2018

An Investigation of the Interaction between Organizational Culture and Knowledge Sharing through Socialization: A Multi-Level Perspective

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy
in
Information Systems

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2018

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College of Engineering and Computing
Nova Southeastern University

2018

Abstract

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

An Investigation of the Interaction between Organizational Culture and Knowledge Sharing through Socialization: A Multi-Level Perspective
by
Ali M. Baker
April 28, 2018

Knowledge management (KM) has been determined by many researchers as one of the most important domains within the information systems (IS) field, and knowledge sharing (KS) has been identified as the most vital component of KM. Lack of KS within organizations has been approached from many perspectives. One perspective that has been outlined in recent studies is the organizational culture (OC) perspective, which examines the interaction between OC and KS behaviors.

Although research has been conducted on OC and KS, the findings of recent studies have been contradictory. These conflicts were due to the different operationalization of KS. The purpose of this research was to conduct a multi method study to investigate the interaction between KS and OC in detail. A case study within a Fortune 50 organization was undertaken to address the problem. By focusing on socialization adopted from the socialization, externalization, combination, internalization (SECI) model, the iceberg theory, and the Competing Values Framework (CVF), two questions were explored to address an unexamined area within the body of knowledge. Per the recent calls for research, the questions addressed KS itemized into knowledge seeking and knowledge contributing, and investigated the phenomenon at multiple levels of the organization. The first question examined the interaction between OC and KS via socialization amongst peers for: (a) overall organization, (b) non-managers, (c) first level managers, and (d) second-level managers. The second question examined the interaction between OC and KS via socialization amongst various levels for: (a) subordinates and managers in overall organization, (b) non-managers and first level managers, and (c) first level managers and second level managers.

Data were collected through 82 surveys, 23 interviews, 23 observations, and company records for the calendar year of 2017 to provide multiple types of data for triangulation. The quantitative data were analyzed through descriptive statistics, correlation tables, multivariate analysis of covariance (MANCOVA), and visualization. The qualitative data were analyzed through open coding, axial coding, and selective coding. The combined results were triangulated to reach the conclusions.

The MANCOVA displayed a significant interaction between OC and KS via socialization. Furthermore, the triangulated results showcased that perceived bureaucratic culture and perceived competitive- bureaucratic culture had a negative relationship with KS via socialization amongst peers, knowledge seeking for manager to subordinate, and subordinate to manager, but not for between level knowledge contributing. While perceived clan culture had a positive relationship with KS via socialization amongst peers, and for knowledge seeking from

managers, but not for between level knowledge contributing. Perceived competitive culture was only discovered to have a negative relationship with knowledge seeking for level two managers, while having a positive relationship with knowledge contributing to employees, and knowledge contributing amongst peers with knowledge seeking as moderating variable. The various organizational levels also showcased distinct results which requires further investigation. Future research suggestions were made to extend the body of knowledge through various directions, alongside an IS solution recommendation for organizations to improve KS.

Acknowledgements

This dissertation was complete only through the help of God, and many individuals who assisted throughout the process. I want to thank God for guiding me closer towards his knowledge and wisdom through his infinite light. Thanks to my parents for instilling the love of knowledge and for sacrificing their lives for me and my sister. Thanks to my sister for always being there, and thanks to my wife for her support and unconditional care throughout this journey.

I am thankful to all my family members in Iraq and Belgium for inspiring me to continue throughout this endeavor. I also want to send a special thanks to Dr. McAdams, my mentor and friend, who inspired me throughout the doctoral process, I am forever indebted to his leadership.

Huge thanks to Dr. Ellis for being a truly selfless advisor who provided intellectual challenge and support throughout the dissertation and was always available to answer questions to guide me through the process, I could not ask for a better chair. Thanks to Dr. Terrell and Dr. Parrish for providing their insightful feedback to help balance the research methodology, and to all professors who taught me in various courses. Nova Southeastern University should be honored to have such great faculty, and should be appraised for building a fantastic program for students to excel in.

Thanks to my many colleagues, from this university and others, who have been so willing to exchange their ideas and share their knowledge, and for those who participated in this study. It is to all of you that I owe so much gratitude.

I dedicate this dissertation to my new born son, Mohammed Amine, I pray that you follow on the path of knowledge and rightful action, because knowledge without rightful action is of no use. I also would like to dedicate this to the children in the world who do not have access to education, I know that someday we will be able to provide, and share with you all, in a meaningful way.

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Chapter 1

Introduction

Background

Knowledge or intellectual capital has been identified as one of the most important assets in an organization (Tseng, 2017; Al Saifi, Dillon, & McQueen, 2016; Cavaliere & Lombardi, 2015; Drucker, 1993; Grant, 1996). Knowledge has historically been divided into two types: explicit and tacit (Al Saifi et al., 2016; Nonaka & Takeuchi, 1995). Explicit knowledge can be easily articulated and stored independently (Grant, 1996). Tacit knowledge is difficult to articulate and store independently, because it resides within the individual (Polanyi, 1966). Knowledge management (KM) has focused on efficiently utilizing these knowledge resources, and knowledge sharing (KS) has been one of the most important parts of KM. KS is the exchange of knowledge within an organization to make it an organizational asset (intellectual capital) instead of an individual asset. Although the benefits of KS are unequivocal, people are hesitant to share knowledge for several reasons outlined by researchers. Organizational culture (OC) has been investigated by recent researchers as one of the factors that may relate to KS (Tseng, 2017; Cavaliere & Lombardi, 2015; Al Saifi, 2015; Wiewiora, Trigunarsyah, Murphy, Coffey, 2013; Suppiah & Sandhu, 2011).

Problem Statement

There was a lack of understanding of the interaction between tacit KS and OC. Although many current peer reviewed papers addressed the interaction, there were conflicting research findings (Tseng, 2017; Al Saifi, 2015; Cavaliere & Lombardi, 2015; Suppiah & Sandhu, 2011). For instance, Suppiah and Sandhu (2011) investigated the impacts of OC on tacit KS behaviors,

and concluded that a negative relationship exists between hierarchal and competitive cultures, and KS behaviors. However, Cavaliere and Lombardi (2015) conducted a similar study, but unlike Suppiah and Sandhu, their results did not support the hypothesis that competitive or hierarchal cultures have negative impacts on certain KS behaviors. Cavaliere and Lombardi (2015) suggested for future research to focus on examining the relationship between OC and KS from a multi-level perspective within the organization, because their study explored the relationship at a single level (the subsidiary level).

Lack of KS is an organizational problem, because it is vital for individual knowledge to spread across the organization to increase the organization's intellectual assets (Al Saifi et al., 2016; Suppiah, & Sandhu, 2011). Resistance to share knowledge can be explained by social exchange theory, which has its roots in economics, sociology, and psychology (Homans, 1958). Social exchange theory postulates that human relationships are formed using subjective cost-benefit analysis based on costs and rewards within the relationship. In an environment where knowledge is viewed as a competitive advantage, the cost of KS is hypothesized to overshadow the benefits, creating a lack of rewards to share knowledge.

In the organizational knowledge creation theory or the socialization, externalization, combination, and internalization (SECI) model, socialization was described as the process where tacit to tacit knowledge transfer occurs. Since tacit knowledge is un-formalized, theory suggested that tacit knowledge was most likely to be acquired through socialization (Nonaka, Toyama, & Konno, 2003; Nonaka, 1994). A conceptual paper by Rai (2011) proposed that organizations characterized predominantly by clan culture were likely to focus on knowledge creation and conversion through the socialization process. Nonetheless, organizations characterized predominantly by a market or competitive culture were likely to focus on knowledge creation

and conversion through the combination process (Rai, 2011). Since the combination process involves explicit to explicit transfer, Rai suggested that tacit KS is hampered by competitive OC. However, there was lack of empirical research on Rai's theory, creating a need to further investigate the OC-KS interaction.

Therefore, the first gap identified was the need for a multi-level perspective in exploring the interaction between OC and tacit KS (Wu, & Lee, 2017; Suppiah & Sandhu, 2011; Cavaliere & Lombardi, 2015; Wiewiora et al., 2013), and the second gap called for a need to examine KS between employees from a socialization perspective (Rai 2011; Nonaka, Toyama, & Konno, 2003; Al Saifi et al., 2016).

Goals

The goal of this study was to investigate the interaction between OC and tacit KS through socialization at multiple levels of an organization. A multi method study focusing on tacit knowledge contributing and tacit knowledge seeking was conducted. The aim was to address the problem from a socialization perspective, because socialization has been proven to play a vital role in tacit KS (Al Saifi et al., 2016; Lievre & Tang, 2015).

Operationalizing KS into knowledge contributing and knowledge seeking has been used as an effective way to itemize the construct. In certain studies, knowledge seeking, and knowledge contributing were examined separately, and in other cases knowledge contributing and knowledge seeking were examined simultaneously (Tokar, Aloysius, Waller, & Williams, 2011; Kong, 2015; Humayun & Gang, 2013, Yuan, Rickard, Xia, & Scherer, 2011; Fugate, Thomas, & Golicic, 2012). Similarly, in certain studies tacit and explicit KS were examined separately, and in other studies KS was examined without itemization of its tacit and explicit dimensions (Rutten, Blaas-Franken, & Martin, 2016; Kong, 2015; Cavaliere & Lombardi, 2015;

Wiewiora et al., 2013; Suppiah & Sandhu, 2011). There were limited studies that broke down the tacit KS construct into tacit knowledge contributing and tacit knowledge seeking.

Likewise, the impacts of OC showed contradicting results on KS in current studies, which was may be due to lack of attention on the differences in KS at multiple levels of the organization (Cavaliere & Lombardi, 2015). Therefore, the purpose of this study was to address the problem by focusing on multiple levels of the organization and concentrating on tacit-knowledge contributing and tacit-knowledge seeking, via socialization.

Research Questions

The research questions that this study investigated were as follows:

1. What is the interaction between perceived OC and KS (seeking & contributing) via socialization amongst peers for: (a) Overall organization, (b) non-managers, (c) first level managers, and (d) second level managers?

2. What is the interaction between perceived OC and KS (seeking & contributing) via socialization between various levels for: (a) Overall organization, (b) non-managers and first level managers, and (c) first level managers and second level managers?

Relevance and Significance

Per the knowledge-based perspective, the exploitation and management of knowledge assets are critical functions to an organization's existence and success (Tseng, 2017; Mclver & Lepisto, 2017; Suppiah & Sandhu, 2011). Knowledge is realized as an important differentiator to a company's competitive advantage and as capital which creates value (Razmerita, Kirchner, & Nielsen, 2017; Tseng, 2017; Wu & Haasis, 2013; Grant, 1996). Nonetheless, knowledge is not

just a bundle of information; it also includes experience, interpretations, and know-how. Tacit knowledge is personal and experience-based knowledge (Mclver & Lepisto, 2017; Razmerita et al., 2017; Suppiah & Sandhu, 2011). Due to its complexity, it cannot be expressed easily (Polanyi, 1966). Given this, tacit knowledge assets are hard to trade, to codify, and to imitate. This difficulty makes it problematic to transfer and share, despite it being a highly valuable resource of competitive advantage. The organizational knowledge creation theory identified socialization as the dimension of the model that is used during tacit to tacit knowledge conversion (Nonaka, Toyama, & Konno, 2003; Nonaka, 1994). Since KS is recognized as one of the most important KM activities, plus tacit knowledge is regarded as a major part of knowledge, and socialization is the process that best facilitates tacit to tacit knowledge transfer, it was vital to address the problem from these perspectives.

Multiple studies have acknowledged the importance of OC on KS behaviors (Tseng, 2017; Cavaliere & Lombardi, 2015; Al Saifi, 2015; Suppiah & Sandhu, 2011). Understanding cultural impacts on KS behaviors is far-ranging, applying to all organizations that aim to facilitate KS to increase their intellectual capital. Further investigation of OC and KS within multiple levels of the organization was necessary to enrich the KM body of knowledge with detailed analysis. Lack of understanding of the interaction between OC and KS behaviors may result in unnecessary cultural changes within organizations, when the need for these changes has not been established with sufficient empirical evidence. This study aimed to examine the contradictions within the literature on OC and KS through a multi-method case study using interviews, observations, surveys, and company records that addressed gaps within the existing literature.

Barriers and Issues

One of the barriers was the need to develop and validate instruments to measure the contributing and seeking aspects of tacit KS via socialization. The instruments had to accurately represent tacit KS via socialization and operationalize the abstract construct into measurable dimensions that are validated by an expert panel. The need to put together a KM expert panel that can examine the proposed instrument was also a barrier. The barrier was addressed by recruiting KM graduates and experts to participate in the instrument validation process. According to researchers such as Skulmoski, Hartman, and Krahn (2007), six to eight experts were sufficient for an expert panel, hence it was not excruciating to find six to eight participants.

Another barrier was data collection challenges. Gathering data required conducting interviews at multiple levels of the organization during work hours. Furthermore, gathering survey data took effort and time, especially with sending out the surveys and receiving adequate number of responses in a timely manner. Gathering the survey data was a barrier because employees needed management approval to be removed from work environment to complete the survey. These barriers were addressed during data collection by showing an approval letter from senior management to employees who were asked to participate. The approval letter helped with gaining participants' confidence in the legitimacy of this research. Access was approved by company leadership which alleviated these issues. This research was approved by the Vice President and General Manager of the organization.

Analyzing the data was also challenging due to the need to find themes and significant findings from the observations, interviews, company records, and surveys conducted throughout the investigation. Analyzing the qualitative and quantitative data posed time challenges. These barriers were addressed by scheduling adequate time to complete analysis and using

technological tools such as Microsoft Excel, the Statistical Package for the Social Sciences, and the Qualitative Data Analysis Software to help with data analysis.

Assumptions, Limitations, and Delimitations

Assumptions

One of the assumptions that this research was based upon was that all contributing participants in the research answered the questions truthfully and made a sincere effort to complete the survey. Second, it was assumed that participants understood the terminology used in the surveys and interviews during the study, after a brief explanation of terms in survey and interview introductions were provided. Third, it was assumed that the CVF and specifically the survey instrument developed by Cameron and Quinn (2011) was an adequate measure of OC in an organization. Fourth, an assumption was made that it was adequate to measure tacit KS by allowing the observer to identify tacit KS via socialization during the observation process. Lastly, it was presumed that all participants in the study are knowledge workers, who work for an organization where knowledge can be shared.

Limitations

A limitation existed in the amount of tacit knowledge shared via socialization within the organization during the data collection process. Limited tacit KS was observed which limited the findings. Similarly, identifying the tacitness of knowledge was a limitation due to the complexity of the construct. These limitations were addressed by collecting qualitative data via interviews and observations in addition to quantitative data via surveys and company records to capture the multidimensionality of the tacit KS construct.

Delimitations

A delimitation existed in that all participants were from one organization in the same industry. The organization is in the United States; hence the results may not apply to other industries and countries. Second, the study was limited to tacit KS through socialization, not shedding light on explicit KS. Third, the study measured OC from the CVF approach, not including other OC theories, such as the toolkit theory. Fourth, the participants were from the retail sales department of the organization, which makes the findings applicable to the retail sales department, but not to other departments such as IT or finance. Lastly, the study only addressed the first three levels of the organization; non-management, first level managers, and second level managers, and did not include third, fourth, fifth and executive level managers. Hence the results may be applicable to the three levels being investigated but not to the others.

Definition of Terms

Definitions of key terms used throughout this document are provided below to offer explanation on the constructs and methodology of this study:

1. *Clan (developmental) culture* is one of the CVF organizational culture types that encourage high flexibility, discretion, internal focus, and integration. It is characterized by strong personal relationships between employees, mentoring, and a family-like atmosphere (Cameron & Quinn, 2011).
2. *Combination* is the third phase of the SECI model that represents explicit to explicit knowledge conversion and consists of combining existing explicit knowledge to create new knowledge (Nonaka & Takuechi, 1995).
3. *Competing Values Framework (CVF)* is a theory that seeks to identify four major organizational culture (OC) types within a quadrant. Vertically, the top end of the quadrant favors flexibility and autonomy, and the opposite side favors stability and control. Horizontally, one end of the quadrant favors internal focus and integration, and the opposite end favors external focus and differentiation. CVF operationalizes OC into four typologies: Developmental (clan), adhocracy (innovative), market (competitive), and hierarchal (bureaucratic) (Cameron & Quinn, 2011).
4. *Competitive (market) culture* is one of the CVF organizational culture types that encourage internal focus, integration, stability, and control. It is characterized by results orientation, competition, and achievement (Cameron & Quinn, 2011).
5. *Explicit knowledge* is defined as knowledge that can be easily captured and codified via manuals, transcripts, and various documents (Grant, 1996).
6. *Externalization* is the second phase of the SECI model that represents tacit to explicit knowledge transfer and consists of codifying knowledge into documents, manuals and transcripts, so it can be spread more easily throughout the organization (Nonaka & Takuechi, 1995).

7. *Hierarchal (bureaucratic) culture* is one of the CVF organizational culture types that encourage stability, control, external focus, and differentiation. It is characterized by structure, control, and efficiency (Cameron & Quinn, 2011).
8. *Implicit Knowledge* is knowledge that isn't written down yet, but is mainly procedural and not dependent on an individual's context (Rutten, Blaas-Franken, & Martin, 2016).
9. *Innovative (adhocracy) culture* is one of the CVF organizational culture types that encourage flexibility, discretion, external focus, and differentiation. It is characterized by risk-taking and entrepreneurship (Cameron & Quinn, 2011).
10. *Internalization* is the third phase of the SECI model that represents explicit to tacit knowledge conversion, where explicit sources are used, learned, and internalized to modify an individual's existing tacit knowledge (Nonaka & Takuechi, 1995).
11. *Knowledge* has been defined as ''a fluid mix of framed experience, values, contextual information, and expert insights that provides a framework for evaluating and incorporating new experiences and information'' (Davenport & Prusak, 1998, p. 5). Knowledge mainly resides within the individual (Polanyi, 1996).
12. *Knowledge Contributing* is one half of knowledge sharing, which is the giving part of knowledge sharing. It consists of volunteering knowledge to another person or to an organization (Yan and Davison, 2013).
13. *Knowledge Iceberg* is a theory that describes explicit knowledge as only the tip of the knowledge iceberg (10% of knowledge), and tacit knowledge as the bulk of the knowledge iceberg (90% of knowledge) (Nonaka & Takeuchi, 1995).

14. *Knowledge Management* has been defined as the effective use of processes or systems to determine, collect, and disseminate knowledge, which will benefit an organization (Mehrizi & Bontis, 2009).
15. *Knowledge Seeking* is one half of knowledge sharing, which is the collection or searching part. It consists of being in quest for knowledge by asking subject matter experts (Yan and Davison, 2013)
16. *Knowledge Sharing* is the act of knowledge exchange within an organization, which consists of knowledge seeking behaviors and knowledge contributing behaviors (Yan and Davison, 2013).
17. *Knowledge Worker* is a worker who possessed and mainly uses knowledge instead of manual labor to perform their job (Drucker, 1993).
18. *Organizational Culture* is a set of attitudes, shared meanings, and values that influence thinking and behavior within an organization to from organizational norms and standards that are passed on from existing members to new members (Schein, 2010).
19. *SECI Model* or the knowledge creation theory is a model of knowledge conversion consisting of socialization from tacit knowledge to tacit knowledge; externalization from tacit knowledge to explicit knowledge; combination from explicit knowledge to explicit knowledge; and internalization from explicit to tacit knowledge (Nonaka & Takuechi, 1995).
20. *Social Exchange Theory* attempts to explain that the reason individuals perform acts of kindness or altruism is that they expect this behavior to ultimately benefit them in some way (Homans, 1958).

21. *Socialization* is the first phase of the SECI model that represents tacit to tacit knowledge transfer and consists of socialization behaviors such as communicating, training, coaching, meeting, consulting, shadowing or observing, and experiencing (Nonaka & Takuechi, 1995).
22. *Tacit knowledge* is defined as knowledge that enables an individual to perform tasks and solve problems, which is ingrained within an individual's consciousness and is difficult to both convey and acquire (Nonaka & Takuechi, 1995; Polanyi, 1966).

