecting positive social change at the societal, organizational, and team level by increasing understanding of how knowledge is shared by people from different cultures and by contributing to better cross-cultural communication in organizations. To achieve these outcomes, the study sought to answer three research questions:

1. What is the nature of the relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams?
2. What is the nature of the relationship between managers' membership in social units outside the organization, such as families, religions, or clubs, and their knowledge-sharing behavior?
3. Does greater cultural diversity promote knowledge-sharing behavior?

The study was grounded in agency theory, which focuses on how contracts can be written between conflicting parties to achieve an objective (Fey & Furu, 2008). This study used a quantitative research methodology with cross-sectional design. The independent variables for this study were monetary rewards, membership in social units, and cultural diversity. The dependent variable was knowledge sharing. The instrument contained five questions for three of the variables and six questions for one of the variables, in addition to demographic information. The survey instrument was used to collect data from first-level managers in Dubai, U.A.E. Data were analyzed using

descriptive statistics to represent the demographics and research variables.

Summary of the Results

A total of 83 participants took part in the study, two of which were removed because of incomplete answers and because they did not indicate they were first-level managers. An additional two participants were disqualified because their organizations had only one language spoken in them and only one nationality represented; thus their organization was not considered multicultural. Most of the participants were male (53, 67%), and most had come from India (63, 80%). The first language for many participants was Hindi (25, 32%), English (16, 20%), or Malayalam (15, 19%). All of the participants were first-level managers, and only four participants (5%) had family members working in the same company. The age of the participants ranged from 21 to 55 years of age (M = 31.39, SD = 7.69).

> $H_1$1: There is a positive relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams.
>
> $H_0$1: There is no relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multinational teams.

The findings showed a positive relationship between rewards for knowledge sharing and knowledge-sharing behavior in multicultural organizations.

> $H_1$2: There is a positive relationship between managers' membership in social units and knowledge sharing with fellow members.
>
> $H_0$2: There is no relationship between managers' membership in social units

and knowledge sharing.

The findings indicated insufficient data to posit a positive relationship between managers' membership in social units and knowledge sharing with fellow members of the organization.

$H_1$3: There is a positive relationship between the cultural diversity of the organization and knowledge sharing.

$H_0$3: There is no relationship between the cultural diversity of the organization and knowledge sharing.

The findings did not indicate sufficient data to state that there is a positive relationship between the cultural diversity of the organization and knowledge sharing.

Discussion of the Results in Relation to Literature

Data from the 83 completed responses provided interesting insights into the factors that affect knowledge management in multicultural organizations through the knowledge-based view and agency theory. In this section, I discuss how the results of the data analysis answered the three research questions and how the results support, contradict, or add knowledge to the existing knowledge management literature.

To examine research questions 1 to 3, a multiple linear regression was conducted to assess if rewards, social units, and cultural diversity predict knowledge sharing. The population for the study was first-level managers in Dubai, U.A.E. The survey was conducted by email from October to December 2014 in the same manner as the pilot test. A total of 370 invitations were sent out, and 83 completed responses were returned; of

those, two were eliminated due to being incomplete or because respondents did not indicate they were first-level managers, and two were eliminated because the respondents did not belong to a multicultural organization, leaving a final sample size of 79 and a response rate of 21%.

Research Question 1. What is the nature of the relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams?

The answer to the first research question is that there is a positive relationship between monetary rewards for knowledge sharing and knowledge-sharing behavior in multicultural teams. Expectancy theory states that the intent to carry out an action is to some degree influenced by the prospects of a particular result (Vroom, 1964). The more that the individual associates affirmative results with a deed, the more likely that individual will carry out a deed. In the study, the affirmative results would be the monetary rewards for knowledge sharing and knowledge-sharing behavior.

The literature about the role of rewards—specifically monetary rewards—concludes that there are inconsistent results and that more research is needed to determine whether the individual and contextual variables mediate the relationship between knowledge sharing and rewards. The results of this study provide more support to studies that showed a relationship between knowledge sharing and rewards.