Summary

Chapter 1 discussed the background of this research, the research problem, research goals, relevance and significance, barriers and issues, and assumptions, limitations and delimitations. The importance of KS and the OC interaction was briefly covered, and the inconsistencies within the literature were identified to showcase the need for further investigation. Tacit KS was also shown to be a higher contributor to organizational value and the difficulty of sharing it was covered to explain the challenges of the problem. The research problem was clarified as the lack of understanding of the interaction between KS and OC at multiple levels of the organization. The research goals were articulated to point to the direction in which this study took, focusing on tacit to tacit KS via socialization at multiple levels of the organization. The assumptions were discussed, as well as the controlled and uncontrolled factors that impacted the validity of the results in the assumptions, limitations, and delimitations section.

In Chapter 2, a review of the literature gives much more details of the gaps within the body of knowledge. Studies that focused on KM, KS, and OC are dissected to identify the known and unknown areas of the subjects. Inconsistencies between the findings of research are acknowledged, and light is shed on the ambiguous regions with the KS body of knowledge. In

Chapter 3 the methodology is outlined. In Chapter 4 the results are presented, and in Chapter 5 the conclusions, implications and recommendations are presented.

Chapter 2
Literature Review

Introduction

There were three topics that constituted a necessary literature foundation to establish the viability of the research problem: (1) Knowledge sharing, (2) Organizational culture, and (3) The impact of organizational culture (OC) on knowledge sharing (KS). The topic of KS entailed a solid understanding of knowledge contributing, knowledge seeking, tacit and explicit knowledge, and KS through the SECI (socialization, externalization, combination, and internalization) model (Zhang, Zhano, & Wang, 2016; Nonaka, 2003). It was important to build a necessary foundation for KS operationalized into its identified properties to tighten the focus of this research. Similarly, it was vital to build a foundation for KS through socialization because this study is focused on tacit knowledge shared through socialization, the essential step for tacit to tacit knowledge conversion in the SECI model.

Likewise, it was crucial to build a foundation for OC as a concept in and of itself to find out the state of the construct in the most current organization science literature. It was also vital to build a firm understanding of OC within the information system (IS) and knowledge management (KM) domains by establishing a level of expertise in the construct. Lastly, a synthesis of the impacts of OC on KS was needed to arrive to an adequate methodology that contributed to the body of knowledge.

Knowledge Management

According to the knowledge-based view, intangible knowledge-related resources are more likely to contribute to an organization’s attaining and sustaining performance than tangible

resources (Bogner & Bansal, 2007). KM primarily describes knowledge assessment, knowledge acquisition, knowledge creation and transformation, knowledge sharing, active forgetting of knowledge, and the administrative process of KM (Mehrizi & Bontis, 2009). Drucker (1999) argued that KM is based mainly on the groundwork laid by Snowden (2002) who defines the period prior to 1995 as the first age of KM. The primary focus then was in the assembly and stream of information to decision makers (Snowden, 2002) and promoting best practices through the capture of cooperative intelligence (McElroy, 2000). The second age of KM began around 1995 with the introduction of the SECI model, known as organizational knowledge creation theory by Nonaka and Takeuchi. Nonaka and Takeuchi (1995) argued that social interactions among organization members play a vital role in knowledge creation and knowledge sharing, while information technologies act merely as tools that enable KM. Nonaka and Takeuchi's philosophical position contrasted with the information technology based KM school of thought prevalent during that period (Davenport and Prusak, 1998). The evolutionary necessity to clearly distinct context, content management, and narrative called for the need to re-examine KM.

Haider (2009) explored the success factors of implementing and running a KM program by testing the conceptual model of the knowledge iceberg inside an organization named SoftNetCo. Haider conducted an exploratory study and examined patterns for explicit, implicit, and tacit knowledge within the organization through case study methodology to verify the iceberg theory. The knowledge iceberg theory states that explicit knowledge is only the tip of the knowledge iceberg, and the bulk of the iceberg would be tacit knowledge as shown in Figure 1 (Nonaka & Takeuchi, 1995).

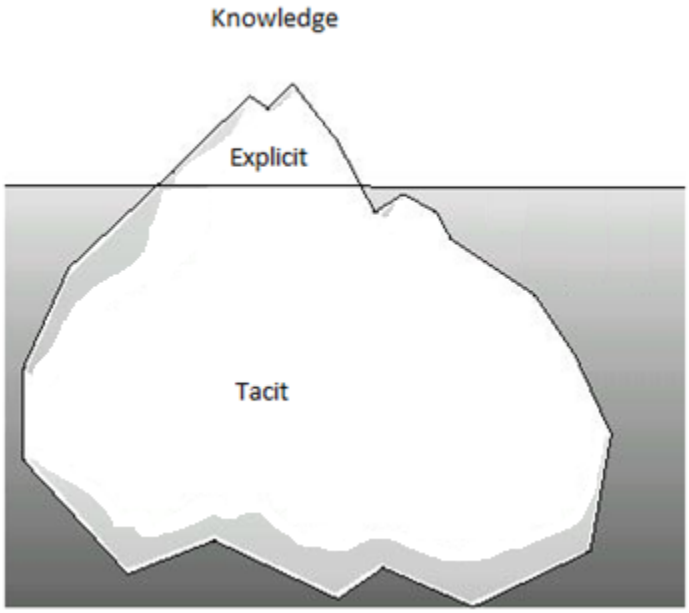

Figure 1: The Knowledge Iceberg Theory (Nonaka & Takeuchi, 1995)

Haider (2009) gathered data from KM experts, departmental managers, project managers, and knowledge workers through a total of 89 in depth semi-structured interviews through a one-year field study. During the research period, 11 KM initiatives were launched in SoftNetCo, which provided a favorable platform to conduct the study. The empirical findings from the interviews proved the existence of the knowledge iceberg within SoftNetCo, and showed that the best way to capitalize on explicit knowledge is to provide the technology and processes necessary to document and store the knowledge. The capture of explicit knowledge was not difficult, but making the knowledge accessible to the employees who need it was the difficult part. The findings on implicit knowledge showcased that it was best utilized through a knowledge repository based on best-practices, the results proved that implicit knowledge was more difficult to capture than explicit knowledge. Lastly, tacit knowledge was most difficult to capture, and was best shared at a social level where knowledge contributors and knowledge

seekers interacted together. The results showed that tacit knowledge can be shared through coaching, dialogues, apprenticeship programs, focus groups, and mentoring programs. Haider suggested that since tacit knowledge is mainly within the person who holds it, managing tacit knowledge should be viewed similar to managing human resources. Furthermore, the results implied that the culture of the company should be shaped and developed to create a culture that is conducive to sharing tacit knowledge. The overall findings of the study suggested the existence of the knowledge iceberg within organizations, and further argued for a holistic approach that is needed to manage knowledge, people, and culture, while giving more attention to managing people rather than managing knowledge itself. The research shed light on the importance of managing explicit, implicit, and tacit knowledge in an organization, and showcased the importance of tacit knowledge.

Knowledge Sharing

KS is the act of making knowledge available to others within the organization, creating the potential to turn individual knowledge into organizational knowledge (Van den Hooff et al., 2012; Suppiah & Sandhu, 2011). KS is imperative for organizations, because it facilitates finding, capturing, generating, and collecting knowledge to enable resource structuring and capacity building, which significantly increase organizational performance (Wang et al., 2012). However, KS is a challenge facing organizations because of many barriers (Cleveland & Ellis, 2015). It was estimated that "at least US$31.5 billion are lost per year by Fortune 500 companies because of failure to share knowledge" (Wang & Noe, 2010, p.115).

As Haider (2009) showcased that a large part of knowledge is tacit within an organization and unlike explicit knowledge, which is visible and can be kept in external repositories, tacit knowledge is essentially invisible and resides in the minds of the knower. Hence the difficulty of

tacit KS is increased and is virtually impossible if the knower does not cooperate (Nonaka & Takeuchi, 1995).

KS should be examined from an explicit perspective and from a tacit perspective, because research has shown differences between the impacts of tacit and explicit KS on organizations' performance and team innovation (Wang, Wang, & Liang, 2014; Hu & Randel, 2014). For example, Hu and Randel tested the interactions between KS, social capital, and team innovation through a causal study. Hu and Randel (2014) itemized KS into two dimensions: (1) Tacit KS, and (2) Explicit KS, and itemized social capital into three dimensions: (1) structural, (2) relational, and (3) cognitive. Survey methodology was used to collect data from 219 work teams ranging from three to nine team members from various industries located in China. Hu and Randel used a regression analysis and structural equation modeling to measure the mediating effect of tacit and explicit KS on social capital, and team innovation. There was a significant effect of cognitive social capital on both tacit KS ($\beta = .23$, $p < .01$) and team innovation ($\beta = .23$, $p < .01$), but when the mediating effect of tacit KS was included in the model, cognitive social capital did not have a significant effect on team innovation, indicating support for the mediating role of tacit KS in the relationship between cognitive social capital and team innovation. However, explicit KS was not shown to mediate the relationship between cognitive social capital and team innovation. Similarly, relational social capital was significantly related to explicit KS, but not to tacit KS. The findings shed light on the differences between explicit and tacit KS, and their impacts on social capital and team innovation. Hu and Randel's findings indicated that it is vital for researchers to separate tacit KS and explicit KS, as each dimension may impact various variables in distinct ways.

Congruently, Wang, Wang, and Liang (2014) also conducted a descriptive study by investigating the impact of KS on firm performance, and the mediating role of intellectual capital. Wang et al. itemized KS into its explicit and tacit dimensions as well, parallel to Hu and Randel (2014). Likewise, Wang et al. itemized intellectual capital into three dimensions: (1) Relational capital, (2) Human capital, and (3) Structural capital, and firm's performance into two dimensions: (1) Operational performance, and (2) Financial performance.

Wang et al. (2014) measured explicit KS by adapting the measurement from Liebowitz and Chen (2001), Wang and Wang (2012), and Holste and Fields (2010). Data were collected through a survey method from general managers of 228 firms in China. Like the previous study by Hu and Randel (2014), the data were analyzed by employing structural equation modeling. The results regarding explicit and tacit KS were mixed, showing that explicit KS was positively associated with human and structural capital (β = 0.257, 0.266, $p < 0.05$), but not significant with relational capital. However, tacit KS was shown to have a significant positive effect on human, structural, and relational capital (β = 0.228, β= 0.321, β = 0.319, $p < 0.05$). Likewise, the effect of explicit KS on financial performance was shown to be significant (β= 0.214, p = 0.10), although not shown to be significant with the firm's operational performance. Conversely, tacit KS was shown to have a significant impact on operational performance (β= 9.189, $p < 0.05$), but was not shown to have a direct effect on financial performance. Similarly, Explicit KS was shown to have a weaker total impact on operational performance than financial performance (β= 0.194 vs β= 0.308), but tacit KS was shown to have a stronger impact on operational performance than financial performance (β = 0.385 vs β = 0.241).

Wang et al. (2014) contributed to the KS body of knowledge by showing that tacit KS significantly contributed to all three components of intellectual capital; human, structural and

relational capital, while explicit KS only had a significant impact on human and structural capital. Wang et al. also showcased the different impacts of explicit and tacit KS on firm's financial and operational performance.

Synthesis of the following studies indicates the unequivocal impact of KS on team innovation and organizational performance. Moreover, the results of the research specify the difference between tacit KS and explicit KS, and how each dimension impacts innovation, firm's performance, intellectual capital, and social capital in non-identical ways. The findings suggest for future research to itemize KS into its tacit and explicit components rather than to examine KS solely as a whole construct. Based on the discoveries of Wang et al. (2014), and Hu and Randel (2014), examining KS as one constructs without adequate operationalization may risk the accuracy of research findings.

Components of KS

Besides the tacit and explicit break down of KS, Ardichvili, Page, and Wentling (2003) suggested that KS involves two or more parties who act as knowledge transporters and knowledge requestors. KS is considered as not only the dissemination of personal knowledge but also the seeking of knowledge from others (Wu & Haasis, 2013). Therefore, KS can be further itemized into knowledge seeking behaviors and knowledge contributing behaviors (Cleveland & Ellis, 2015). For example, Yan and Davison (2013) explored the mediating role of intrinsic motivation between knowledge seeking and knowledge contributing. The intrinsic motivation construct was itemized into enjoyment in helping others, sense of self-worth, and flow. Previous researchers examined the impacts of motivation on KS, but Yan and Davison conducted a novel study, because they empirically showcased the separate nature of knowledge contributing and knowledge seeking within the KS construct. Yan and Davison hypothesized that knowledge

seeking would have a positive impact on intrinsic motivation, and intrinsic motivation would have a positive impact on knowledge contributing. Yan and Davison conducted a causal study by collecting and analyzing quantitative data through survey methodology. A total of 430 responses were received from 14 different organizations in China. The data analysis was achieved through a partial least square which is a components-based form of structural equation modeling. The direct link from knowledge seeking to knowledge contributing was found to be significant (β = 0.138, p = .01). The link from knowledge seeking to enjoyment of helping other was also found to be significant (β = 0.437, p < .001). The link from enjoyment of helping other to knowledge contributing was also significant (β = 0.302, p < .001), but the link from knowledge seeking to knowledge contributing was found insignificant, suggesting the mediating role of enjoyment of helping others between knowledge seeking and knowledge contributing. The findings of the study shed light on the separate impacts of knowledge contributing and knowledge seeking on intrinsic motivation. Their findings suggest that the first component of KS (seeking) impacts intrinsic motivation, but the second component of KS (contributing) is impacted by intrinsic motivation. The finding adds to the body of knowledge, because it is different from the traditional view that postulated intrinsic motivation to have impacts on KS, but did not break down KS into its seeking and contributing components, thus ignoring the impacts of knowledge seeking on intrinsic motivation. Yan and Davison conducted the study thoroughly, but did not address the tacit and explicit dimensions of knowledge, rather addressed KS as one construct. Studying knowledge contributing and knowledge seeking from a tacit and an explicit perspective may shed light on new findings and grant a more detailed analysis.

Likewise, Beck, Pahlke, and Seebach (2014) examined knowledge exchange and symbolic action in social media-enabled electronic networks of practice (ENoP) from the

perspectives of knowledge seekers and knowledge contributors. Beck et al. determined that many studies have examined knowledge exchange from contributors' behaviors, but there was lack of research examining knowledge seekers' behaviors in ENoP. Beck et al. examined the interactions between: (1) The knowledge contributor's reputation, habit of cooperation, and group identification in the network, and quality of knowledge exchanged, (2) The knowledge seeker's social status, channel variety, and social presence, and the quality of the knowledge exchanged, and (3) The dyadic relationship between the knowledge seeker and contributor, and the quality of the knowledge exchanged, in the ENoP.

Beck et al. (2014) analyzed 15,505 messages posted by 1,921 different users of a social media enabled ENoP platform of an organization. Beck et al. did not differentiate between explicit and tacit knowledge but they rather examined the "quality of knowledge exchange" based on a rating scale ranging from "not helpful" to "very helpful". Then they applied hierarchical linear modeling to take the multi-level structure into account, as they examined knowledge exchange at the individual level and the dyadic interaction level. The results showcased that knowledge contributors' social status and channel variety exerted positive effects on the quality of knowledge exchanged ($t = .232$, $p < .01$; $t = .136$, $p < .05$). The results also showcased that knowledge seekers' social presence positively related to the quality of knowledge exchanged ($t = .103$, $p < .05$). Similarly, the dyadic relationship between the knowledge contributor and the knowledge seeker positively related to the quality of knowledge exchanged. Beck et al., (2014) contributed significant findings to the KM body of knowledge by showcasing the importance of knowledge seeking factors that impact knowledge exchange. However, parallel to the Yan and Davison (2013) study, Beck et al. had limitations with respect to explicit and tacit KS, as their study examined knowledge mainly from an implicit perspective.

Similarly, Tong, Tak, and Wong (2015) examined the impact of KS on the relationship between OC and job satisfaction. Tong et al. investigated firms in the information and communication technology industry in Hong Kong. They operationalized KS into knowledge collecting, and knowledge donating. Through a causal study, Tong et al. examined the interactions between KS, OC, and job satisfaction. Tong et al. used a quantitative approach using an online survey method to collect data for statistical analysis. A total of 228 surveys were completed by supervisors, managers, directors, and company owners in Hong Kong, and the data were analyzed using a multiple regression analysis. The results of the multiple regression analysis confirmed that OC affected KS with a standardized Beta value of 0.320 (F = 10.279, p = 0.000). Correspondingly, the analysis confirmed the effect of OC on job satisfaction, and the mediating effect of KS between OC and job satisfaction, with the strength of the mediating effect being 0.137 (t = 2.327, t = 0.021). The findings of the study suggested that OC impacts KS (knowledge donation, and knowledge collection), it also suggested that OC impacts job satisfaction, and KS plays a mediating role between OC and job satisfaction. The limitation of Tong et al. was also the lack of focus on the tacit and explicit dimensions of knowledge. The lack of concentration makes their results questionable due to the findings regarding the different impacts of tacit and explicit KS on various variables (Hu & Randel, 2014; Wang et al., 2014).

The combination of the literature showcases that certain researchers such as Tong et al. (2015), Beck et al. (2014), and Yan and Davison (2013) addressed the seeking and contributing aspects of KS, but they paid limited attention to the itemization of KS into its tacit and explicit dimensions. Per Hu and Randel (2014), and Wang et al. (2014), it was discovered that it is vital to operationalize KS into its tacit and explicit dimensions due to the distinct impacts that each component had on organizational performance, intellectual capital, social capital, and team

innovation. Future research must focus on proper operationalization of KS, itemizing the construct into knowledge seeking (tacit and explicit), and knowledge contributing (tacit and explicit).

Factors Impacting KS

Many factors have been investigated to determine what impacts KS behaviors? For example, Rutten, Blaas-Franken, and Martin (2016) conducted a descriptive study to identify the interaction between higher levels of trust and knowledge contributing. Two types of knowledge were considered: implicit and explicit. Implicit knowledge is comparable to tacit knowledge, because it is knowledge that isn't written down yet, but it differs slightly because it is mostly procedural and not dependent on an individual's context.

Rutten et al. (2016) operationalized trust into cognition-based trust, which refers to the rational decision to trust another person, and affect-based trust, which refers to emotional trust evolving over a period through developed relationships. A survey was sent to 244 co-workers in a large financial organization, with 102 useable responses to the questionnaire. Each participant answered the questions in the survey for two scenarios; one with a high trust scenario and one with a low trust scenario. After reading the scenarios, respondents were asked to keep an actual co-worker in mind for each scenario. The Mann-Whitney test results showed the level of cognition-based trust and the level of affect-based trust differing significantly as predicted, ($p <$ .05). After establishing the various levels between trusts, Rutten et al. (2016) conducted a Sobel test to confirm the mediating role of affect-based trust on the influence of cognition-based trust. The results confirmed the mediating role of affect-based trust for both types of knowledge, explicit ($t = 2.278$, $p = 0.023$), and implicit ($t = 4.437$, $p = 0.000$). Finally, Rutten et al. conducted a regression analysis to determine whether each type of trust has a significant impact on KS. The

results showed that there are significant differences in the impacts of both types of trust on explicit KS, ($F = 9.412$, $p = 0.000$), and implicit KS, ($F = 37.837$, $p = 0.000$). Through these results, Ruttens et al. showed that higher levels of trust lead to higher levels of KS and lower levels of trust lead to lower levels of KS. Although the study added to the body of knowledge in the explicit and implicit dimensions, the tacit dimension of knowledge was left out. Similarly, the study addressed knowledge contributing, but the knowledge seeking property of KS was not addressed.

The exploration of factors that impact KS was continued by Yen, Tseng, and Wang (2015) through a descriptive study that investigated how social capital impacts KS. Yen et al. conducted a case study using survey-based methodology to collect data from 230 employees of the top 100 high-technology firms in Taiwan. The employees included knowledge workers such as managers, technicians, sales, and marketing staff. A positive relationship between social capital and KS was hypothesized and tested using structural equation modeling. Social capital was divided into trust, norms, and "Guanxi" (translated to: system of social networks and influential relationship between individuals). The results confirmed that Guanxi was positively related to trust, ($p < 0.05$), trust was positively related to KS, (β (31) = 0.16, $p < 0.05$), and norms were positively related to KS, (β (11) = 0.72, $p < 0.05$), confirming the positive relationship between KS and social capital. Nevertheless, the limitations of the study were the general definition of KS; not focusing on tacit or explicit knowledge, and although the term KS was used, the study appeared to focus on knowledge contributing and not on knowledge seeking.

Conversely, Kang and Hau, (2014) conducted a descriptive study and applied a multi-level analysis to examine the role of social capital in knowledge transfer from a knowledge seeking perspective. They collected data from 331 employees in eight research and development

departments of five organizations located in South Korea. Then they analyzed the survey results by using the hierarchal linear model test. Kang and Hau operationalized the recipients' social capital into three dimensions: (a) Centrality, as the structural dimension measured by the number of colleagues a recipient interacts with; (b) trust, as the relational dimension; and (c) tenure, as the cognitive dimension. All factors were hypothesized to be positively related to knowledge transfer from a recipient's perspective. The results of the hierarchal linear model showed that trust has a significant positive effect on knowledge transfer, ($p < 0.01$). However, for centrality, the result was not significant, and for tenure the results were significant but in the opposite direction of the hypothesis. Therefore, the results suggested that trust in colleagues facilitates acceptance of knowledge, similar to the findings regarding KS on the contributing end of the spectrum (Yen et al., 2015; Rutten et al., 2016; Rahman et al., 2016; Nakano et al., 2013). The limitations of the study include the lack of emphasis on the tacit dimension of knowledge, as the study focused on knowledge transfer in general, and the lack of focus on knowledge contributing, as the focus was on knowledge seeking.

Another factor that was examined for potential impact on KS is team members' learning orientation. Khedhaouria and Jamal (2015) conducted a descriptive study examining the role of team members' learning orientation in increasing knowledge sourcing, reuse, and creation. Khedhaouria and Jamal collected data through surveys by gathering a total of 341responses from 53 large and medium sized French companies from various economic sectors. Khedhaouria and Jamal analyzed the data using partial least squares path modeling, and the results displayed that team members' learning orientation was positively related to knowledge sourcing from (a) groups, ($\beta = 0.408$, $p < 0.001$); (b) repositories, ($\beta = 0.352$, $p < 0.001$); and (c) Internet, ($\beta = 0.246$, $p < 0.001$). Moreover, the results showed that sourcing knowledge from groups was

positively related to knowledge reuse, ($\beta = 0.132$, $p < 0.05$), and sourcing knowledge from repositories was also positively related to knowledge reuse, ($\beta = 0.131$, $p < 0.05$). Contrarywise, knowledge sourcing from the Internet did not show significance on knowledge reuse, but was positively related to knowledge creation, ($\beta = 0.149$, $p < 0.01$). Lastly, the results showed that team members with a strong learning orientation display an increase in knowledge reuse, ($\beta = 0.143$, $p < 0.01$), and in knowledge creation, ($\beta = 0.252$, $p < 0.001$). Khedhaouria and Jamal contributed to the KM body of knowledge by recognizing team members' learning orientation as a significant facilitator for knowledge creation and reuse. By integrating groups, repositories, and the Internet, Khedhaouria and Jamal addressed the explicit and implicit dimensions of knowledge but may have limitations with respect to tacit knowledge. Similarly, the study was focused on knowledge contributing, but left out the knowledge seeking dimension of KS.

Thus far, the current literature synthesis of KS showcased certain researchers addressing KS from a contributing perspective, and others addressing it from a seeking perspective (Israilidis, et al., 2015; Khedhaouria & Jamal, 2015; Kang & Hau, 2014). Factors such as managing employees' ignorance, social capital, and employees' learning orientations were shown to be positively related to knowledge seeking (Khedhaouria & Jamal, 2015; Israilidis, et al., 2015). Factors such as trust, shared norms, workplace spirituality, socialization, and engaging workplace environment were shown to be positively related to knowledge contributing (Yen et al., 2015; Nakano et al., 2013; Rahman et al., 2016; Rutten et al., 2016). The literature displayed that certain studies focused on explicit KS (Yen et al., 2015; Kang and Hau, 2014), and other studies focused on explicit and implicit KS (Rutten et al., 2016; Khedhaouria & Jamal, 2015). Limited studies have addressed the tacit dimension of knowledge, and most studies appear to focus on the explicit dimension. Since the dimensions of knowledge were rarely specified, the

SECI model was rarely applied in these studies, which caused a lack of description of the lens being used to analyze KS, whether it is through externalization, combination, internalization, or socialization.

Tacit Knowledge Sharing

Tacit knowledge is regarded as a major part of knowledge. For example, Smith, (2001) reported that "90 percent of knowledge in an organization is embedded in people's heads" (p. 311). Polanyi (1966) articulated in his seminal work about tacit knowledge that one can know more than one can tell: "We know a person's face, and can recognize it among a thousand, indeed among a million. Yet we usually cannot tell how we recognize a face we know" (p. 4). When focusing on tacit KS, since tacit knowledge is difficult to articulate, the sharing becomes more difficult. An extreme example of tacit KS would be showing a person how to ice skate; one can give the person explicit directions and manuals, but these directions would not suffice. Most of the learning will have to happen on the ice rink with personal experience, coaching from the knowledge contributor, and mentorship. A professional example of tacit knowledge would apply to practical skills such as software engineering, management, leadership, sales, research, and many other professional concepts than cannot be easily acquired through explicit content.

In organizational setting, tacit KS is also facilitated through a company's culture. Suppiah and Sandhu (2011) conducted a descriptive study to investigate the impacts of OC on tacit KS behaviors. They operationalized OC through the competing values framework (CVF) by Cameron and Quinn (2011). CVF identifies cultures of organizations by four typologies: clan, innovative, competitive, and bureaucratic (Cameron & Quinn, 2011; Deshpandé, Farley, & Webster, 1993) -more details on the theory will be provided during the OC portion of the literature review. Suppiah and Sandhu conducted the study by collecting data through 408

surveys returned by respondents from a total of 10 organizations, each with a minimum of 100 employees. The participants included knowledge workers from marketing, service, information technology, and research and development staff drawn from public and private sectors. The results of the analysis showed clan OC to have a positive influence on tacit KS ($\beta = 0.011$, $p < 0.001$), market (competitive) OC to have a negative influence on tacit KS ($\beta = -0.005$, $p < 0.01$), and hierarchy (bureaucratic) OC to have a negative influence on tacit KS ($\beta = -0.006$, $p < 0.001$). The contributions of the study suggest hierarchy (bureaucratic) and market (competitive) culture types as potential inhibitors of tacit KS, and clan culture as a facilitator of tacit KS. Per Cameron and Quinn (2011), clan culture promotes characteristics of integration, mentoring, nurturing, participation, and collaboration, with its main values focusing on teamwork, communication, and family-like work environments. Suppiah and Sandhu's only two limitations were lack of focus on the process through which tacit KS was examined, and lack of breakdown of KS into knowledge seeking and knowledge contributing.

Correspondingly, other factors that impact tacit KS were also examined by researchers. For example, Nakano, Muniz, and Dias Batista (2013) conducted a descriptive case study with the goal of identifying factors that facilitate tacit KS in an unstructured work environment with blue collar workers. Drawing data from a four-month analysis in the field of a glass manufacturing firm located in Brazil, Nakano et al. collected qualitative data through semi-structured interviews. Nakano et al. conducted a total of 14-in depth interviews with operators, production leaders, supervisors, tool shop workers, and tool shop leaders who were recognized as experts by their peers on the shop floor. The findings from the coding and analysis of the interviews suggested that socialization (social networks), training, communication, and collective problem-solving as factors that promote an engaging environment that facilitates tacit KS. The

results also showed the scope of managerial actions needed to create appropriate culture of autonomy and engagement to promote tacit KS, consistent with the results from the Haider (2009) study. Furthermore, the results shed light on the importance of individual characteristics and how they play a role in facilitating tacit KS. Moreover, the findings displayed that openness, collegiality, and trust as contributors to creating an engaging environment and a shared language that helps to promote tacit KS. Although Nakano et al. used the term tacit KS, they appeared to focus on tacit knowledge contributing rather than tacit knowledge seeking, which may pose as a limitation for the research findings.

The synthesis of the tacit KS literature sheds light on the importance of socialization methods such as mentoring, coaching, dialoguing, training, collective problem solving, apprenticeship programs, and focus groups (Haider, 2009; Nakano et al., 2013). Furthermore, an engaging environment and particularly clan culture appeared to have a positive relationship with tacit KS (Suppiah & Sandhu, 2011; Haider, 2009). Likewise, the literature points to socialization as a facilitator of tacit KS in organizations as Nonaka and Konno (1998) postulated in the SECI theory.

Knowledge Sharing and Socialization

Lievre and Tang (2015) applied the SECI model by Nonaka and Konno (1998) to study the obstacles and controversies of inter-organizational and intercultural knowledge transfer. A case study of a project of co-operation between France and China in the health care sector was employed. The SECI theory is a seminal work by Nonaka that proposes that: (a) Socialization is the first process of converting new tacit to tacit knowledge, (b) externalization is the second phase where tacit knowledge is articulated into explicit knowledge, (c) combination is the third process where explicit knowledge is combined and converted to more systematic explicit

knowledge, and (d) internalization is the process where explicit knowledge is converted back to tacit knowledge as shown in Figure 2. Lievre and Tang conducted a descriptive study using comparative case study methodology. Through observations and interviews, the qualitative results were aggregated to showcase that lack of KS between the French and Chinese partners was due to a deficit in the socialization phase of SECI. Lievre and Tang addressed knowledge from a socialization perspective but did not specify knowledge seeking and knowledge contributing behaviors of KS.

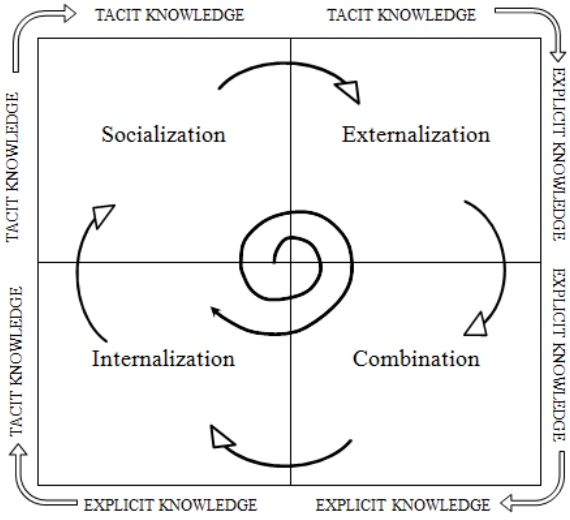

Figure 2: The Organizational Knowledge Creation Theory (SECI model) by Nonaka & Konno, 1998 (Permission to use attached in Appendix A)

Similarly, Al Saifi, Dillon, and McQueen, (2016) examined face to face social networks and tacit KS through an exploratory study of manufacturing firms. The study employed 25 semi-structured interviews with top and middle managers, along with frontline employees in five manufacturing firms. Al Saifi, et al. used: (a) Open coding, (b), axial coding, and (c) selective coding, to analyze the data. The qualitative data established that there were six factors that

influence face-to-face social networks and tacit KS positively: 1. using multiple communication strategies, 2. brainstorming and problem-solving, 3. learning and teaching, 4. training, 5. consultations, and 6. employee rotation. The findings of the study denote that various forms of socialization should be investigated when researching tacit KS. The exploratory case study identified six forms of socialization that can be further investigated from descriptive or causal perspectives. However, like the Lievre and Tang (2015) study, Al Saifi et al. did not address the contributing and the seeking properties of tacit KS.

Socialization through social media technologies was also examined by KS researchers. Panahi, Watson, and Partridge (2016) conducted an exploratory study to examine the potential contribution of social media in supporting tacit KS. Survey methods and semi-structured interviews were used to collect data. A total of 24 participants were interviewed. Physicians, surgeons, specialists, and general practitioners with a minimum of five years of clinical experience were included in the study. The results of the study revealed five major themes and over 20 sub-themes as potential contributions of social media to tacit KS among knowledge workers. The themes included socializing, practicing, networking, storytelling, and encountering. The study posited that information and communication technologies, especially emerging social media tools, have the potential to facilitate tacit KS, but the most effective medium for socialization remains to be face-to-face interaction (Panahi, et al., 2016). The study suggested that social media tools should not be ignored when studying tacit KS since they have the functionality to facilitate KS. However, Panahi et al. (2016) also did not acknowledge the seeking and contributing dimensions of KS in their study, comparable to Al Saifi et al. (2016), and Lievre and Tang (2015),

Synthesis of the KS through socialization literature shows that KS has been occasionally addressed from the socialization perspective. Two of the most current studies were exploratory (Panahi, et al., 2016; Al Saifi et al., 2016), and only one of the studies was descriptive (Lievre & Tang, 2015). The findings show that various forms of socialization such as brainstorming, coaching, storytelling, teaching, encountering, employee rotations, and training, all contribute to tacit KS in a positive way. The synthesis of the literature also indicates that lack of socialization leads to a deficit in KS (Lievre & Tang, 2015). Lastly, although both parties are required to participate for the socialization to occur (Panahi, et al., 2016; Al Saifi et al., 2016; Lievre & Tang, 2015), there has been limited research that addresses socialization from a knowledge seeking and knowledge contributing perspective.

Per the iceberg theory analysis of Haider (2009), tacit knowledge processes in organizations encompass: (1) dialogue, (2) coaching, and (3) experience. Per Haider (2009), to facilitate these processes, the following solutions were suggested: (1) to facilitate dialogue, focus groups are proposed, (2) to facilitate coaching, mentoring programs are proposed, and (3) to promote experience sharing, apprenticeships are proposed. Therefore, for future research the level of strength of these three areas – focus groups, mentorship programs, and apprenticeships – should assist with measuring tacit knowledge within an organization.

Furthermore, per Nonaka and Konno (1998) tacit knowledge is best shared through socialization activities such as (1) being together, (2) spending time, (3) living in the same environment, and (4) apprenticeship. Also, Al Saife et al. (2016) identified the following communication strategies, which are: (1) brainstorming and problem solving, (2) learning and teaching, (3) training, (4) consultations, (5) and employee rotations. Table 1 combines these tacit KS via socialization behaviors below.

Table 1
Behaviors related to tacit KS via Socialization

Behavior:	Explored by:
Dialoguing	Haider, (2009)
Coaching	Haider, (2009)
Experiencing	Haider, (2009)
Mentoring	Haider, (2009)
Being together and spending time	Nonaka and Konno (1998)
Living in the same environment	Nonaka and Konno (1998)
Apprenticeship	Nonaka and Konno (1998)
Shadowing	Nonaka and Konno (1998)
Brainstorming and problem solving	Al Saife et al., (2016)
Learning and teaching	Al Saife et al., (2016)
Training	Al Saife et al., (2016)
Consultations	Al Saife et al., (2016)
Employee rotations	Al Saife et al., (2016)

By synthesizing the dimensions of tacit KS via socialization identified by Al Saife et al. (2016), Haider (2009), and Nonaka and Konno (1998), the five dimensions below simplify the concept as shown in Table 2: (1) Training and coaching; which encompasses teaching and training, and coaching identified by Haider (2009) and Al Saife et al. (2016); (2) Mentoring and apprenticeship identified by Haider (2009) and Al Saife et al. (2016); (3) spending time together, which encompasses spending time together, and being in the same environment identified by Nonaka and Konno (1998); (4) Job-Shadowing Nonaka and Konno, (1998), and (5) Experiencing

identified by Haider, (2009), which encompasses employee rotations identified by Al Saife et al., (2016).

Table 2
Synthesized behaviors related to tacit KS via Socialization

Behavior:	Explored by:
1. Training and coaching	Al Saife et al., (2016), Haider, (2009)
2. Mentoring	Al Saife et al., (2016), Haider, (2009)
3. Meetings (time spent together)	Nonaka and Konno, (1998)
4. Job Shadowing	Nonaka and Konno, (1998)
5. Experiencing	Haider, (2009)

Organizational Culture

OC is a concept that is not easily defined or agreed upon by researchers. It was initially described as informal social structures, as a way to elucidate the disappointments of formal procedures and policies to resolve the unproductive relationship between managers and employees within an organization (Jaques, 1951). The concept was restored to the field by pointing to culture as the ‘‘social tissue’’ that contributes to cooperative sense making in organizations (Pettigrew, 1979). One of the dominant definitions of OC in the literature depicts culture as sets of attitudes, shared meanings, and values that influence thinking and behavior within an organization (Schein, 2010). Another view depicts culture as a repertoire or “tool kit” of habits, skills, and styles, that help determine how people take action (Swidler, 1986).

There are many definitions of culture but according to Ostroff, Kinicki, and Muhammad, (2012): “the most comprehensive one has been offered by Schein (2010)” (p.647) The Schein definition of OC is:

> a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration, which has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. (p. 18)

Schein (2010) proposed that OC is learned by organizational members who pass it on to new members through a variation of socialization and communication procedures. This definition also implies that behavior, though not directly part of OC, is clearly influenced by the basic ideologies of organizational members.

Three Layers of OC

Schein (2010) defined culture into three layers: (a) Basic assumptions, which is the most tacit component of OC; (b) espoused values, which are implicit manifestations of the basic assumptions signified by espoused beliefs; and (c) artifacts such as art or behavior patterns, which are the most explicit and visible manifestations of culture. At the base level, Schein explained the first component of basic assumptions as the belief systems that people have towards relationships, human behavior, reality, and truth. These basic assumptions represent cognitive structures that individuals use to perceive situations and cope with problems. At the second level, values signify what is important to an organization. Values answer the question as to why people behave the way they do? The third level of OC is manifested through artifacts. These artifacts include rituals, ceremonies, events, shared language, myths, and heroes, which explicate the values and basic assumptions of the culture. In Schein's model, basic assumptions and values are the main linkage between culture and action.

Cameron and Quinn (2011) introduced the CVF, which has become one of the major theories that seeks to break down OC into types, by investigating the key values and basic assumption of an organization. By building on the three-layer model for OC of Schein, Cameron and Quinn (2011) developed the CVF to identify four OC typologies: Developmental (clan), adhocracy (innovative), market (competitive), and hierarchal (bureaucratic) (Cameron & Quinn, 2011; Deshpandé, Farley, & Webster, 1993). The cultural types are paradoxical to each other as shown in Figure 3. Vertically, one end of the spectrum favors flexibility and autonomy, and the opposite side favors stability and control. Horizontally, one end of the spectrum favors internal focus and integration, and the opposite end favors external focus and differentiation (Cameron & Quinn, 2011; Deshpandé, Farley, & Webster, 1993).