This finding was also consistent with the findings of Fey and Furu (2008), who studied the associations of incentive pay, collective performance of multinational

corporations (MNC), and knowledge sharing. Monetary rewards for top managers, based on the performance of MNC, facilitated knowledge transfer as more managers shared more knowledge and motivated their subordinates to share knowledge (Fey & Furu, 2008). In a study of knowledge sharing in family-owned business in China, Lai and Tong (2010) also found rewards to be a significant mediator between the family-owned factor and knowledge sharing. In Rahman's (2011) survey of researchers in a healthcare institute in Malaysia, 61.5% of respondents indicated that monetary rewards were an important factor in encouraging knowledge sharing. Effective communication channels and the improvement of work processes were found to be two main motivators of knowledge sharing (Rahman, 2011).

In the literature, rewards have also been found to buffer the negative effect of relationship conflict on knowledge sharing (Z. Chen, 2011). This adds support to the finding that monetary rewards lead to an increase of knowledge sharing and knowledge-sharing behavior. Rewards provide a compensatory effect on the detrimental effects of negative factors in knowledge sharing (Z. Chen, 2011). Z. Chen's (2011) study suggested that managers can use rewards to buffer negative influences on knowledge sharing; however, further research is needed to establish causal relationships.

The study of Bock and Kim (2002) provided contradictory results to the findings of the study described in this paper. Their study concluded that rewards did not have a major impact on attitudes toward knowledge sharing of employees in public organizations in Korea. Their study included the role of information technology usage

and the knowledge-sharing behavior of the individual (Bock & Kim, 2002). Similarly, Gupta et al. (2012) indicated a negative relationship between expected rewards and knowledge sharing and expected contribution to the organization. Gupta et al.'s (2012) study concluded that expected improved social relations are positively correlated to knowledge sharing. Jahani et al.'s (2011) study also stated that an intrinsic reward system—combined with a mentoring leadership—accounted for knowledge-sharing behavior.

Jiacheng et al. (2010) also found that rewards had little direct effect on knowledge sharing, which was not consistent with the findings of the current study. Furthermore, Jiacheng et al.'s (2010) study, which was conducted in China and the United States, found that rewards influenced attitudes toward knowledge sharing indirectly via identification. Liu and Fang (2010) had similar results in Taiwan, stating that rewards were not related to knowledge sharing. Studies of knowledge sharing in Iran, Pakistan, and Kuwait also all found that organizational rewards do not significantly influence knowledge-sharing behaviors or attitudes (Salim et al., 2011; Seba et al., 2012). The current study did not evaluate the effect of rewards on employees' attitudes toward knowledge sharing, focusing instead on knowledge-sharing behaviors. Additionally, these previous studies did not examine the participants' cultural background.

Zhang et al.'s (2010) study showed that rewards did not improve the quality of tacit knowledge, because participants contributed low-quality knowledge. In the current study, the quality of knowledge was not evaluated. Zhang et al. (2010) also concluded

that, in the Asian context, rewards were not effective when the new employees felt they had nothing valuable to contribute, monetary rewards were too small, and there was a lack of time to share knowledge.

Research Question 2. What is the nature of the relationship between managers' membership in social units outside the organization, such as families, religions, or clubs and their knowledge-sharing behavior?

The second research question aimed to determine the nature of the relationship between managers' membership in social units outside the organization such as families, religions, or clubs and knowledge-sharing behavior. Based on the data, there was no relationship between managers' membership in social units and knowledge sharing with fellow members. The finding is inconsistent with most studies in the literature. According to Dickinger and Stangl (2013), a VIF larger than 10 would indicate that a predictor has a strong relationship with another predictor. Moreover, a tolerance statistic (1/VIF) above .3 is recommended (Dickinger & Stangl, 2013). According to the multiple regression analysis, social units (p = .237) was not a significant predictor.

According to Weir and Hutchings (2005) knowledge sharing in Arab organizations is more complex than is some other cultures because of the networked nature of society. Weir and Hutchings (2005) suggest that Arabs do not convert as much tacit knowledge because much of their knowledge exits in virtual networks and work and private life are not separated as they are in other societies. All business activities revolve round these social networks and is where knowledge is shared (Weir & Hutchings, 2005).

However, the present study did not find a relationship between membership in social units and knowledge sharing in organizations. This could be due to changes in Arab culture or management practices or because Arab knowledge sharing is even more complex than Weir and Hutchings (2005) imagined. More research will be needed with other variables and in different contexts to determine if there is a link between social units and knowledge sharing.