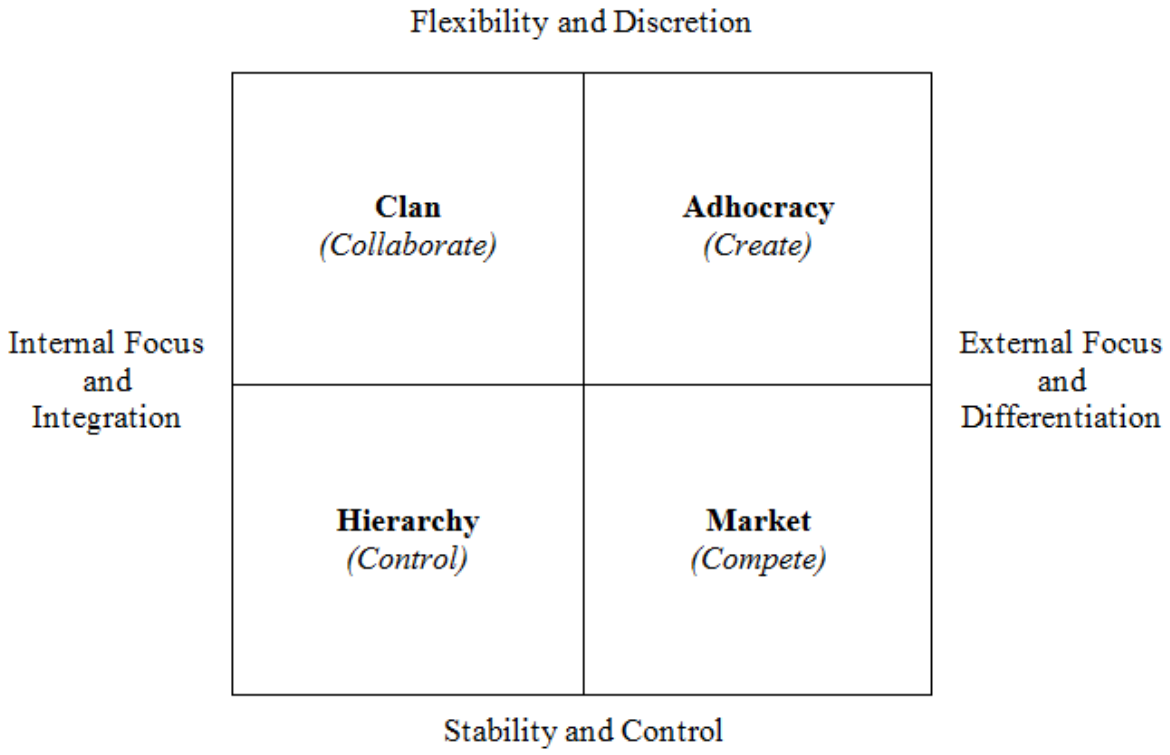

Figure 3: Cameron and Quinn's (2011) CVF theory (Permission to use attached in Appendix B)

Each cultural type falls within the paradox and identified with its own characteristics as follows: (a) Clan culture falls on the high end of flexibility, discretion, internal focus, and integration, characterized by strong personal relationships between employees, mentoring, and a family-like atmosphere; (b) adhocracy or innovative culture falls on the side of flexibility, discretion, external focus, and differentiation, characterized by risk-taking and entrepreneurship; (c) hierarchy culture falls on the high end of stability, control, external focus, and differentiation, characterized by structure, control, and efficiency, and (d) market or competitive culture falls on the high end of internal focus, integration, stability, and control, characterized by results orientation, competition, and achievement (Cameron & Quinn, 20011; Deshpandé, Farley, & Webster, 1993).

Hartnel, Ou, and Kinicki, (2011) conducted a meta-analytic investigation of the CVF's theoretical suppositions by examining over 4,600 articles on OC since 1980. Hartnell et al. (2011) demonstrated that there are moderate to strong positive interrelationships among descriptors of culture. The results of the literature synthesis showed that contrary to CVF theory, that all OC types were positively correlated, with a mean correlation of 0.54. Hartnell et al. concluded that the CVF's culture types on opposite sides of the orthogonal are not competing or paradoxical, but instead, they coexist and work together.

With respect to the limitations of CVF, the theory continues to be the most frequently used measure of OC (Hartnell et al., 2011). Cameron & Quinn (2011) developed the Organizational Culture Assessment Instrument (OCAI) to operationalize CVF into a measurable survey instrument built upon the three-layer model of Schein (2010). Similarly, Denison and Mishra (1995) also built an instrument based on the three-layer model of Schein (2010) called the Denison Organizational Culture Survey. The Denison survey rotates the CVF's dimensional

axes pertaining to structure and focus to create four different culture types. In the Denison Organizational Culture Survey, the OC types have different names, but they are essentially the same as CVF (Ostroff et al., 2012). The Organizational Culture Inventory (Cooke & Lafferty, 1987) is another measure that was developed by building on the three-layer model of Schein. Slightly different from the OCAI, the Organizational Culture Inventory categorizes OC into three types: (1) constructive culture that promotes normative beliefs related to achievement, self-actualization, affiliation, and encouraging, (2) passive-defensive culture that promotes values associated with seeking approval, being conventional, and avoiding accountability, and last (3) aggressive-defensive culture that promotes values associated with power orientation, competition, and opposition. O'Reilly et al. (1991) also developed The Organizational Culture Profile, which uses the Schein (2010) three-layer model as foundation to the instrument. The Organizational Culture Profile measures eight values of OC: (1) innovation, (2) detail orientation, (3) outcome orientation, (4) aggressiveness, (5) supportiveness, (6) emphasis on rewards, (7) team orientation, and (8) decisiveness.

OC at Multiple Levels of Organization

One of the limitations of most studies that examine OC is that the construct is often examined at one level of the organization. Hofstede, Neuijen, Ohayv, and Sanders, (1990) shed light on the existence of subcultures at various levels of the organization. More recently, Zyphur, Zammuto, and Zhang (2016) conducted a descriptive study that shed light on the subculture phenomena by analyzing the difference between how managers perceive their organization's culture versus how non-managers perceive their organization's culture. Zyphur et al. (2016) collected survey data from 67 U.S. hospitals, and a total of 6,731 managers and non-managers, then analyzed the data through a multi-level latent polynomial regression model. The results

proved a significant difference between managers' view and non-managers' view of OC, (*t* ranged from 2.04 to 12.41, $P < .05$). The results call into question the validity of findings from OC studies and various research that tends to sample only one group from an organization. Zyphur et al. (2016) concluded that there are subcultures within an organization because OC is perceived differently by different level employees. The findings call for research to examine OC from multiple levels of the organization rather than from one level.

OC as Toolkit

Swidler, (1986) explained OC as a specific toolkit of resources such as habits, practices, and skills, which organizational members use to solve problems. The tool kit perspective breaks down culture into two models: (a) Settled culture, characterized by low coherence and consistency; and (b) unsettled culture characterized by high coherence and transformation. Swidler argued that the traditional views on culture focus on the settled dimension of culture, but leave out the unsettled dimension, which is most dominant in changing or evolving times. Values are not viewed as the linkage between culture and action in the toolkit perspective: "A culture is not a unified system that pushes action in a consistent direction. Rather, it is more like a 'tool kit' or repertoire from which actors select differing pieces for constructing lines of action" (Swidler, 1986, p. 277).

Spencer, Harison, and Corley (2011) conducted an exploratory study to examine OC from a toolkit perspective through an ethnographic approach. Spencer et al. (2011) collected data through semi-structured interviews, observations, and written documentation in Alpinista, a leader in the outdoor sports manufacturing industry. A total of 51 semi-structured interviews were conducted with 38 informants with various roles within the organization. Written documents were collected from catalogs and various communications published from 2002 to

2008 to members internally within the organization, and externally to vendors and customers. Observations were done on participants and non-participants through the ethnography. The results provided insight on OC being an open-system of two dimensions: cultural infusion and cultural seeding. Cultural infusion is a term used to describe how external toolkits influence the internal culture of the organization. Cultural seeding is the process of the organization attempting to influence the cultural toolkits of their industry culture. The open-system suggests that there is a continual exchange of cultural toolkits between the organization and its industry. Spencer et al. concluded that an organization's culture operates as an open-system through the two dimensions of cultural seeding and cultural infusion. The conclusions also point out the changing or evolving nature of OC, which coincides with the unsettled dimension of the toolkit theory as Swidler, (1986) postulated.

The synthesis of the OC literature shows two divergent views. One perspective describes culture as three-layers of basic assumptions, values, and artifacts, where values are the main linkage between culture and action (Schein, 2010). The values approach has been advanced by Cameron and Quinn (2011), Denison and Mishra (1995), and O'Reilly et al. (1991). The second perspective views culture as a toolkit, which an individual can pick from, to determine a line of action (Swidler, 1986). Nonetheless, many researchers followed the first path of Schein, building upon the three-layer model. In addition, researchers pointed out, that managers' perceptions differ from employees' perceptions of OC, creating subcultures within the organization that call for research to be conducted at multiple levels of the organization (Zyphur et al., 2016; Hofstede, 1990). Lastly, limited researchers followed the toolkit path showcasing the open-system side of culture through its settled dimension and more prevalent unsettled dimension with limited measures available to measure the OC construct from the toolkit approach.

Organizational Culture in IS

CVF was applied to IS in numerous studies within the literature (Cao, Huo, Li, & Zhao, 2015; Iivari & Huisman, 2007; Kappos & Rivard, 2008). For example, Cao, Huo, Li, and Zhao (2015) examined the relationships between supply chain integration and OC. Supply chain integration was itemized by internal integration, customer integration, and supplier integration, and OC was identified into the following culture types according to CVF: Hierarchal (bureaucratic), rational (competitive), group (innovative), and developmental (clan). Cao et al. conducted a descriptive study using survey methodology and collected data from manufacturing firms located within 10 countries (USA, Japan, Germany, Finland, Switzerland, Korea, Italy, Australia, China, and Spain). A total of 317 surveys were analyzed with responses from non-managers, supervisors, and managers. The results of the structural equation modeling indicated that development (clan) and group (innovative) cultures are beneficial to all types of supply chain integration, ($p < 0.001$), but rational (competitive) culture is only beneficial for customer integration, $p < 0.001$. Hierarchical (bureaucratic) culture is negatively related to both internal integration and customer integration, ($p < 0.001$). Cao et al. concluded that organizations that are characterized by elevated levels of development, group and rational cultures, and a low level of hierarchical culture, performed best for enabling supply chain integration.

Similarly, Iivari and Huisman, (2007) conducted an exploratory study to analyze the relationship between OC and the deployment of systems development methodologies. Similar to Cao et al. (2015), Iivari and Huisman also applied the CVF by the following dimensions: hierarchal (bureaucratic), rational (competitive), group (innovative), and developmental (clan). Iivari and Huisman collected survey data from 80 organizations from various industries in South Africa. A total of 73 IT managers, and 234 IS developers responded to surveys. The results of the

regression analyses showed a positive relationship between hierarchal culture and systems development methodology deployment in the case of IS developers, ($p < 0.005$). Likewise, developmental culture was also found to have a positive relationship with systems development methodology deployment, and rational culture was positively related to IT manager criticalness of systems development methodology support and impact, ($p < 0.005$). From the findings of the study, Iivari and Huisman developed a theoretical model to explain the relationship between OC and systems development methodologies.

The IS and OC literature was reviewed by Kappos and Rivard (2008) in a conceptual paper that proposed a model to explain the relationships between culture, IS, and the development and use processes. Kappos and Rivard integrated the divergent views of OC by determining that no single perspective is sufficient to capture the interplay between culture and IS. Kappos and Rivard viewed culture from three perspectives they labeled: (a) Integration, (b) differentiation, and (c) fragmentation. The integration perspective conceptualized OC through the Schein model of shared values and basic assumption by all members of the organization. The differentiation perspective argued that members of a group do not always share the same interpretations of OC as Hofstede (1990) postulated. Lastly, the fragmentation perspective argued that there was a myriad of ways to interpret culture and boundaries cannot be put on organization wide or group wide cultures (Frost, Moore, Louis, Lundberg, and Martin, 1991). The three views were integrated into IS development and the review results showed that: (a) Culture influences the IS development process, (b) IS influences culture, and (c) culture moderates the interaction between IS development, characteristics of IS, and acceptance and resistance processes. Based on these findings, Kappos and Rivard developed a theoretical framework for researchers to apply when studying culture and IS.

The combination of the OC and IS literature sheds light on the knowledge fragmentation of IS and OC amplified by the different conceptualizations of OC (Kappos & Rivard, 2008). The CVF theory was shown to be one of the most dominant conceptualizations of OC as it was applied to IS research numerous times by various researchers (Cao et al., 2015; Iivari & Huisman, 2007), but its limitations were also outlined by certain researchers (Kappos & Rivard, 2008). There were limited studies that examined the toolkit theory of Swidler (1986), and the theory has not been developed further than the three-layer model of Schein (2010). Therefore, in IS research literature, the CVF stands out as the developed and dominant theory used to examine OC.

Organizational Culture and KS

OC has also been examined numerous time in the KM and KS literature. For instance, Wiewiora, Trigunarsyah, Murphy, and Coffey (2013) studied the impacts of project sub-cultures in relation to sharing of knowledge between projects in project-based-organizations. Wiewiora et al. (2013) conducted a case study using the CVF. Data were collected through questionnaires, face to face semi-structured interviews, and review of organizational documents. The first source of data was a total of 39 face-to-face interviews with project managers within four organizations located in Australia. The second source of data was collected through surveys utilizing the OCAI developed by Cameron and Quinn (2011). The OCAI survey is used to examine OC through six key characteristics: (a) Dominant characteristics, which represent the most prevailing attributes of the organization, (b) organizational leadership, which represents the styles of leadership with the organization, (c) management of employees, which represents the management approach within the organization, (d) organizational glue, which represents the bonding mechanisms that hold the organization together, (e) strategic emphasis, which represents the major focus areas of

the organization , and (f) criteria of success, which are the expectations on which the organization defines success. The third source of data was a review of organizational documentation. The results from the OCAI survey showed that two of the organizations had a market (competitive) and hierarchy (bureaucratic) culture, and the other two companies had a clan culture. The culture type was determined through descriptive statistics by analyzing the survey results, for example for one of the organizations, 33 answers from the questionnaire identified the organization's culture as clan, and only 21 answers identified the culture as market (competitive). The dominant culture was then determined to be clan culture. The survey data was further supported by interview data which solidified the claims. The research results from the interviews showed that cultures displaying market (competitive) type values, such as competitiveness and achievement, are likely to show evidence of hesitancy to share knowledge. Conversely, cultures with Clan-type characteristics, emphasizing a collaborative environment and friendly, non-competitive atmosphere at work, are likely to openly share knowledge even related to project shortcomings. The interview data for KS provided qualitative data, but unlike the Suppiah and Sandhu (2011) study, no quantitative data was gathered to examine the interaction between OC and KS. The limitations of the study include the general definition used for KS; not diving into its contributing or seeking dimensions, also the general definition of knowledge; not identifying its explicit, implicit, or tacit forms, and the lack of application of socialization and all other phases of the SECI theory.

Cavaliere and Lombardi (2015) also investigated OC using the CVF and its impact on KS. However, Cavaliere and Lombardi itemized KS into knowledge donation (contributing) and knowledge collection (seeking). They obtained data through surveys collected from 389 employees from six Italian subsidiaries, and ran hierarchal regressions on the two dimensions of

KS, collecting and donating. The results displayed that adhocracy (innovative) OC to be positively related to knowledge donation, ($\beta = 0.16$, $p < 0.05$), but no significance was found for knowledge collection. Similarly, the results showed that hierarchal (bureaucratic) OC to be positively related to knowledge donation, ($\beta = 0.18$, $p < 0.05$), and knowledge collection, ($\beta = 0.16$, $p < 0.05$). Furthermore, the results showed that community (clan) OC to be positively related to knowledge donation, ($\beta = 0.13$, $p < 0.05$), but no significance was found for knowledge collection. The results did not show any significance with respect to the impact of market (competitive) culture on knowledge donating or knowledge collecting. The results contradict the previous findings of Suppiah and Sandhu (2011). Cavaliere and Lombardi suggested studying the problem from multiple levels of the organizations, because it would provide a further look at how KS occurs at the individual, organizational, and even country level, because the study was conducted in Italy and only on the subsidiary level. Cavaliere and Lombardi addressed KS from a seeking and contributing perspective and appeared to emphasize on the implicit and tacit dimensions of knowledge, but did not specify their focus. Likewise, socialization was not addressed during the study to concentrate on tacit KS.

A conceptual paper by Rai (2011) integrated the SECI model and CVF, creating a framework through literature synthesis which proposed that organizations characterized predominantly by clan culture are likely to focus on knowledge creation and conversion through the socialization process, and organizations characterized predominantly by a market (competitive) culture are likely to focus on knowledge creation and conversion through the combination process (Rai, 2011). However, there were lack of empirical research on these theoretical propositions.

The synthesis of the KS in OC literature showed that there are many opportunities to address to contribute to a better understanding of the interaction between KS and OC. There was agreement amongst the CVF research findings that organizations with a dominate clan culture are shown to have higher KS behaviors as proposed throughout the outlined studies. However, the findings contradict each other when focusing on market (competitive), and hierarchal (bureaucratic) cultures (Wiewiora et al., 2013; Cavaliere & Lombardi, 2015; Suppiah & Sandhu, 2011). There was also a lack of focus on the SECI model when addressing KS in an organization, for example focusing on tacit KS though socialization, or explicit KS through externalization. There were similar limitations of addressing the properties of KS; seeking and contributing, and there were further limitations with respect to the identification of the knowledge dimensions; explicit, implicit, and tacit.

There were many studies that operationalized OC quantitatively through the CVF model, but limited research existed on KS that measures socialization. There were also limitations from the literature analysis that called from more research to address KS from a knowledge seeking and knowledge contributing perspective. Similarly, there were calls from KS experts to examine KS from explicit and tacit perspectives respectively. The combination of the limitations showcased the limited research on KS and OC that: (a) Applies the SECI model, (b) focuses on tacit knowledge through socialization, (c) addresses the seeking and contributing aspects of KS, and (d) examines the problem from multiple levels of the organization.

Summary

The KS body of knowledge showcased the importance of tacit KS, with the tacit dimension being viewed as the major property of knowledge. The SECI model displayed socialization as the primary stage where tacit to tacit knowledge is converted and best shared.

Moreover, OC proved to be a construct that is not easily defined, with researchers following the open system approach of the toolkit theory, and many following the values based approach of Schein. When analyzing IS and OC literature, IS researchers acknowledged the difficulties in defining OC and have provided ways for researchers to structure their studies when addressing OC and IS problems.

The dominant way to measure OC has been through the CVF and the established OCAI measurement that quantifies the construct (Cavaliere & Lombardi, 2015; Cao et al., 2015; Wiewiora et al., 2013; Suppiah & Sandhu, 2011; Iivari & Huisman, 2007). Although researchers showcased some of its limitations, and alternative theories such as the toolkit theory viewed OC differently, the alternative theories have not shown to be as dominant as CVF when it comes to measuring OC.

The synthesis shows that there were certain studies that examined the impacts of OC on KS, but there were limited studies that investigated the reciprocal interaction between OC and KS. More importantly there were limited studies that focused on tacit KS via socialization. Certain studies focused on tacit KS and explicit KS, and others focused on knowledge contributing and knowledge seeking. But there are limited studies that examine the interaction between OC and tacit KS focusing on socialization from a knowledge seeking and a knowledge contributing perspective.

Chapter 3
Methodology

Overview

The previous chapter showcased the incongruences throughout the literature of organizational culture (OC) and tacit knowledge sharing (KS). To bridge the gap between the misunderstandings, a multi-method case study was conducted by collecting data through interviews, observations, company records, and surveys. This study had minimal interference as data were captured at events as they normally occurred without manipulation or control. A case study methodology was used that examined the interaction between OC and KS within a retail sales organization of a Fortune 50 company in a non-contrived setting. The data were analyzed using multi-method analysis: Quantitative analysis including predictive and descriptive statistics were used for the survey and company records data, while qualitative analysis was used for the observation and interview data, then the data were triangulated to reach the conclusions for this study.

The OC variable was examined through the competing values framework (CVF) theory by utilizing the most recent version of the organizational culture assessment instrument (OCAI) survey developed by Cameron and Quinn (2011), supplemented by interview questions. Since the existing research addressing the KS variable lacked details on tacit KS, this study first, focused on providing specifics that are significant to tacit knowledge, since it is as a major dimension of knowledge (Polanyi, 1966; Nonaka & Takeuchi, 1995; Haider, 2009; Nakano et al., 2013). Second, it focused on measuring tacit KS via socialization, since it is the best way to share tacit knowledge (Lievre and Tang, 2015; Al Saifi et al., 2016). Third, it addressed KS via socialization based on its two dimensions of seeking and contributing (Wu & Haasis, 2013).

Lastly, it addressed the problem from multiple levels of the organization. Figure 4 shows the theoretical framework of this study. The investigation focused on sharing knowledge for (within and between) non-mangers, first level managers, and second level managers of the organization, as highlighted in Figure 5.

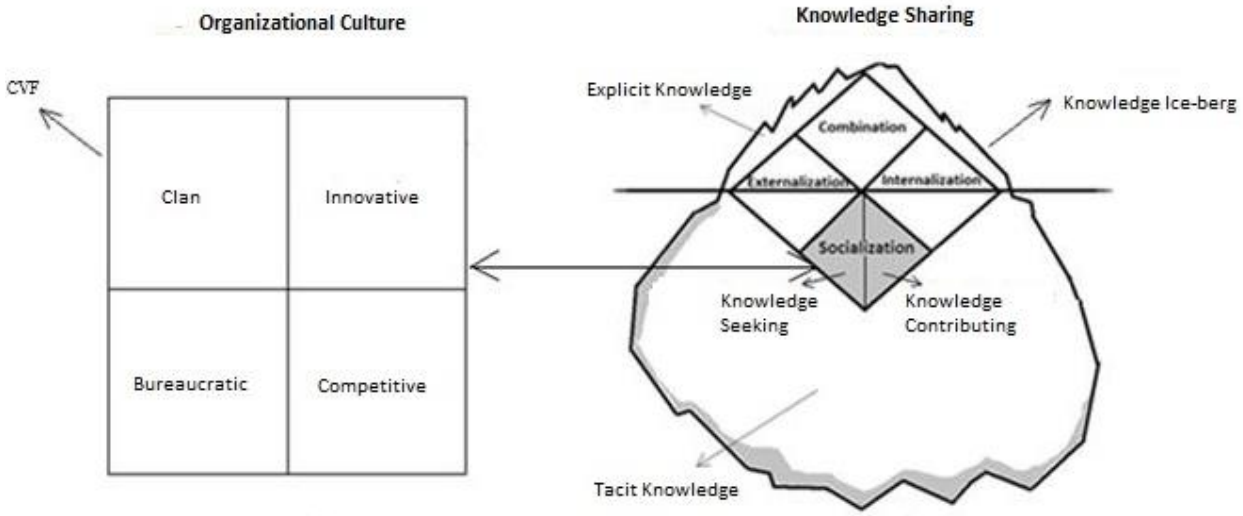

Figure 4: Conceptual Framework (Examining the interaction between OC via CVF, and Socialization from the Organizational Knowledge Creation Theory (SECI) illustrated within the Knowledge Ice Berg Theory)

Figure 5: Multi-levels of Organization

Chapter 3 is comprised of five main sections. First, the research questions are restated. Second, the data needed to develop answers for the research questions are identified. Third, the data collection methods are covered in detail. Fourth, the reliability and validity are addressed in detail. Fifth, the data analysis details are provided.

Research Questions

The main goal of this research was to examine the interaction between OC and KS via socialization to shed light on tacit to tacit KS by addressing two main research questions, that can be divided as follows:

1. What is the interaction between perceived OC and KS via socialization (seeking & contributing) amongst peers?

    (a). What is the interaction between perceived OC and KS via socialization (seeking & contributing) amongst peers for the overall organization?

    (b). What is the interaction between perceived OC and KS via socialization (seeking & contributing) amongst non-managers?

    (c). What is the interaction between perceived OC and KS via socialization (seeking & contributing) amongst first level managers?

    (d). What is the interaction between perceived OC and KS via socialization (seeking & contributing) amongst second level managers?

2. What is the interaction between perceived OC and KS via socialization (seeking & contributing) between various levels?

(a). What is the interaction between perceived OC and KS via socialization (seeking & contributing) between subordinates and managers in the overall organization?

(b). What is the interaction between perceived OC and KS via socialization (seeking & contributing) between non-managers and first level managers?

(c). What is the interaction between perceived OC and KS via socialization (seeking & contributing) between first level managers and second level managers?

Necessary Data

To address these questions, data were collected for the OC and KS via socialization variables. Four data collection methods were utilized collectively: (1) surveys, (2) interviews, (3) observations, and (4) company records that provided adequate amount of data for triangulation. Since the OCAI survey measured OC sufficiently, data for OC was collected via the survey and supplemented with interview data. For KS, since the literature review did not provide one instrument to measure tacit KS via socialization, data were collected using all four methods (surveys, interviews, observations, and company records).

Data for OC

To develop answers for the research questions, quantitative and qualitative data were needed to measure OC. The participant's view of OC within their company was used to measure OC at the individual level, similar to previous research (Cavaliere & Lombardi, 2015; Cao et al., 2015; Wiewiora et al., 2013; Suppiah & Sandhu, 2011; Iivari & Huisman, 2007). Quantitative data were needed for OC, specifically interval data to identify the level of each OC type in the organization. OCAI was a sufficient way to measure OC quantitatively, because it was the prominent instrument that researchers have used to operationalize the construct especially in IS

and KS literature (Cavaliere & Lombardi, 2015; Cao et al., 2015; Wiewiora et al., 2013; Suppiah & Sandhu, 2011; Iivari & Huisman, 2007). Qualitative data were also needed to help verify the findings gathered from the quantitative instrument. The data were necessary to shed light on the OC variable for this study and help with triangulation.

Data for KS

For KS, quantitative data were needed to operationalize the variable, specifically interval data to provide an adequate measurement for KS via socialization. Qualitative data were also needed to capture the complexities of the variable. As Pahlke and Seebach (2014), and Wu and Haasis (2013) alluded to KS being itemized into two building blocks of knowledge contributing and knowledge seeking, data were needed for tacit knowledge contributing, since it is one half of the KS variable. Similarly, data were needed for tacit knowledge seeking to examine the second half of KS. Data were needed at the non-manager, first-level manager, and second-level manager stages of the organization as well to examine the differences between and within each level.

Data Collection Methodology

Data were collected from an organization within the Fortune 50 list of companies. The individual was the unit of analysis during the data collection. The organization was in the New England market in the state of Connecticut of the United States. The population within this organization consisted of 152 non-management sales consultants, 32 level-one sales managers, five level-two sales managers, and one level-three sales manager. Due to limited access to level-three, level-four, level-five, and executive-level managers, this study was limited to non-managers, level-one managers, and level-two managers as depicted in Figure 5. This research was approved by the company and the Vice President and General Manager.

Since there were different numbers of people at each level of the organization, disproportionate stratified random sampling was the most adequate sampling design for this study. Per Sekaran and Bougie (2013), disproportionate stratified random sampling is most appropriate when the purpose of the study is mainly for assessing different parameters in subgroups of population, especially if the subgroups do not have equal number of elements, which was the case in this study. Based upon the disproportionate stratified approach, the sample consisted of five level two managers, 30 level one managers, and 111 non-managers, for a total sample size of 146. Of the total of 146 surveys that were issued, 82 responses were collected (five for level two managers, 21 for level one managers, and 56 for non-managers) with a total response rate of 56% (100% for level two managers, 63% for level one managers, and 50% for non-managers). This response rate was consistent with that of Rutten et al. (2016) who distributed a total of 244 surveys, and received 102 usable responses with a response rate of 42%. Also per the calculations of sample sizes provided by Barlett, Kotrli, and Higgins (2001), and Sekaran and Bougie, (2013), a minimum sample size of 75 is recommended for a population of 200 with a confidence level of 95%, and margin of error of 3%. In this research 82 usable responses were captured from a population of 189 which was sufficient to conduct the quantitative analysis.

Data Collection Methodology for OC

The OCAI survey adopted from Cameron and Quinn (2011) was utilized to measure OC, based upon previous research (Cavaliere & Lombardi, 2015; Cao et al., 2015; Wiewiora et al., 2013; Suppiah & Sandhu, 2011; Iivari & Huisman, 2007). The OCAI operationalizes OC into six dimensions, with each dimension having four choices within the survey. The participants were instructed by the survey introduction to divide 100 points among these four choices, depending

on which alternative was closest to their organization's culture. Each of the four choices within the six dimensions symbolized the main characteristics of one of the four OC types in the organization (clan, innovative, hierarchal, and competitive). Per Cavaliere and Lombardi, and Wiewiora et al., in this research, the four types of cultures were used as distinct types of OC. The data gathered from the OCAI provided interval data that helped to identify the levels of each of the four types of cultures in the organization. At the beginning of each survey, the participant's level (non-manager; level-one manager; level-two manager) were collected. The information was needed to aggregate the data for each organizational level during the data analysis stage. Reliability and validity of the OCAI survey has been established by its developers Cameron and Quinn (2011). The survey is provided in Appendix C, and the copyright permission from the copyright holder is provided in Appendix D.

In addition to the OCAI survey, questions regarding OC were included in an interview. A stratified purposive sampling approach was utilized to gather interview data. A total of five level-two managers, eight level-one managers, and 10 non-managers were interviewed, for a total of 23 interviews. Per Creswell (2013), stratified purposive sampling was the most appropriate in case studies where there are subgroups that are not of equal size. The interviews were conducted after the survey data were collection, modeling after Wiewiora et al. (2013). Although the interviews mainly focused on KS via socialization, there were three questions that sought to gather data on OC as shown in Appendix E. The questions were based upon the definition of OC being a set of attitudes, shared meanings, and values within an organization (Schein, 2010). Key words from the answers during the interviews were synthesized and provided qualitative insight for OC to supplement the quantitative data gathered through the survey.

Data Collection Methodology for KS

The four data collection methods (interviews, observations, company records, and surveys) were used to measure KS via socialization to provide richer data to overcome two acknowledged limitations of survey methodologies: their incapability to access symbolic meaning, and fundamental assumptions (Schein, 2010; Smircich, 1983). Therefore, the interviews, observations, and company records were used to provide the necessary data that were needed for a better understating of KS via socialization. A comparable approach to that of Wiewiora et al. (2013) was used.

Company Records

Modeled after Wiewiora et al. (2013), various forms of company records were used to search for tacit KS via socialization. Data on official registrations for mentorship programs, coaching documentation counts, training attendances, meeting minutes, and job shadow counts were collected to discover tacit KS via socialization through the organization. Although most of the value was gained through the surveys, observations and interviews, the company records data helped with triangulation. To help with answering the research questions, data were gathered for six categories of KS via socialization. Per the synthesis from the literature findings of Al Saife et al. (2016), Haider (2009), and Nonaka and Konno (1998), the categories were: (a) Number of one-on-one meetings, (b) number of group meetings, (c) number of coaching records, (d) training attendances, (e) number of mentoring sessions, and (f) number of job-shadow sessions.

Observations

The data collection for observations was modeled after the Nakano et al. (2013) study on tacit KS on the shop floor covered in Chapter 2. Nakano et al. spent the first month of their data collection period attending several formal and informal meetings with the managerial team of the

organization and immersing themselves into the environment. A similar immersion took place for this study where various offices were visited several times to observe non-manager and level-one managers for six months. Area meetings were also attended to observe level-two managers during the six-month period. After the immersion period, an additional month was dedicated to conducting and documenting a total of 23 one to four-hour observations to examine KS via socialization. Purposeful sampling was used to pick events where KS via socialization was likely to occur, based on the findings from the literature review, company records, and the immersion period. One-on-one meetings, group meetings, focus group discussions, coaching sessions, training sessions, mentoring sessions and job shadow sessions were observed to search for tacit KS during these interactions. A total of 10 observations were documented at the non-manger level of the organization. Eight observations were documented at the first-level manager layer of the organization, and five observations were documented at the second-level manager layer of the organization. The observer paid detailed attention to KS via socialization behaviors focusing on tacit knowledge seeking, and tacit knowledge contributing. Descriptive and reflective notes were taken during each observation in a form shown in Figure 6 as recommended by Creswell (2013). The observer sought to determine the amount of time being spent on tacit KS via socialization within and between the three levels of the organization. The observations added value to supplement the interview and survey data. When collecting data for meetings, or spending time together (Nonaka & Konno, 1998), meetings were defined as face-to face meetings, digital meetings using social web technologies, and information and communication technologies were also included (Panahi, Watson, and Partridge, 2016). The observations were helpful during coaching and training sessions to examine the level of tacitness at each event and provided insight on certain dimensions contributing more to KS via socialization than others.

Directions: Observe for tacit knowledge sharing behaviors during this session, pay special attention to behaviors that are related tacit knowledge seeking and tacit knowledge contributing.	
Length of Activity:	Type of Activity:
Descriptive Notes	Reflective notes
Tacit KS (seeking behaviors) Look for behaviors such as questions asked related to know-how, and know-why:	*A: Focus on within/between level KS (Ex: Between non-manager co-workers)*
Tacit KS (contributing behaviors) Look for behaviors such as answers given related to know-how, know-why, stories, and experience.	*B: Focus on multi-level KS (Ex: Between non-managers and level-one managers)*

Figure 6: KS via Socialization Observation Form

Surveys

Unlike OC, which had the OCAI survey as an established instrument to measure the variable, there were no instruments found within the body of knowledge that adequately measured tacit KS via socialization itemized into tacit knowledge contributing, and tacit knowledge seeking for multiple levels of the organization. Hence there was a need to develop and validate adequate interview and valid survey instruments to measure the construct.

The survey questions were designed around the level of KS via socialization behavior patterns identified by Al Saife et al. (2016), Haider, (2009), and Nonaka and Konno (1998). Likewise, since there was limited research that examined KS via socialization from a seeking and contributing perspective at various levels of the organization, the survey instrument was designed to meet the multi-level criteria.

At the beginning of the survey, a brief description of explicit and tacit knowledge was given to ensure that the participants understood the concept of tacit knowledge to provide answers that focus on the variable. The descriptions at the beginning of the surveys are shown in Appendices G and H. The amount of tacit KS being shared was also verified via interviews and observations that helped to determine the level of tacitness of the knowledge being shared. The interview and observation sections are covered after the survey section.

The synthesis of KS via socialization from Chapter 2 in Table 2 was utilized in the survey to measure the variable. Data for the first dimension of KS via socialization (training and coaching) were derived by asking questions in the survey that were specific to classroom training or private coaching sessions dedicated to developing or enhancing existing skill-sets. Data for the second socialization dimension (mentoring) were derived by asking questions specific to

mentoring or apprenticeship programs, where the knowledge contributor was sharing their mind-set through stories, examples, and experiences over a period of time; to instill a "way of thinking" into the knowledge seeker. Data for the third dimension (meetings) or spending time together were derived by asking questions in the survey that were specific to face-to face meetings, and digital meetings using social web technologies, and information and communication technologies (Panahi, Watson, & Partridge, 2016; Nonaka & Konno, 1998).

Data for the fourth KS via socialization dimension (shadowing) were derived by asking questions in the survey specific to one knowledge worker shadowing another knowledge worker to observe and learn visually, and ask questions to understand the "how" and the "why" behind the knowledge contributor's actions. Data for knowledge seeking and knowledge contributing were obtained by asking questions specific to tacit knowledge seeking via socialization, and tacit knowledge contributing via socialization behaviors. The first set of statements focused on tacit knowledge seeking via socialization behaviors. Conversely, the second set of questions focused on knowledge contributing behaviors, as shown in Appendix F.

Furthermore, data that focus on KS within organizational levels (between co-workers or peers) were derived by asking questions specific to peer to peer KS. Data that focus on KS between organizational levels (between non-managers and first level managers, or first level managers and second level managers) were derived by asking questions specific to KS between organization levels as shown in Appendices G and H.

Interviews

A stratified purposive sampling approach was utilized to gather interview data, and total of 23 interviews were conducted (five level-two managers, eight level-one managers, and 10

non-managers). One set of semi-structured interviews were conducted per participant to ask about KS via socialization to further shed light on findings from a qualitative perspective. It was important to explore KS via socialization by identifying seeking behaviors and contributing behaviors as discussed by Beck et al. (2014), Yan and Davison (2013), and Tong, Tak, and Wong (2015). Therefore, during the interviews, the questions were designed to identify KS via socialization through knowledge seeking and knowledge contributing behaviors, as shown in Appendices E and F. The interview data assisted in answering the research questions, which sought to find the difference in KS via socialization from a seeking and a contributing perspective within and between the three levels of the organization.

Nonaka and Konno (1998)'s findings regarding tacit KS via socialization was the starting point to gather preliminary data during the interviews. Nonaka and Konno (1998) identified "Ba" or time spent together for KS, as a main indicator for KS via socialization. Haider (2009) identified training and coaching as one of the main dimensions of tacit KS. Therefore, the interview questions were focused on the amount of time employees spend together, and the amount of training and coaching that took place at various levels of the organization. To shed light on the multi-level perspective, the interview questions were also designed to discover with whom do the employees spend their time with during these KS via socialization activities (managers or co-workers).

To help in answering the first research question for peer to peer KS, certain questions of the interview were directed to gather data on the quality of KS via socialization activities occurring within each level. To shed light on the second question for KS via socialization between non-mangers and level-one managers, and between level-one managers and level-two managers, the scenario approach used by Rutten, et al. (2016) was applied. Modeling after

Rutten et al., when collecting interview data for KS via socializing, the participant was asked to keep a specific manager or co-worker in mind when answering the interview questions. The non-manager participants were only asked KS via socialization questions regarding their co-workers and their managers, while the manager participants were asked questions regarding their co-workers, managers, and their direct reports. The two interview templates are attached in Appendix E for non-managers, and Appendix F for managers.

Reliability and Validity

OCAI (Organizational Culture Assessment Instrument)

For OC, the reliability and validity of the instrument was established by its developers Cameron and Quinn, (2011), and have been since re-validated by multiple researchers such as Suppiah and Sandhu, (2011). Therefore, no validity or reliability processes were conducted for the OCAI in this research, and the existing findings were sufficient to back the validity and reliability of the survey instrument.

Instrument Validations for KS Survey and Interview Script

To determine the clarity of the survey and interview instruments for KS via socialization, the measurements were validated via the Delphi Technique. Per Skulmoski, Hartman, and Krahn (2007), Delphi teams could include from six to fifteen members. Skulmoski et al. (2007) also showcased certain research that was successful with fewer Delphi team members. Hence, a panel of seven KM experts was comprised. The team members were selected based on their expertise in KM and KS. Each expert had a minimum qualification of a doctoral degree in information systems from an accredited university in the United States, with a focus on knowledge management. The experts were contacted to inform them of the purpose of this study and their

willingness to participate. All expert participants showed interest and were sent the validation of the proposed survey instrument attached in Appendix I, along with the validation of the proposed interview instrument shown in Appendices J. Skulmoski et al. (2007) suggested that often three rounds were sufficient to reach consensus. In this research, a third round was not necessary, because consensus was reached after two rounds. Per Yousuf (2007), each question had to have a mean of four or higher on a five-point scale to reach consensus, with no individual score equal to two or less. In the current study which utilized a seven-point scale, consensus was defined as the mean for each question equal to five or higher, with no individual score for a question equaled to three or less.

For the first round, the participants were asked to respond with feedback via a survey regarding each question within the proposed survey and interview instruments (Appendix I and Appendix J). The feedback form asked the expert participants to provide suggestions to improve questions where necessary and rate each question from a scale of one to seven based on the clarity and accuracy of the question with respect to measuring tacit KS via socialization. The feedback from the expert panel and the revised interview and survey instruments are attached in Appendices L-Q. The feedback was analyzed by determining the mean score for each question. If the mean score was less than five for a question, then that question was replaced or revised to meet the suggestions made by the expert panel.

Once the revisions were complete, a second round was conducted with the revised interview and survey instruments using the same seven-point Likert scale that obtained feedback for each question from the expert panel. The feedback was analyzed and revised the same way as it was in the first round, and consensus was reached at the end of the second round.