Research Question 3. Does greater cultural diversity promote knowledge-sharing behavior?

he last research question also aimed to determine whether greater cultural diversity promoted knowledge-sharing behavior. Based on the results, there was no relationship between the cultural diversity of the organization and knowledge sharing within the organization. According to Dickinger and Stangl (2013), a VIF larger than 10 would indicate that a predictor has a strong relationship with another predictor. Moreover, a tolerance statistic (1/VIF) above .3 is recommended (Dickinger & Stangl, 2013). In the multiple regression analysis, cultural diversity (p = .190) was not a significant predictor.

Based on the results, there was insufficient data to conclude there was a positive relationship between the cultural diversity of the organization and knowledge sharing within the organization. Most studies have emphasized the role of cultural characteristics in knowledge-sharing behaviors of employees in an organization. A majority of studies concluded that knowledge sharing of employees would depend on the culture they come

from. Horak (2010) found that cultural diversity was not related to knowledge sharing. As such, cultural diversity might not promote knowledge-sharing behavior. Only some studies in the literature suggested that cultural diversity promotes knowledge sharing and knowledge-sharing behavior.

According to findings by Skok and Tahir (2010), social and cultural beliefs are barriers to knowledge sharing in Arab organizations. In their study of knowledge sharing in a construction company in the U.A.E., they concluded that the Arab culture discourages knowledge sharing because of the cultural dependence on verbal communications and an Arab tendency toward secrecy and privacy (Skok & Tahir, 2010). Skok and Tahir (2010) also found that the diverse work force in the U.A.E. is a barrier to knowledge sharing because foreign workers are unwilling to share knowledge due to their short-term contracts and a lack of trust. Other researchers have suggested that Arab organizations do not share information because of "sheer ignorance of modern managerial practices" (Sidani & Thornberry, 2009, p. 46).

In this study I did not find a relationship between cultural background or cultural diversity and knowledge sharing. The difference in findings from Skok and Thair (2010) could be due to the organizational culture of the firm studied by them. It should also be noted that in Skok and Thair's (2010) study a majority of participants were from non-Arab countries yet they made conclusions about knowledge sharing in the "Arab world." The present study collected data from a wide variety of firms and industries and collected data on not only the cultural background of participants but also the cultural diversity of

their organization. Further research is needed to determine if there are cultural or other nuisances which affect knowledge sharing in this context.

Al-Esia and Skok (2014) also found that coworker nationality was an important factor in Emeriti managers' attitude toward sharing knowledge. In a survey of Emeriti managers, all respondents replied that they were more likely to share knowledge with other Emeriti Arabs than with foreigners, and 60% of respondents replied that they withhold information from foreign coworkers (Al-Esia & Skok, 2014).

A majority of studies have concluded that knowledge sharing by employees would depend on the culture they come from. Siau et al. (2010) stated that individualism and power distance are the two main differences between U.S. and Chinese cultures and that these differences explain the differences in knowledge sharing in virtual communities.

Knowledge sharing in multicultural teams could be limited by the fact that individuals speak different languages as their first language (Kivrak et al., 2014; Shan et al., 2013). Li (2010) also found several cultural differences that influenced knowledge sharing in an organization. Li (2010) identified three significant culture-related differences that caused Chinese participants to contribute knowledge less often than their American peers: language, differences in perceived credibility of knowledge to be shared, and different thinking logic.

Some studies have shown that cultural diversity would promote knowledge sharing and knowledge-sharing behavior. Ryan et al.'s (2010) findings indicated that

general theories on knowledge sharing are not limited by national context. While Rivera-Vazquez et al. (2009) concluded that willingness to share knowledge is influenced by national culture, they also stated that organizational culture can be used to overcome cultural barriers to knowledge sharing. Multicultural managers can use their role to go beyond the traditional social exchange between managers and employees and use the organizational culture to create a work environment that promotes knowledge sharing. According to Albescu et al. (2009), intercultural management is the key to supporting cultural knowledge management that ensures the success of multicultural teams in delivering goods to multicultural customers.

Technology such as Web 2.0, social media, discussion forums, and open source software can also be used to overcome barriers to knowledge sharing (Barker, 2015; Han et al., 2011). Kumar Goel et al. (2014) also found that the level of communication technology usage in the organization had a positive effect on knowledge-sharing behavior. Organizations should choose media for knowledge sharing based on cultural and linguistic variation (Klitmoller & Lauring, 2013) and other individual factors (Liu & Rau, 2014). Liu and Rau (2014) found that when sharing with out-group members, interdependent employees had higher self-efficacy and were more open to sharing knowledge when using open source software (e.g., Wikipedia) than they did when using a question-and-answer forum (Liu & Rau, 2014). However, there was no difference when sharing with in-group members (Liu & Rau, 2014). These methods have also been proven more effective when overseen by a proactive expert who ensures new knowledge is being

created and shared (Barker, 2015). However, other research has found that an individual's level of information technology usage does not have a significant moderating effect on knowledge sharing (Bock & Kim, 2002).

Conclusions

Previous researchers have examined the factors affecting knowledge sharing in different organizations and national contexts. Some variables that have been studied include attitude, intention, and behavior of the employees; motivation; barriers (including cultural barriers); and enablers. Previous studies have also focused on the effects of culture on knowledge sharing (Jiacheng et al., 2010; Liu, 2010; Weir & Hutchings, 2005; Wilkesmann et al., 2009). Some research has featured cultural diversity and its impact on knowledge sharing; however, these studies were conducted in one country or one industry only (Lauring & Selmer, 2011b, 2012).

Existing literature provides inconclusive results regarding factors affecting knowledge sharing. This study explored the relationship and impact of monetary rewards, social units, and cultural diversity on knowledge sharing in multicultural teams. The findings indicated that only monetary rewards had a positive relationship on knowledge sharing in a multicultural team. This finding is consistent with Fey and Furu's (2008) study, which concluded that rewards positively affected knowledge sharing, and with other research that has shown that attitude toward incentives (Ho & Kuo, 2013) and perceived organizational incentives (Wu & Zhu, 2012) positively affected knowledge-sharing behavior. However, these findings are inconsistent with research that did not find

a significant relationship between rewards and knowledge sharing (Bock & Kim, 2002; Gupta et al., 2012; Kumar & Rose, 2012; Wu & Zhu, 2012). Additionally, organizational structure can impact knowledge sharing. Pierce (2012) found that managers in vertically integrated firms had conflicting incentives to share knowledge and chose to share for personal gain.

Several organizations in the U.A.E. have initiated knowledge-sharing programs as the importance of knowledge sharing is gradually being recognized (Muhammad Siddique, 2012). However, there is a gap in the literature on knowledge sharing in diverse organizations, specifically in the context of the Middle East. The findings of this study contribute new information to the literature regarding the factors that influence knowledge sharing in multicultural teams.

Social Change Implications

Organizations need competitive advantage in order to be successful in their industry. Today, competitive advantage also involves leveraging knowledge as a tool for growth. One way to use knowledge management as a source of competitive advantage is by enabling employees to share knowledge efficiently. The results of this study provided new information about how monetary rewards motivated employees in the Middle East to conduct knowledge sharing and exhibit knowledge-sharing behaviors. With this result in mind, the study revealed several implications for knowledge sharing in multicultural organizations in the U.A.E. Multicultural organizations could use the findings of this

study to develop programs that focus on providing monetary rewards to promote knowledge-sharing behaviors in all employees.

The results have implications for effecting positive social change at the societal, organizational, and team level, by increasing understanding of how knowledge is shared by people from different cultures and by contributing to better cross-cultural communication in organizations. At the societal level, the literature provides evidence that cultural diversity would be the key to success of multinational companies, because they employ and serve individuals from different cultural and racial backgrounds. As such, it would be significant to understand how culture affects the interaction of different individuals and their knowledge-sharing behavior. Knowledge sharing is important in multinational companies in order for them to cater to the needs of the global market, in which they provide products or services to clients from different cultures.

At the organizational level, the findings from this study are especially important to organizations that want to create a culture of sharing that facilitates knowledge sharing. Based on the findings, management should support initiatives and efforts for knowledge sharing. In the context of this study, monetary rewards were an effective way to do so. Monetary rewards are vital to encouraging members of a team to participate in knowledge sharing in their organization.

Limitations and Recommendations for Future Research

Design and Internal Validity

Due to self-reporting from managers in a single survey, the data collection for this study involved the common method bias. The use of self-reporting constitutes a methodological limitation of the study because it could create a false internal consistency. However, two procedures in the study compensated for this limitation: the research design (i.e., mixing the order of the questions and using different scales) and the data analysis (i.e., post hoc Harman one-factor analysis to determine if variance in data can be mostly attributed to a single factor).