The use of survey instruments in KS research was applied by many researchers such as Cavaliere and Lombardi (2015), and Suppiah and Sandhu (2011). Per Sekaran and Bougie (2013), there are several validity tests that are commonly used, the main three being content validity, criterion-related validity, and construct validity. Based upon the literature review done in Chapter 2 and the summary of scholarly references shown in Table 2, the proposed KS via socialization instrument shown in Appendices G and H focused on ensuring an adequate and representative set of items that tap into the concept of KS via socialization to meet the criteria for content validity. Per Sekaran and Bougie (2013), construct validity affirms how well the results gained from the use of the instrument fit the theories around which the test is designed, and it is assessed through convergent and discriminant validity. To establish construct validity, the KS via socialization instrument was subjected to a pilot test. The number of participants for pilot test had to include at least 10 participants consistent with Khedhaouria and Jamal (2015) also conducted a pilot study with 10 business graduates for their study. The pilot test included 20 total participants from a purposive sample of 12 retail sales consultants and eight retail managers from various companies. The participants were asked to take the survey through a Survey Monkey link. Then the KS via socialization survey was tested for reliability. Per Sekaran and Bougie (2013), reliability indicates the stability and consistency of the instrument. Stability is proof of the instrument being able to remain the same over time in various circumstances. To establish reliability for the proposed instrument, the results from the pilot test were analyzed by conducting Cronbach's alpha for all questions, and for groups of questions related to each dimension within the survey (knowledge seeking amongst peers, knowledge seeking from manager, knowledge contributing amongst peers, knowledge contributing to manager, and for management workers; knowledge contributing to employees, and knowledge seeking from

employees). Leech, Barrett, and Morgan (2011) recommended that Cronbach's alpha should be between 0.7 and 0.9. An alpha lower than 0.7 indicates the items may not be similar, while one higher than 0.9 indicates there may be redundancy or unnecessary repetition in the survey. The results of the Cronbach's alpha are covered in Chapter 4.

Data Analysis

The data analysis included two main sections to address each research question. For each research question, the data synthesis for surveys, interviews, observations, and company records were employed. For the survey and company records data, quantitative data analysis methods were employed. The interview and observation data were analyzed using qualitative methods. The triangulation process for the quantitative and qualitative data is explained to help answer each research question.

Data Synthesis for First Research Question

Descriptive statistics were used to analyze the data gathered from the KS via socialization and OC surveys. For the KS survey, only questions related to peer to peer interactions were analyzed. Four tables were generated showcasing descriptive statistics including maximum, minimum, mean, standard deviation, and variance for each dimension within OC and KS. The first table showed the descriptive statistics for the overall organization by aggregating all the data. The second, third, and fourth tables provided descriptive statistics for every variable at each level of the organization by aggregating the data at each level (non-manager, first-level manger, and second-level manager). The descriptive tables were used as the starting point to help with analysis by providing a general picture of the data that alluded to important findings (Sekaran & Bougie, 2013). Additionally, two charts were generated to showcase the means for each variable: KS via socialization and OC. For OC, radar charts were used to determine the percentage of

participants who responded with the highest rating for a specific OC type (clan, innovative, competitive, or bureaucratic). Modeling after Wiewiora et al. (2013), the radar plot assisted with determining the dominant OC type of the organization. For KS via socialization, a bar chart was utilized to determine the level of tacit KS for tacit knowledge seeking and tacit knowledge contributing at each level of the organization and compared against the overall mean for the organization.

Furthermore, comparable to Cavaliere and Lombardi (2015), a Pearson correlation matrix was reported through a correlation table to shed light on the interaction of OC types (clan, competitive, innovative, and bureaucratic) and KS via socialization (seeking and contributing) for the overall organization. Two correlation tables were developed. One table was presented to showcase the correlations between KS via socialization and each OC type (clan, innovative, competitive, and bureaucratic). Another table showed the correlations between KS via socialization and the dominant culture within each dimension of OC based on the OCAI survey (dominant characteristics, organizational leadership, management of employees, criteria for success, organizational glue, and strategic emphasis).

Per Dattalo, (2013), a multivariate analysis of covariance (MANCOVA) is used to evaluate whether two or more dependent variables with two or more groups each differ on at least one optimally weighted linear combination of two or more dependent variables while controlling one of the independent variables (the covariate). For this research, the MANCOVA was aimed to discover if there were significance differences between the means of the dependent variables based on the groups within the independent variable, while controlling the covariate. OC was used as the independent variable (factor), and knowledge seeking and knowledge

contributing via socialization were used as dependent variables, while organizational level was used as the covariate. The design of the MANCOVA is displayed in Figure 7.

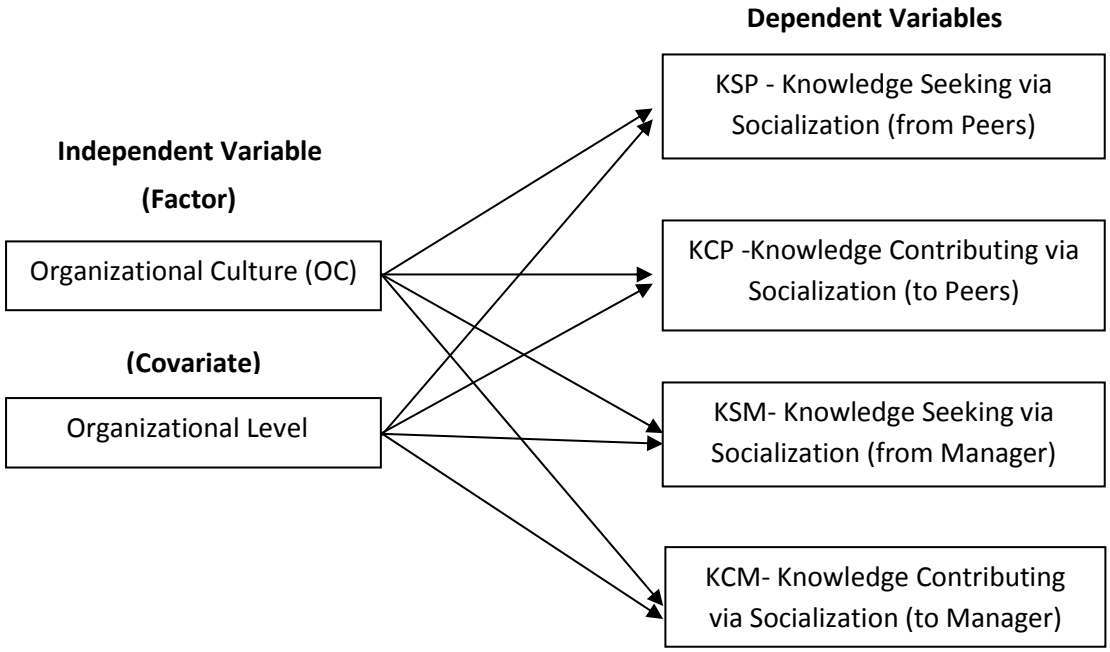

Figure 7: Design of MANCOVA for the interaction of OC, organizational level and KS via Socialization

Per Dattalo, (2013), Stevens, (2002), and Colley and Lohnes (1971) there were several assumptions that had to be met before conducting the MANCOVA. The first assumption was to have two or more interval dependent variables and one or more categorical independent variables (for factor and covariate). Knowledge seeking and knowledge contributing met the first criteria, and the organizational level data met the categorical requirement. Initially, however the data for OC were not categorical, because the participants were asked through the OCAI survey to divide 100 points amongst the four culture types for each question. To categorize the interval data, the dominant culture type for each question was used similar to Wiewiora et al. (2013). Specifically, if a culture type was 50 points or higher of the total 100 points possible, then that dominant

culture type was used as the category to identify OC. Weiewiora et al. identified dominant OC types through the OCAI at lower than 50 points, therefore 50 points was acceptable to determine dominance. If one culture was not dominant enough to reach 50 points alone, the next highest culture type was combined with the first culture type, and the OC was coded per the two culture types. For example, if a participant allotted 40 points to clan culture, and 30 points to innovative culture, then the answer was coded as clan-innovative. For questions where the participant answered 25 points evenly for each of the four choices, the code "No-Dominant-Culture" was used to categorize the culture type. After the categorization process, the first assumption was met without violations.

The second important assumption was independence of observations. Per the data collected, no participant was in more than one group hence the independence of observations assumption was met without intervention. The third assumption was having an adequate sample size where the sample size for each group was larger than the number of dependent variables. Since this research has four dependent variables, each group had to contain five or more cases. The assumption was also met without intervention for organizational level as the sample included five level two managers, 21 level one managers, and 56 non-managers. For OC, if a group contained fewer than five cases, it was combined with another closely related smaller group to meet the assumption. For example, if a group contained two cases where the participant's answer was initially coded as "innovative-competitive", and another group with three cases where the participant's answer was coded as "innovative", then those total of five cases were combined into one category labeled "innovative-mix". The final codes are displayed in chapter 4. After the coding process, the third assumption was also met without a violation.

The remainder of the assumptions were also satisfied and the details are covered in the results section: The fourth assumption was not having univariate or multivariate outliers, which was tested through the Mahalnobis distance. The fifth assumption was multivariate normality which was tested through the Shapiro-Wilk test of normality. The sixth assumption was having a linear relationship between each pair of dependent variables, which was tested through a scatterplot and correlation table that ensured each correlation is significant and at least above 0.2. The seventh assumption was not having multicollinearity between the dependent variables, which was measured by ensuring that there were no correlations above 0.9 between the dependent variables. The last assumption was having homogeneity of variance-covariance matrices, which was tested using Box's M Test of Equality of Covariance Matrices. After the assumptions were met, the MANCOVA was conducted to examine the differences between the means for OC and KS via socialization.

The Company records data analysis were used to supplement the survey data, modeled after Wiewiora et al. (2013). For the first question, the company records that were specific to peer-to-peer KS via socialization for one-on-one meetings, group meetings, coaching sessions, training sessions, mentoring sessions, and job-shadow sessions between non-managers, first level managers, and second level managers were the focus. Counts for each socialization event on record were populated into Microsoft Excel for each month of the calendar the year 2017. The data were analyzed quantitatively by calculating the means. The synthesis between the survey data and the company records data is covered in detail during the triangulation section of the first question.

Observation and Interview Analysis for First Research Question

The qualitative data gathered from observations were analyzed similar to the Nakano et al. (2013) study. The observation data for this study were used for KS via socialization data, but not for OC data as mentioned in the data collection section. A content analysis of the observation notes was conducted, focusing on KS via socialization between same level employees at each level of the organization. The qualitative content analysis consisted of five stages; (1) getting familiar with the data, (2) noting any patterns, (3) searching for themes, (4) defining or naming the themes, and (5) analyzing the themes, to measure the level of tacit KS via socialization at each organizational level. A data display is showcased in Chapter 4 by taking the reduced data and presenting it in a condensed manner (Sekaran & Bougie, 2013).

The data that were gathered from the 23 observations for KS via socialization were analyzed via the five stages of the qualitative content analysis. The observation data provided insight on tacit KS (seeking and contributing) during socialization activities such as meetings, trainings, job shadows, and coaching sessions within non-managers, level-one managers, and level two managers. During the analysis, the level of tacit KS (seeking and contributing) was determined based on the amount of tacit KS observed during the observations at each level of the organization. For example, the data that were gathered from an observation of a mentoring session was analyzed to determine if tacit knowledge was shared in the session, and how much of the session was dedicated to tacit KS based on the observation notes of the observer. Furthermore, the content analysis of the observation notes determined whether tacit KS (seeking and contributing) was occurring between co-workers (non-manager to non-manager), or between first level manager and non-manager during the session.

The content analysis of the observation data assisted with determining the level of tacit KS at each layer of the organization. Comparisons were made between peers at the three levels of the organization. The qualitative findings of the observation analysis were compared to the interview, survey, and company record data analyses during the triangulation section.

The OC survey data were supplemented with a qualitative analysis of the interview data, and the level of KS via socialization survey, and observation data were accompanied with a qualitative analysis of the interview data. The data analysis for the interviews followed a similar approach to that of Al Saife et al. (2016), Wiewiora et al. (2013), and Nakano et al. (2013). A systematic process modeled after Al Saife et al. (2016) was used to conduct the interview data analysis, which included three phases: (a) Open coding, where categories of information were chosen; (b) axial coding, where the categories were interconnected; and (c) selective coding was used to form a story connecting the assembled categories. A more detailed implementation of each of the three phases is described below.

Per Al Saife et al. (2016), the interviews were transcribed and a content analysis for the transcribed data was conducted. The interviewer took notes during the interview, and the interviews were also recorded via audio as well to ensure the details were captured. IBM Watson's speech to text feature was used to transcribe the notes which were used in conjunction with the interviewer's notes to eliminate interview bias error. To answer the first research question, the qualitative data analysis focused on perceived OC and KS via socialization among peers. Specifically, only the first three questions of the interview instruments were utilized for the analysis of OC, and the following questions for KS: Questions four, five, six, and eight for knowledge seeking, and questions 10, 12, and 15 for knowledge contributing. For the first phase – Open coding – the interview transcripts were examined line-by-line, and the initial codes

were named (Al Saife et al., 2016). The interview transcripts were coded by the units including words, sentences, paragraphs, and themes. The coding strategy helped to draw meaningful conclusions about the knowledge seeking via socialization, and knowledge contributing via socialization for non-managers, level-one managers, and level-two managers of the organization (Sekaran and Bourgie, 2013; Creswell, 2013). Then through categorization or categorical aggregation, the data were organized, arranged, and classified via coding units. The categorization process resulted in categories that provide meaningful patterns for each level of the organization and for seeking and contributing (Sekaran and Bourgie, 2013; Creswell, 2013). Then the data were displayed via an organized table which showcased the categories found by the open coding phase.

As per Al Saife et al. (2016), the second phase entailed axial coding. During the axial coding phase, the aim was to explore the relationships between categories, using inductive and deductive thinking to make connections between KS via socialization patterns at the three explored levels of the organization and OC patterns. Differences and similarities were identified at each level. Conclusions were drawn to determine the organizational culture levels and their relation to the level of KS via socialization at the three layers of the organization. Al Saife et al. (2016) described selective coding as storyline development. Selective coding involved a systematic relating of nodes to one another. It was used as the final phase of the coding process to combine the categories around the core groups. The selective coding helped with building a storyline for the relationship between OC types and KS via socialization at the three levels of the organization.

Per Sekaran and Bougie (2013), internal validity of qualitative data can be determined when the results accurately represent the data collected, and external validity is determined when

the results can be generalized or transferred to other contexts or settings. The three methods proposed by Sekaran and Bougie (2013) to establish validity are (1) providing counts of events to support generalization, (2) showcasing supporting cases and contradicting cases to test theory, and (3) triangulation that showcases patterns through various data collection methods. In this study, the three methods were used to establish validity of the qualitative data that were gathered. The counts of events were provided with the company record data, the supporting cases to test theory were provided with the survey analysis, and lastly triangulation was conducted to examine patterns throughout the four data sources.

Triangulation for First Research Question

The results for the surveys, company records, observations, and interviews were triangulated to answer the first research question. In triangulation, researchers make use of multiple data sources and methods to provide sufficient evidence (Creswell, 2013). First the results of the survey data analysis were compared against the company records analysis. The descriptive analysis and the MANCOVA results of survey analysis were compared to the descriptive analysis of the company records. The similarities were combined and the differences were outlined. Then the findings were compared to the results of the observation analysis to complement the analysis of the surveys and company records. After taking the similarities and differences into account, the aggregated results were compared to the qualitative analysis from the interview results for both the questions regarding OC and the questions regarding knowledge seeking and knowledge contributing within the non-managers, level-one managers, and level-two managers of the organization. The similarities and the findings were triangulated and reported to shed light on new findings and open the door for questions to be answered for future research.

Data Synthesis for the Second Research Question

For the second research question, descriptive statistics were also used to analyze the data for the KS via socialization survey. Only questions related to employee to manager interactions were analyzed. A descriptive statistics table was generated for KS via socialization focusing on items related to between-level interaction. The table showed the descriptive statistics for knowledge seeking and knowledge contributing for: (a) between subordinates and managers for overall organization, (b) between non-managers and level-one managers, and (c) between level-one managers and level-two managers. An additional bar chart was generated to showcase the means for KS via socialization variables (seeking and contributing). The bar chart helped with determining the level of tacit KS for knowledge seeking and knowledge contributing between non-managers and level-one managers, and between level-one managers and level-two managers.

Likewise, a correlation analysis was used to shed light on the interaction of OC types and KS via socialization for the overall organization. Two correlation tables were presented. The first table showcased correlations between OC types and KS for the overall data of the organization. The second table showcased the correlations between each dimension of OC and KS via socialization. Correspondingly, the same MANCOVA results of the first research question was also utilized for research question two, because it helped to clarify the between-level interactions.

Company records data analysis for the second research question modeled the Wiewiora, et al. (2013) study. Counts for each socialization event on record were populated into Microsoft Excel for each month from January to December of the year of 2017. After the counts were entered, the mean was calculated for each organization level by dividing the number of KS

activities by the number of managers. For between level one and non-manager managers, the counts were divided by 32, because there were 32 retail sales managers in the organization. For between level two and level one managers, the counts were divided by five, because there were five area managers in the organization. The means were calculated for each KS via socialization event for (a) non-managers and level-one managers, and (b) level-one managers and level-two managers. The combined means of the three categories were used as a representation for KS via socialization from a company records perspective. Similarly, descriptive statistics showcased through descriptive tables were provided for company records to showcase similarities and differences amongst the two groups.

Observation and Interview Analysis for Second Research Question

For the second research question, the same general model outlined in the first research question was used during the observation analysis. However, the focus was on the between-level aspect of KS (manager to worker) rather than the peer-to-peer aspect covered in the first research question. Likewise, in the interview analysis, the data were analyzed from the following questions of the interview instrument: (1) Questions one to three to examine OC, (2) Questions four, five, seven, and nine to examine knowledge seeking via socialization, and (3) Questions 10, 11, and 13 to examine knowledge contributing via socialization. The focus was on the outlined questions, because they were specific to the between-level aspect of this research. The same coding process of Al Saife et al. (2016) was used to develop themes that shed light on the relationship between OC and KS via socialization between non-managers and level-one managers, then between level-one managers and level-two managers.

Triangulation for Second Research Question

Comparable to the first research question, for the second research question the results for the surveys, company records, observations, and interviews analyses were also synthesized. The results of the descriptive statistics, MANCOVA, interview analysis, and observation conclusions were triangulated the same way as the first research question. However, the focus was on tacit knowledge seeking via socialization and tacit knowledge contributing via socialization for between-level interactions (between non-manager and level-one manager, and level-one manager and level-two manager). The similarities and patterns were showcased to report findings and make suggestions for future research.

Summary

This study included data collected via surveys, interviews, observations, and company records. The survey methodology incorporated a measure adopted from the previously validated survey instrument of OCAI to measure OC, and a new instrument to measure KS via socialization from a seeking and contributing perspective. The KS survey items were validated using an expert panel via the Delphi technique to investigate and correct any confusion of the variable language and content of the survey instruments. The survey was further tested via a pilot test with 20 participants to ensure reliability through a Cronbach's Alpha.

Once data were collected, the data were analyzed via multi-method analysis: quantitative analysis, qualitative analysis, and triangulation. The survey and company record data were analyzed via quantitative analysis, and the interview and observation data were analyzed via qualitative analysis. All data were triangulated to derive answers to the two research questions that clarified some of the interactions between OC types and KS via socialization variables

within multiple levels of the organization. The results of the testing and the analysis of data are discussed in Chapter 4.

Chapter 4

Results

Introduction

The results from the analysis are divided into the following sections: validity and reliability of instruments, followed by the data synthesis for the first question, the data synthesis for the second question, and the summary. The validity and reliability of instruments section covers the Delphi process results for the survey and interview instruments, and the pilot test results for the survey instrument. The data synthesis sections for the first and second question provides the data analysis results for surveys, company records, observations, interviews, and triangulation of the aggregate results to answer each research question. The summary section combines the results for the two research questions for the interaction between organizational culture (OC) and knowledge sharing (KS) via socialization.