Another design limitation was the possible participation bias, due to the e-mail nature of the survey. According to Heiervang and Goodman (2011), web-based surveys may introduce bias due to low and selective participation. Participation bias may also involve the different degrees of literacy and Internet access, immigration from developing countries, or concerns about privacy and security (Coughlan et al., 2009). Individuals' proficiency in language may also affect participation because of complex terms and complex sentences. The survey utilized in this study overcomes this limitation by providing instructions and definitions with the instrument. Moreover, the participants were free to complete the survey in any order they chose. Participation bias was also reduced by contacting by telephone those participants who did not respond to the email survey.

Because the study used a survey, one of the limitations was the possibility of individual or item nonresponses. Individual nonresponse rates and low individual response rates could result in nonresponse errors and response errors, respectively (Coughlan et al., 2009). These errors would result in responses not representing the population. Several techniques would decrease the nonresponse rate in surveys, which were utilized in this study. These techniques include multiple contacts with participants, personalized contact, and developing a short questionnaire and clear survey items.

External Validity and Generalizability

The results of the study may only be used in comparison to the populations chosen for this study, which was first-level managers in Dubai, U.A.E. The results cannot be generalized to other populations, because the results of the study might only be applicable to the organizations in Dubai, U.A.E.

Analyses and Statistical Power

The study analyzed data using SPSS version 19.0 for Windows. The researcher used descriptive statistics to describe the sample demographics and the research variables used in the analysis. For nominal data, I calculated percentages and frequencies and means; for continuous data, I calculated standard deviations.

To examine the research questions, a multiple linear regression was conducted to assess if monetary rewards, social units, and diversity of cultural background significantly predicted knowledge sharing in multicultural teams. Multiple regression analysis was used to assess if the independent variables predicted the dependent variable

(criterion). Multiple regression was the appropriate analysis, because the goal of the research was to assess the extent of the relationship among a set of dichotomous variables on an interval/ratio criterion variable.

Multicollinearity occurs when highly correlated independent variables exist (Zainodin, Noraini, & Yap, 2011) and may produce large standard errors in independent variables that are related (Krul et al., 2011). As such, SPSS was used to identify the severity of multicollinearity by measuring the variance inflation factor (VIF). Where VIF analysis revealed the existence of multicollinearity in this study, I used a variable elimination approach to drop a variable at each run until multicollinearity was eliminated. A disadvantage of dropping the variable with the largest VIF is that interesting variables may be dropped (Chang & Mastrangelo, 2011). To remedy this issue, I used a variant of the simple variable elimination approach recommended by Chang and Mastrangelo (2011), whereby two or more variables with the largest VIFs are selected and the least "interesting" variable is dropped, where "interesting" is defined by user.

Measurement

The instrument used in this study was crucial to the research. I developed an instrument consistent with the quantitative aspect of the study. A 5-point Likert scale was used to quantify the variables. The Knowledge Sharing Instrument was designed to measure factors (not subscales) that affect knowledge sharing among first-level managers in multicultural organizations. The instrument was first pilot tested by a panel of eight experts, who evaluated the instrument for clarity and internal consistency (Sousa &

Rojjanasrirat, 2011). To ensure content validity, factor analysis was used. The four Bartlett's Tests of Sphericity were conducted, along with KMO measures to assess if the scales were valid. The panel provided feedback, and questions were modified as necessary. The final step was a full test of 23 subjects from the sample. The 23 results from this pilot test were used to test the reliability of the modified instrument using the split-half reliability method.

The scope and limitations of the study were its focus on first-level managers who worked in multicultural organizations in Dubai, U.A.E. It would be informative for future researchers to broaden the scope of the study or consider supplementing the results with qualitative data to achieve a more robust understanding of how culture affects knowledge sharing. At this point, the researcher would like to recommend the following expansions or topics:

- Expand the scope of the study to include more employees of multinational companies within a wider geographical area, thus including more nationalities to examine the differences of knowledge sharing among different national cultures. Because the study only considered first-level managers in Dubai, U.A.E., increasing the number and variety of the participants could provide a better understanding of the effects of monetary rewards, social factors, and cultural diversity on knowledge sharing. Moreover, a wider sample set could better reveal the effects of the factors examined in the study on knowledge sharing.

- Supplement the results with qualitative analysis. The findings only revealed a positive relationship between monetary rewards and knowledge sharing. Moreover, findings also revealed that there was no relationship found between social factors and cultural diversity and knowledge sharing. The interpretation of findings was only supported by the data from previous studies. Future studies of the topic could include both quantitative and qualitative analysis to further test the relationship among these variables.
- Aside from the survey questionnaire, future researchers could conduct extensive phenomenological interviews to provide empirical data, based on the perceptions, and more so the experiences, of the first-level managers.
- Future researchers could also use a different instrument aside from a survey questionnaire for the quantitative study; semistructured interviews with predetermined questions could be employed to elicit meaningful responses and new meanings on the topic to emerge. For the interviews, future researchers could also collect the data needed for monetary rewards, social factors, and cultural diversity.
- Future researchers could employ a mixed methods study or a triangulation of findings once they have gathered sources from both qualitative and quantitative analyses. With this approach, the study would have a strong foundation proving the validity and reliability by presenting the results of both the interviews and surveys conducted.

- Lastly, for studies to be truly useful and effective to organizations worldwide, future researchers could aim for generating quality and detailed knowledge-sharing plans as part of their final project outcomes. By doing so, both knowledge management and knowledge sharing would be increased if future researchers can produce quality and effectual plans that could duly help the organizations in need of help in this realm.

Reflections

The international nature of this study made it interesting and challenging. An additional complication was the need to validate the instrument. The combination of these factors added steps and time to the study, but in the end I was surprised that all issues were relatively easy to resolve. One reason for this simplicity is that English is the working language of the U.A.E. for business. This reality eliminated the need for translation and made communication much easier. The use of email also made communication easier and prevented problems due to time differences or understanding the many accents involved.

Another factor that facilitated the study was that I had a few contacts in Dubai who worked in business. They were able to serve as experts for the instrument validation and put me in touch with other experts. They also helped me locate sources of potential participants.

One unexpected cause of delay in collecting data was the month I started. I started in August and was not aware that this is the month most foreign managers and workers

return to their home county for holiday and very little work gets done. Another delay arose from the large number of respondents who emailed me asking for clarification of terms or questions, even though most terms they inquired about were defined in the instrument.

Finally, at the beginning of this research project, I was advised by my contacts in Dubai that web-based surveys are not conducted in the U.A.E., so people would be reluctant to participate if I asked them to complete one for the first time. Also participants would prefer the personal contact and attention of email. Therefore, surveys were conducted by email. However, with the growth of the international business community in Dubai and the recent popularity of web-based survey since this project was started, I now think there would be no special difficulties in conducting this type of data collection in Dubai and would recommend it to future researchers.

Summary and Conclusion

The purpose of this quantitative study was to understand how knowledge is shared in organizations and, specifically, the role of rewards and social units in knowledge transfer in a multicultural context. In this study, I examined how knowledge is shared, and determined possible motivators and inhibitors of knowledge sharing in multicultural organizations in the U.A.E.

This study explored the relationship and impact of monetary rewards, social units, and cultural diversity on knowledge sharing in multicultural teams. The following multiple regression model was used to describe the relationship between the dependent

variable (knowledge sharing, represented by *y*) and each independent variable (monetary rewards, social units, and cultural diversity, represented by *xi*) while controlling for the effect of the others: $y = b0 + b1*x1 + b2*x2 + b3*x3 + e$; where *b* = regression weights to minimize the sum of squared deviations and *e* = the residual error.

For the first research question, the null hypothesis is rejected, indicating a positive relationship between rewards for knowledge sharing and knowledge-sharing behavior in multicultural organizations. The second null hypothesis is not rejected, indicating there are not sufficient data to prefer the alternative hypothesis to the null hypothesis (i.e., the data do not indicate a positive relationship between managers' membership in social units and knowledge sharing with fellow members of the organization). The third null hypothesis is also not rejected, indicting there are not sufficient data to conclude there is a positive relationship between the cultural diversity of the organization and knowledge sharing within the organization. Findings also revealed a positive relationship between the combined effect of rewards, social units, and cultural diversity and knowledge sharing.

Understanding the determinants of knowledge-sharing behavior in multicultural organizations, and the barriers and motivators to knowledge sharing, will aid in the design of better knowledge sharing systems in this context. It is recommended that future researchers expand the scope of the study to include more employees of multinational companies within a wider geographical area, supplement the results with qualitative analysis, conduct interviews to provide empirical data based on the perceptions of the

first-level managers, and use a different instrument or survey questionnaire. Future research could also examine how leadership styles impact knowledge sharing in multicultural contexts.