Validity and Reliability of Instruments

Validity: Delphi Team

The outline provided in the Reliability and Validity: Instrument Validations for KS Survey and Interview Script section of Chapter 3 was followed to establish the validity for the KS survey and interview script. Seven experts participated in the Delphi process who met the qualification standards outlined in Chapter 3. The expert panel's qualification form is shown in Appendix K.

Appendix L shows the results of the first round from the expert panel for the survey instrument, and Appendix M shows the results for the interview instrument. Every question met the first requirement of having a mean of above five, however many questions did not meet the

second requirement of having no individual score below three. Based on the feedback from the expert panel, the instruments had to be revised to address the outlined issues through a second round of feedback. Appendix N shows the results from the second round for the survey instrument, and Appendix O shows the results for the interview instrument.

For the second round, every question met the first requirement of having a mean of above five and the second requirement of having no individual score below three. The survey results displayed that 100% of the experts responded with "Neutral" or above for all questions, 88.57% with "strongly agree", and 0% for "slightly disagree" or below. Table 3 shows a summary for the results of the second round for the survey instrument through a frequency table, and Appendix N shows the details for each question. Minor edits regarding spelling and formatting were made to the final survey instrument based on the qualitative feedback from the second round, but major changes were not needed.

Table 3

Summary of Results for Survey Instrument Validation from Delphi Panel

		Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
N	Valid	30	30	30	30	30	30	30
	Missing	0	0	0	0	0	0	0
Count of Total Responses		0	0	0	5	13	6	186
Percent of Total Responses		0.00%	0.00%	0.00%	2.38%	6.19%	2.86%	88.57%

The interview results displayed that 100% of the experts responded with "Neutral" or above for all questions, 56% with "strongly agree", and 0% for "slightly disagree" or below. Minor edits were also made to the interview instrument based on some of the comments from the expert panel. Since the interview was designed as a semi-structured interview, and the criteria for the scores from the Likert scale were met, there was no need to make major changes to the

interview instrument either. Based on the feedback from the expert panel, a third round was not needed because the set criteria outlined in Chapter 3 was met, and consensus was reached to establish validity for the survey and interview instruments. Table 4 shows the summary results for the interview instrument, and Appendix O shows the details for each question.

Table 4

Summary of Results for Interview Instrument Validation from Delphi Panel

Interview Instrument Frequency Table

		Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
N	Valid	13	13	13	13	13	13	13
	Missing	0	0	0	0	0	0	0
Count of Total Responses		0.00	0.00	0.00	15.00	13.00	12.00	51.00
Percent of Total Responses		0.00%	0.00%	0.00%	16.48%	14.29%	13.19%	56.04%

Reliability: Pilot Test and Cronbach's Alpha Results

To establish reliability, the outline provided in the Reliability and Validity: Instrument Validations for KS Survey and Interview Script section of Chapter 3 was followed. The results of Cronbach's alpha for the survey is displayed in Table 5. The manager survey, and all dimensions met the criteria of having an alpha between 0.7 and 0.9. However, the non-manager survey displayed an alpha of 0.915, suggesting that there might have been redundancy in the questions being asked to measure the construct.

Table 5

Reliability Statistics: Results of Cronbach's Alpha for Survey Instrument

	Cronbach's Alpha	N of Items
Non-Manager Survey	0.915	20
Manager Survey	0.891	30
Knowledge seeking from peer	0.801	5
Knowledge seeking from manager	0.866	5
Knowledge contributing to peer	0.836	5
Knowledge contributing to manager	0.840	5
Knowledge contributing to employee	0.772	5
Knowledge seeking from employee	0.770	5

The Statistical Package for the Social Sciences (SPSS) was used to examine the impacts on the alpha of the scale if certain questions were deleted. Based on the analysis, five questions were removed to eliminate the redundancy from the survey instrument. After removal of redundant questions, the Cronbach's alpha results met the specified criteria of being within the 0.7 and 0.9 range for the non-manager survey, manager survey, and all dimensions. The results of Cronbach's alpha after the removal of the redundant questions are displayed in Table 6. The final survey and interview instruments are attached in Appendices P and Q.

Table 6

Reliability Statistics: Results of Cronbach's Alpha for Final Survey Instrument

	Cronbach's Alpha	N of Items
Non-Manager Survey	.890	17
Manager Survey	.867	25
Knowledge seeking from peer	.829	4
Knowledge seeking from manager	.836	4
Knowledge contributing to peer	.836	5
Knowledge contributing to manager	.811	4
Knowledge contributing to employee	.811	4
Knowledge seeking from employee	.822	4

Data Synthesis for First Research Question

Survey and Company Records Data Analysis for First Research Question

The survey results showcased that the dominant culture type within the overall organization was competitive. The mean for competitive culture was the highest (36.75), followed by clan culture (22.84), bureaucratic culture (20.58), and the lowest mean was for innovative culture (16.98). The results also exhibited that the mean for knowledge contributing amongst peers (KCP), was higher than the mean for knowledge seeking amongst peers (KSP). Table 7 displays the descriptive statistics for OC and KS for the overall organization.

Table 7

Descriptive Statistics of OC and KS via Socialization for Overall Organization

		N	Minimum	Maximum	Mean	Std. Deviation	Variance
OC	Clan	82	3.33	50.00	22.8415	9.67914	93.686
	Innovative	82	3.57	30.00	16.9878	5.17593	26.790
	Competitive	82	13.33	70.00	36.7520	14.49585	210.130
	Bureaucratic	82	7.00	43.33	20.5874	6.89238	47.505
KS	Knowledge seeking amongst peers	82	1.00	7.00	5.2348	1.49348	2.230
	Knowledge contributing amongst peers	82	1.00	7.00	5.9927	1.23186	1.517

For non-managers, the results showcased that the dominant culture type was competitive. The mean for competitive culture was the highest (33.57), followed by clan culture (24.03), bureaucratic culture (22.02), and innovative culture (17.46). The results also showed that the mean for KCP (5.85) was higher than the mean for KSP (5.04). Table 8 displays the descriptive statistics for OC and KS for the non-manager level of the organization.

Table 8

Descriptive Statistics of OC and KS via Socialization for Non-Managers

		N	Minimum	Maximum	Mean	Std. Deviation
OC	Clan	56	3.33	50.00	24.0268	9.26380
	Innovative	56	3.57	30.00	17.4668	5.10306
	Competitive	56	13.33	70.00	33.5714	13.06038
	Bureaucratic	56	10.00	37.50	22.0238	5.83411
KS	Knowledge seeking amongst peers	56	1.00	7.00	5.0446	1.55878
	Knowledge contributing amongst peers	56	1.00	7.00	5.8464	1.28939

For level one managers, the results showcased that the dominant culture type was also competitive, and more competitive than the overall organization. The mean for competitive culture was the highest (44.94), followed by clan culture (19.05), bureaucratic culture (18.08), and innovative culture (15.37). The results also showed that the mean for KCP (6.34) was higher than the mean for KSP (5.83). Table 9 displays the descriptive statistics for OC and KS for level one managers.

Table 9

Descriptive Statistics of OC and KS via Socialization for Level One Managers

		N	Minimum	Maximum	Mean	Std. Deviation
OC	Clan	21	4.67	50.00	19.0476	10.36502
	Innovative	21	5.00	22.86	15.3673	5.41060
	Competitive	21	15.83	69.83	44.9365	16.71896
	Bureaucratic	21	7.00	43.33	18.0873	8.33560
KS	Knowledge seeking amongst peers	21	2.25	7.00	5.8333	1.26326
	Knowledge contributing amongst peers	21	2.20	7.00	6.3429	1.15090

For level two managers, similarly the results showcased that the dominant culture type was competitive. However, the mean for competitive culture was 38, followed by clan (25.50), innovative (18.43), and bureaucratic (15.00). The results also presented the mean for KCP (6.16)

to be higher than the mean for KSP (4.85). Table 10 displays the descriptive statistics for OC and KS for level two managers.

Table 10

Descriptive Statistics of OC and KS via Socialization for Level Two Managers

		N	Minimum	Maximum	Mean	Std. Deviation
OC	Clan	5	13.33	37.50	25.5000	8.71222
	Innovative	5	14.29	24.29	18.4286	4.29760
	Competitive	5	34.17	44.17	38.0000	4.10792
	Bureaucratic	5	7.50	24.17	15.0000	6.77003
KS	Knowledge seeking amongst peers	5	3.75	6.50	4.8500	1.09829
	Knowledge contributing amongst peers	5	5.60	7.00	6.1600	.51769

Overall, the dominant culture type was competitive throughout all levels of the organization. However, differences were present between non-managers and first level managers, as non-managers ranked OC higher for clan type, while level one managers ranked OC higher for the competitive type. Figure 8 showcases the dominant culture type of the organization through a radar plot, and Figure 9 showcases the dominant culture type for each level.

Figure 8: Radar Plot for Dominant Organizational Culture Type based on Survey Results

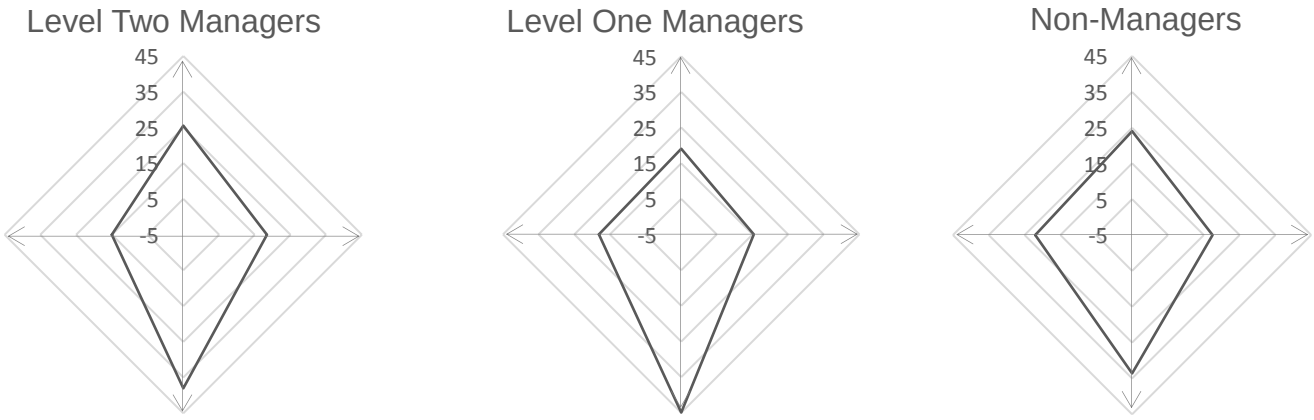

Figure 9: Radar Plot for Organizational Culture at Each Level

Similarly, the mean for knowledge contributing via socialization amongst peers was higher than the mean for knowledge seeking via socialization amongst peers for all levels based on the survey. There were differences between the three groups: Level one managers displayed the highest mean for knowledge seeking (5.83), and knowledge contributing (6.34), while level two managers showed the lowest mean for knowledge seeking (4.85), and non-managers showed

the lowest mean for knowledge contributing amongst peers. Figure 10 showcases the results of the means for knowledge seeking and knowledge contributing via socialization for the overall organization displayed through the dotted line in the chart, compared to the means of each level displayed through the bars in the chart.

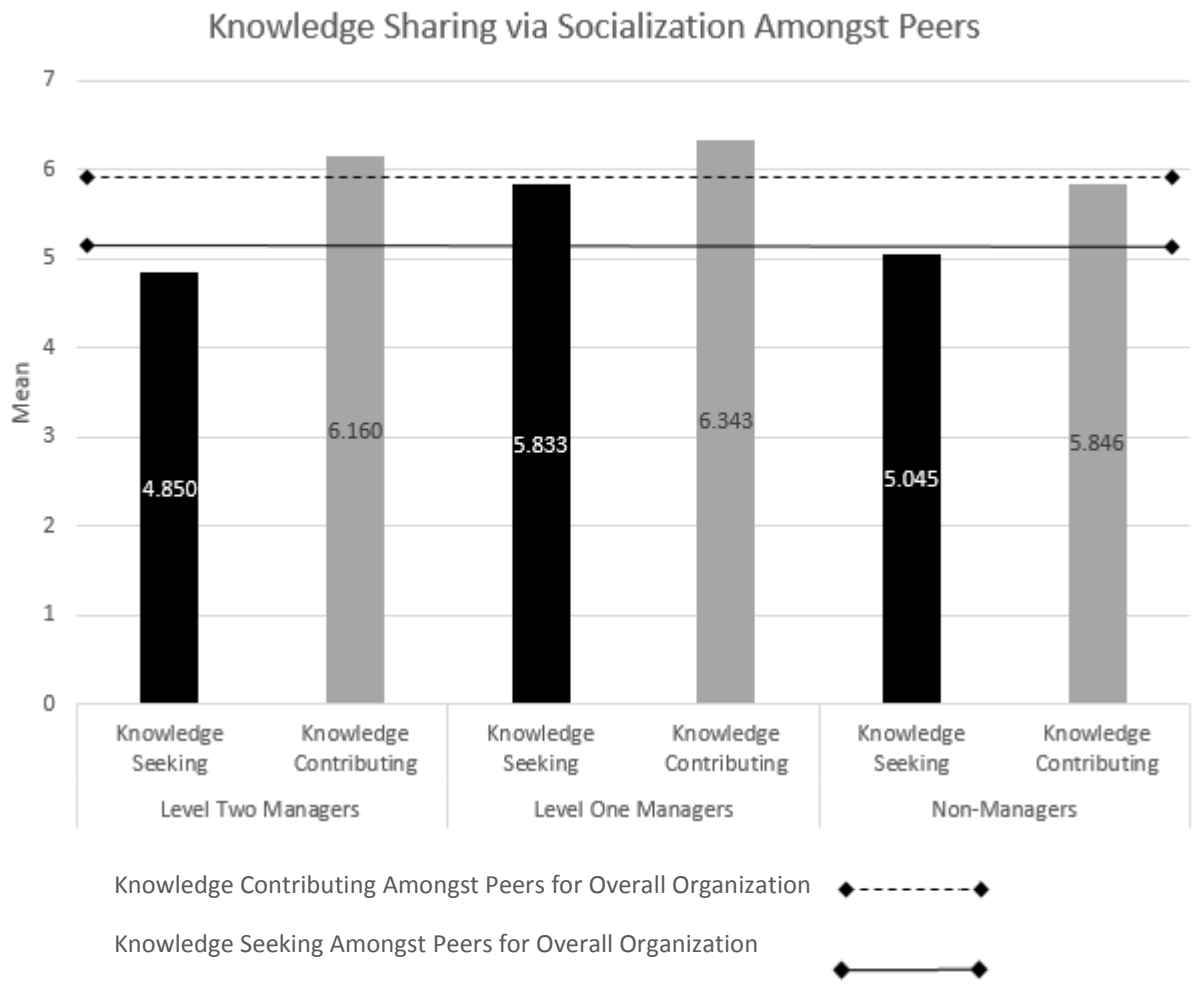

Figure 10: Bar Chart of Survey Results for KS via Socialization Amongst Peers

Per the results of Pearson's correlation showcased in Table 11, there was not a significant correlation amongst employees' perceived culture type and knowledge sharing via socialization amongst peers for the overall organization. There was a medium but statistically significant negative correlation between the organizational level and the extent to which employees

perceived the OC to be bureaucratic (r = -0.323, n = 82, p < 0.01), and a low but statistically significant positive correlation between the organizational level and the extent to which employees perceived the OC to be competitive (r = 0.261, n = 82, p < 0.05).

Table 11

Correlation Table for OC and KS via Socialization Amongst Peers for Overall Organization

OC Type	Correlation and Significance	Knowledge Seeking Amongst Peers	Knowledge Contributing Amongst Peers	Organization Level
Clan Culture	Pearson Correlation	-0.026	-0.077	-0.113
	Sig. (2-tailed)	0.819	0.491	0.314
	N	82	82	82
Innovative Culture	Pearson Correlation	-0.055	-0.091	-0.078
	Sig. (2-tailed)	0.626	0.417	0.487
	N	82	82	82
Competitive Culture	Pearson Correlation	0.125	0.075	**.261***
	Sig. (2-tailed)	0.263	0.500	0.018
	N	82	82	82
Bureaucratic Culture	Pearson Correlation	-0.179	0.029	**-.323****
	Sig. (2-tailed)	0.107	0.795	0.003
	N	82	82	82
Organization Level	Pearson Correlation	0.120	0.150	1
	Sig. (2-tailed)	0.283	0.177	
	N	82	82	82

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

A more detailed analysis was done to examine the correlations between KS via socialization and the dominant culture within each dimension of OC based on the OCAI survey (dominant characteristics, organizational leadership, management of employees, criteria for success, organizational glue, and strategic emphasis). Based on the analysis, there was a low but statistically significant negative correlation between the extent to which employees perceived the organizational leadership to be bureaucratic and knowledge seeking via socialization amongst peers (r = -0.276, n = 82, p < 0.05). There was also a low but statistically significant positive

correlation between the extent to which employees perceived the organizational glue to be dominated by competitive characteristics and knowledge contributing amongst peers ($r = 0.237$, $n = 82$, $p < 0.05$). Table 12 showcases the correlations between the OC dimensions and KS via socialization amongst peers for the overall organization.

Table 12

Correlation Table for OC Dimensions and KS via Socialization Amongst Peers for Overall Organization

Organizational Culture Dimensions		**Correlation and Significance**	**Knowledge Seeking Amongst Peers**	**Knowledge Contributing Amongst Peers**
Organizational Leadership	Clan	Pearson Correlation	0.059	0.101
		Sig. (2-tailed)	0.596	0.364
		N	82	82
	Innovative	Pearson Correlation	0.080	0.073
		Sig. (2-tailed)	0.474	0.516
		N	82	82
	Competitive	Pearson Correlation	0.107	-0.125
		Sig. (2-tailed)	0.337	0.265
		N	82	82
	Bureaucratic	Pearson Correlation	**-.276***	0.016
		Sig. (2-tailed)	0.012	0.887
		N	82	82
Organization Glue	Clan	Pearson Correlation	0.004	-0.110
		Sig. (2-tailed)	0.970	0.325
		N	82	82
	Innovative	Pearson Correlation	0.037	-0.174
		Sig. (2-tailed)	0.739	0.118
		N	82	82
	Competitive	Pearson Correlation	0.056	**.237***
		Sig. (2-tailed)	0.615	0.032
		N	82	82
	Bureaucratic	Pearson Correlation	-0.149	-0.038
		Sig. (2-tailed)	0.181	0.732
		N	82	82
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

The correlation results for each level were similar to the overall organization. There was not a significant correlation between the employees' overall perceived culture type and KS via

socialization amongst peers for non-managers and level one managers. However, for level-two managers, there was a strong and statistically significant correlation between the extent to which employees perceived the culture to be innovative and knowledge contributing to peers ($r = 0.880$, $n = 5$, $p < 0.05$). Table 13 showcases the correlations between the OC type and KS via socialization amongst peers for each level of the organization.

Table 13

Correlation Table for OC and KS via Socialization for Each Organizational Level

Non-Managers		**Clan Culture**	**Innovative Culture**	**Competitive Culture**	**Bureaucratic Culture**
KSP	Pearson Correlation	0.002	-0.116	0.092	-0.090
	Sig. (2-tailed)	0.986	0.393	0.502	0.509
	N	56	56	56	56
KCP	Pearson Correlation	-0.109	-0.158	0.159	-0.020
	Sig. (2-tailed)	0.423	0.244	0.243	0.882
	N	56	56	56	56
Level One Managers					
KSP	Pearson Correlation	0.078	0.327	-0.047	-0.251
	Sig. (2-tailed)	0.737	0.148	0.841	0.272
	N	21	21	21	21
KCP	Pearson Correlation	0.184	0.138	-0.345	0.359
	Sig. (2-tailed)	0.426	0.552	0.126	0.110
	N	21	21	21	21
Level Two Managers					
KSP	Pearson Correlation	0.342	0.013	0.113	-0.518
	Sig. (2-tailed)	0.573	0.983	0.856	0.371
	N	5	5	5	5
KCP	Pearson Correlation	-0.613	**.880***	0.874	-0.392
	Sig. (2-tailed)	0.271	0.049	0.053	0.514
	N	5	5	5	5
*. Correlation is significant at the 0.05 level (2-tailed).					