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Appendix A: Survey Instrument

Survey Questionnaire

Thank you for agreeing to complete this survey on knowledge sharing in your organization. This research is being conducted by a PhD Candidate from Walden University in U.S.A. to better understand how knowledge is shared in multicultural organizations. Your responses will contribute to important research in the field of management. Your participation is confidential; names and other personal identifiers will be kept private by the researcher.

Definitions:

Working language: the language that is spoken on a daily basis in your organization.

First level manager: first level managers supervise the operations of the company. They implement the plans of middle managers and directly supervise employees. Examples of first level managers are supervisors, section leaders, foremen, shift managers, etc.

Knowledge sharing: communicating knowledge or understanding with the expectation to gain more insight or understanding. Knowledge sharing occurs when individuals communicate information with one another which is relevant to the organization. This knowledge contributes to organizational efficiency, effectiveness, and competiveness. It can also improve worker motivation, creativity, and productivity. Examples of knowledge that managers may share include formal documents and computer files or undocumented knowledge such as expertise, developed skills, undocumented processes, insights, ideas, suggestions, and other knowledge that is usually shared by face-to-face interaction.

Monetary rewards: money which is paid as incentive for behavior or for attaining goals. Reward may be paid at the individual, group, or organizational level.

Social units: for this study, social units are defined as groups, families, religions, clubs, or other organizations that individuals belong to.

Demographics:

Age: _____ Sex: Male / Female
Your nation of origin _____ Your first language _____ Your Working Language_____
How many nationalities are represented in your organization? _____
How many languages are spoken in your organization on a daily basis? _____
How many employees are in the local branch of your company? Less than 50/ 50-100 / More than 100 / Do not know
The industry in which you work _____
Are you a first level manager? Yes/No
Other members of my family also work for the same company as I. Yes / No
Education: High School Graduate / 2-year College Degree / 4-year College Degree / Graduate (Postgraduate) Degree

Survey Questions:

1. ***Knowledge Sharing***

Please indicate the degree to which you agree or disagree with the following statements:

	Agree	Disagree

1.a. My organization has a process for sharing knowledge throughout the organization.	5 4 3 2 1
1.b. My organization has a process for sharing knowledge with those involved in making decisions.	5 4 3 2 1
1.c. My organization has a process for transferring organizational knowledge to individuals such as new employees.	5 4 3 2 1
1.d. I make an effort to share knowledge with other members of the organization.	5 4 3 2 1
1.e. There is no time to share knowledge with my colleagues.	5 4 3 2 1

2. Rewards

Please indicate the degree to which you agree or disagree with the following statements:	Agree Disagree
2.a. My organization offers rewards for knowledge sharing.	5 4 3 2 1
2.b. I am more likely to receive promotions in return for knowledge sharing.	5 4 3 2 1
2.c. My organization offers monetary incentives for knowledge sharing.	5 4 3 2 1
2.d. My organization offers non monetary rewards for knowledge sharing (for example, appreciation and recognition)	5 4 3 2 1
2.e. My knowledge sharing improves my expertise.	5 4 3 2 1
2.f. My knowledge sharing provides opportunities for recognition.	5 4 3 2 1

3. Social Units

Please indicate the degree to which you agree or disagree with the following statements:	Agree Disagree
3.a. I belong to some of the same social units as some other members of my organization.	5 4 3 2 1
3.b. In general, I have good relationships with my peers in the organization.	5 4 3 2 1
3.c. I socialize with members of my organization outside of the work place.	5 4 3 2 1
3.d. I am more likely to share knowledge with members of the organization whom I socialize with outside the workplace.	5 4 3 2 1
3.e. I am more likely to share knowledge with members of my family, religious community, clubs, sports teams, or friend circle than with other members of my organization.	5 4 3 2 1

4. Cultural Diversity

Please indicate the degree to which you agree or disagree with the following statements:	Agree Disagree
4.a. I am more likely to share knowledge with other members of the organization from the same country of origin as myself.	5 4 3 2 1
4.b. My supervisor has the same cultural background as mine.	5 4 3 2 1
4.c. Most of my peers have the same cultural background as I do.	5 4 3 2 1
4.d. Sharing knowledge is honorable and will increase my prestige.	5 4 3 2 1
4.e. I am more likely to share knowledge with colleagues who have more influence and who can help me in return.	5 4 3 2 1

Thank you for participating in this survey!