For the multivariate analysis of covariance (MANCOVA), the OC data were categorized following the outline provided in Chapter 3 to meet the categorization assumption for the independent variables. The recommendations of Dattalo, (2013), Stevens, (2002), and Colley and Lohnes (1971) were followed in detail to test the assumptions and conduct the MANCOVA.

The first assumption for having categorical independent variables was met after categorization of the OC variable. The following codes in SPSS were the final output for dominant OC types: (1) Competitive, coded as Comp; (2) Competitive-Clan, coded as Comp-Clan; (3) Competitive-Mixture, coded as Comp-Mix; (4) Competitive-Bureaucratic, coded as Comp-Bur; (5) Clan-Mixture, coded as Clan-Mix; (6) Clan-Competitive coded as Clan-Comp (7) Bureaucratic, coded as Bur, and (8) No Dominant OC, coded as No-D-C. Each code was used as a group for the independent variable (OC) in the MANCOVA, hence the assumption was not violated.

The second assumption for independence of observations was not violated, because each group had different participants with no participant being in more than one group. The third assumption for adequate sample size was also not violated, because for OC and organizational level, each group contained more than five cases, which was larger than the number of dependent variables (4).

For the fourth assumption, the results for the maximum Mahalnobis distance was 22.585. For the sample size (82), number of variables (four), and alpha risk (0.05), the maximum Mahalnobis distance must be smaller than 18.47 (Dattalo, 2013; Stevens, 2002; Colley and Lohnes,1971). The data were sorted in descending order in SPSS, and four outliers were removed to meet the assumption. After removal of outliers, the Mahalnobis distance result was 14.96, which was below the critical value (18.47). Hence after the multivariate outliers were removed, the assumption was not violated. Two residual tables showcase the Mahalnobis distance in Appendix R for before and after removal of outliers.

For the fifth assumption, per Dattalo, (2013) and Stevens, (2002) normality of each of the dependent variables for each of the groups of the independent variables (factor and covariate) was used to assess multivariate normality, in conjunction with frequency table analysis to visually inspect the normal distributions. The Shapiro-Wilk test of normality must be higher than 0.05 to assume normality (Dattalo, 2013; Stevens, 2002). The results of the Shapiro-Wilk test were higher than 0.05 for many of the items in each group and did not violate the assumption. However, for nine items in the organizational level table, and 10 items in the OC table, the Shapiro-Wilk test results were smaller than 0.05, which violated the assumption, the details of the violations are shown in the first and second table in Appendix S. The visual inspection of the frequency charts also showed that they were also negatively skewed, which was also sign of a non-normal distribution. Appendix T shows the frequency tables before transformation of data. Per Templeton, (2011), the data were transformed in SPSS to normalize the variables that did not meet the Shapiro-Wilk standard and normal distribution test. Then the frequency charts were inspected again after the transformation. The frequency charts after transformation showcased normal distribution, hence the assumption was met, and multivariate normality was not violated. The third and fourth table in Appendix S shows the results of the Shapio-Wilk test after the transformation. Figure 11 shows an example of KSP for before and after the transformation for normalization, and Appendix U showcases the frequency chart for each dependent variable after transformation.

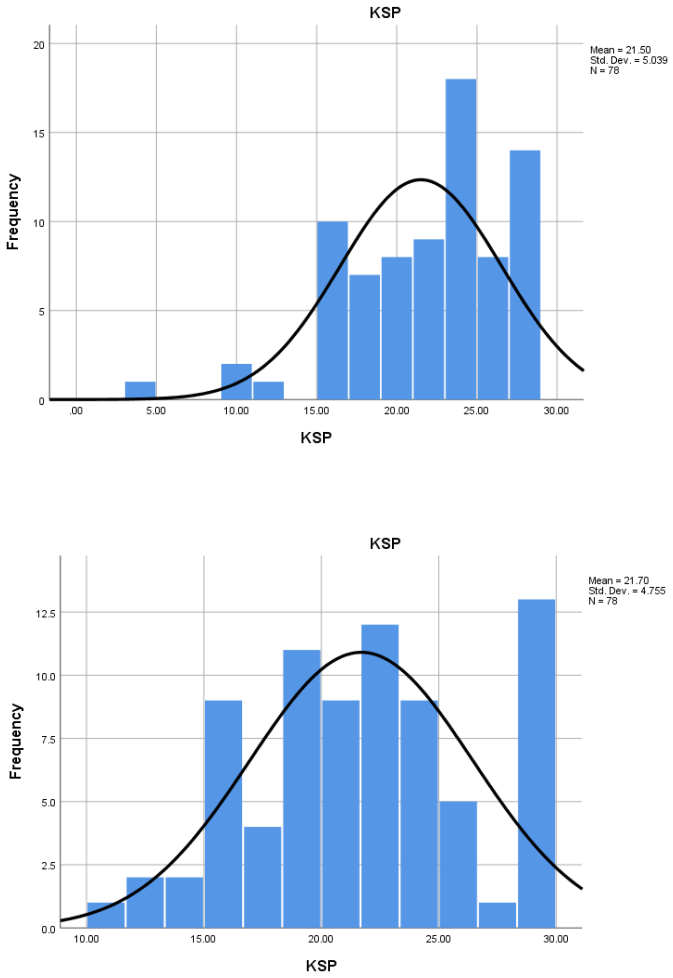

Figure 11: MANCOVA Assumption Testing: KSP before and after transformation for normality.

The sixth assumption of linear relationship and the seventh assumption for multicollinearity were not violated, as correlations between the dependent variables were between 0.2 and 0.9 as recommended by Dattalo, (2013). The correlations were above 0.2 which did not violate the linear relationship assumption, and below 0.9, which did not violate the assumption for multicollinearity. The results for the linear relationship are displayed in Figure 12 that shows the scatter plots for the dependent variables, and each pair of dependent variables for each group of independent variables (factor and covariate) per Dattalo, (2013). The results for non-multicollinearity are also displayed in the correlations showcased in Table 14.

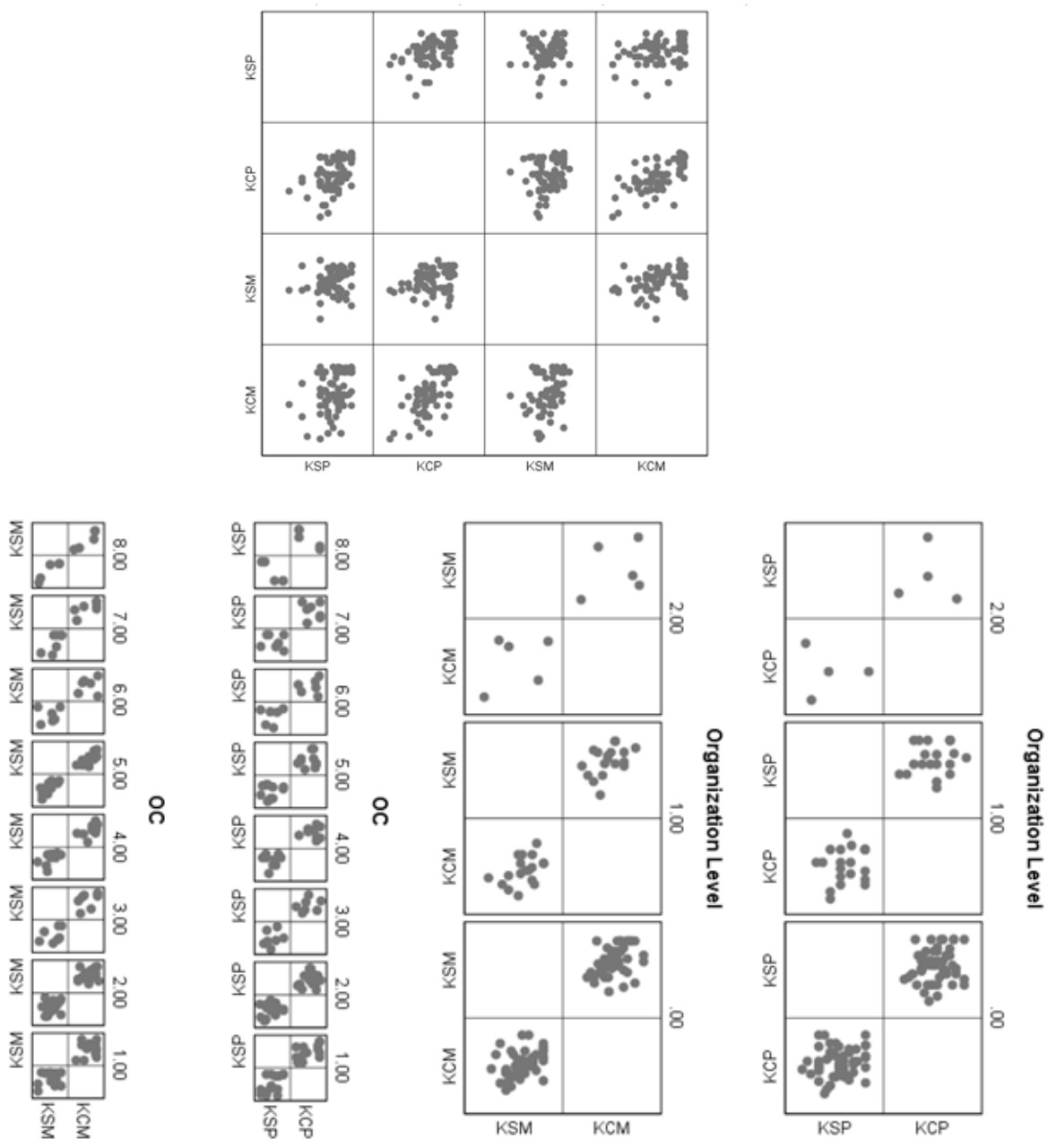

Figure 12: MANCOVA Assumption Testing: Scatterplot for Linear Relationship Test

Table 14

MANCOVA Assumption Testing: Correlation Table for Linear Relationship and Non-Multicollinearity Tests

Correlations

		KSM	KSP	KCM	KCP
KSM	Pearson Correlation	1	.354**	.394**	.282*
	Sig. (2-tailed)		.002	.000	.013
	N	77	77	77	77
KSP	Pearson Correlation	.354**	1	.365**	.483**
	Sig. (2-tailed)	.002		.001	.000
	N	77	78	78	78
KCM	Pearson Correlation	.394**	.365**	1	.704**
	Sig. (2-tailed)	.000	.001		.000
	N	77	78	78	78
KCP	Pearson Correlation	.282*	.483**	.704**	1
	Sig. (2-tailed)	.013	.000	.000	
	N	77	78	78	78

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The last assumption for homogeneity of variance-covariance matrices was also not violated as the Box's M test of equality of covariance was higher than 0.05 as recommended by Dattalo, (2013), Stevens, (2002), and Colley and Lohnes (1971). The results for the Box's M test of equality of covariance are displayed in Table 15.

Table 15

MANCOVA Assumption Testing: Homogeneity of Covariance Matrices

Box's Test of Equality of Covariance Matrices[a]

Box's M	94.799
F	1.193
df1	60
df2	2614.362
Sig.	.149

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

a. Design: Intercept + Level + OC

After the assumption testing was complete, the MANCOVA was conducted and the results showed that perceived OC type had a statistically significant effect on KS via socialization based on the survey results and was responsible for 14.4% of the effect on KS via socialization, *Wilk's Lambda* = 0.524 (F = 1.579, p = 0.038, η_p^2 = 0.144). The results for organization level suggested that the multi-level organizational aspect should be investigated further as well, *Wilk's Lambda* = 0.840 (F = 2.947[b], p = 0.027, η_p^2 = 0.160). Suggestions are covered in detail in the future research section of this research paper. The results of the MANCOVA are displayed in Table 16. The results partially replicated the findings of OC having

an impact on KS from Cavaliere and Lombardi, (2015), Wiewiora et al., (2013), and Suppiah and Sandhu, (2011).

Table 16

MANCOVA Results for OC and KS via Socialization

Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[d]
Intercept	Pillai's Trace	.990	1516.921[b]	4.000	62.000	.000	.990	6067.686	1.000
	Wilks' Lambda	.010	1516.921[b]	4.000	62.000	.000	.990	6067.686	1.000
	Hotelling's Trace	97.866	1516.921[b]	4.000	62.000	.000	.990	6067.686	1.000
	Roy's Largest Root	97.866	1516.921[b]	4.000	62.000	.000	.990	6067.686	1.000
Level	Pillai's Trace	.160	2.947[b]	4.000	62.000	.027	.160	11.787	.759
	Wilks' Lambda	.840	2.947[b]	4.000	62.000	.027	.160	11.787	.759
	Hotelling's Trace	.190	2.947[b]	4.000	62.000	.027	.160	11.787	.759
	Roy's Largest Root	.190	2.947[b]	4.000	62.000	.027	.160	11.787	.759
OC	Pillai's Trace	.578	1.568	28.000	260.000	**.038**	.144	43.906	.980
	Wilks' Lambda	.524	1.579	28.000	224.966	**.038**	.149	39.482	.960
	Hotelling's Trace	.730	1.577	28.000	242.000	**.037**	.154	44.151	.980
	Roy's Largest Root	.387	3.592[c]	7.000	65.000	**.002**	.279	25.146	.957

a. Design: Intercept + Level + OC

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

d. Computed using alpha = .05

However, the results for the tests of between-subjects effect that examined the details of the interaction between OC and KS via socialization were mixed. For knowledge contributing to peers, Levene's Test of Equality of Error Variances showed a significant value for the variable ($p = 0.002$). Therefore, per Dattalo, (2013) the in between-subjects effect was not interpreted for knowledge contributing to peers, because it violated the test. However, for knowledge seeking from peers, Levene's test was not violated, hence the in between-subjects effect was interpreted and showcased that there was not a statistically significant effect of OC on knowledge seeking via socialization from peers ($F = 1.070$, $p = 0.395$). Appendix V displays the detailed tables for Levene's Test, the tests of between-subjects effects, and the between-subjects factors. Although not statistically significant, there were meaningful differences between the means as shown in Figures 13 and 14. Figure 13, and the differences were taken into consideration during triangulation of data. Figure 13 showcases the details between the means for knowledge seeking from peers and for each OC type, compared to the mean. As the graph shows, knowledge seeking via socialization from peers was lowest when the employees perceived the culture as competitive-mixture and competitve-burucratic. Figure 14 showcases KSP by OC for each level of the organziation as well, and Appendix W displays the charts for each variable for OC and organizational level.

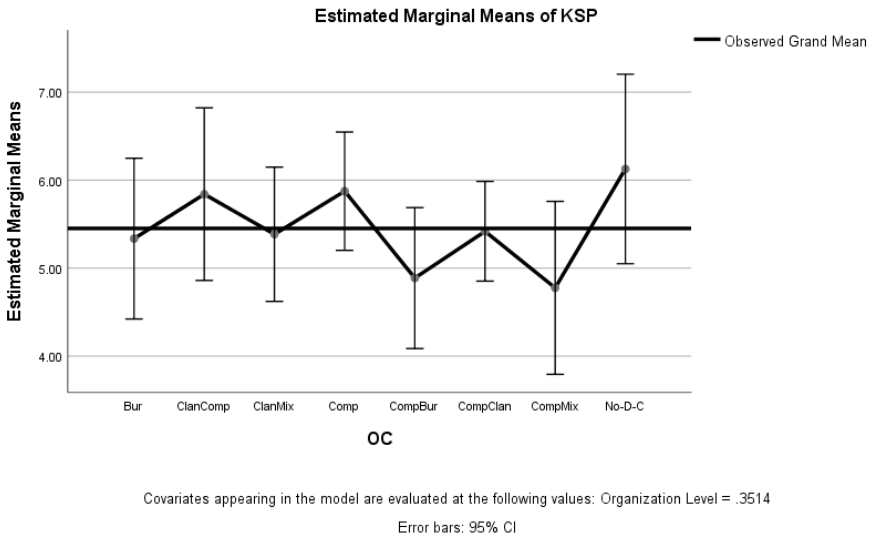

Figure 13: MANCOVA Results: Interactions between OC and KSP

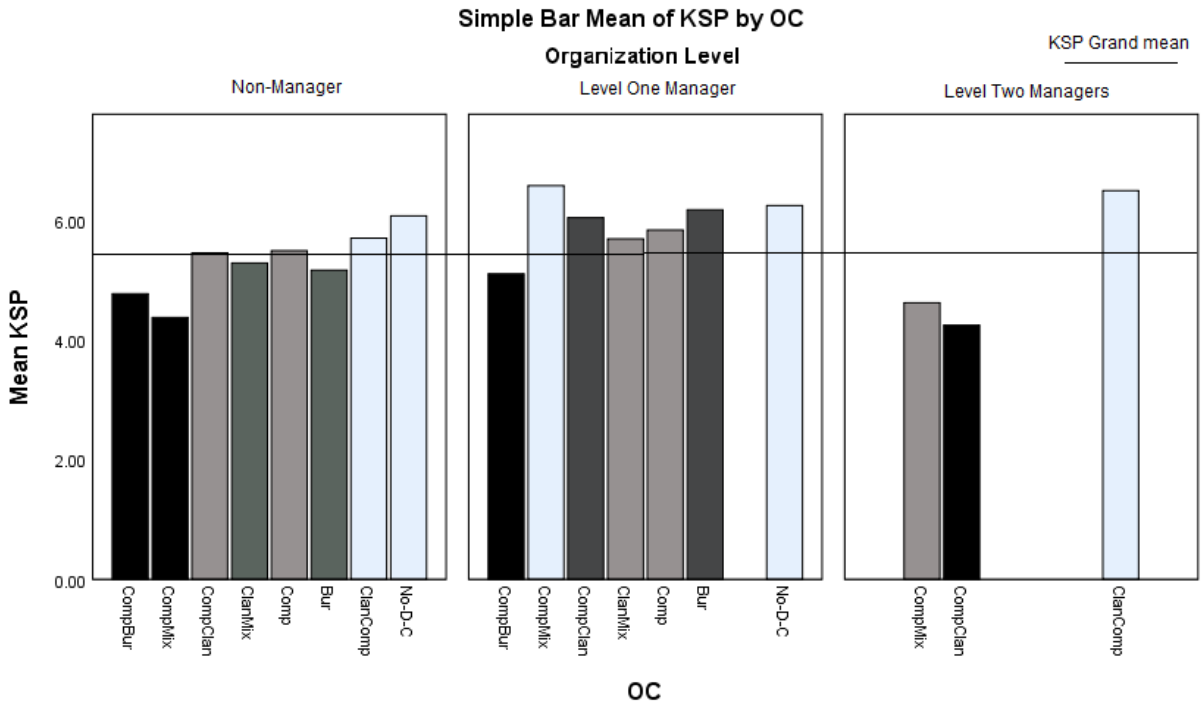

Figure 14: Knowledge Seeking Amongst Peers by OC for the Three Levels of Organization

The company records data were collected for each KS via socialization event that occurred for the year of 2017 by accessing the company's internal database. However, no records were found for KS via socialization between peers. The company did not have a formal process for KS via socialization at the peer level. However, records were found for KS via socialization for between level one managers and non-managers, and for between level two managers and level one managers. Those results are covered in the data synthesis section for the second research question.

Observation and Interview Data Analysis for First Research Question

Although there were no records found for KS via socialization at the peer level, the observations showcased that KS via socialization amongst peers existed in the organization, although it was not documented. The differences between the company records data and observation data showed that collecting data from multiple sources to be vital when examining KS. However, the observations supported the company records data, because it was found that the organization had a focus on coaching, one-one-one meetings, and group meetings, with limited time committed to trainings sessions, mentoring sessions, and job shadow sessions. Most of the meetings were vertical meetings (between subordinates and managers) which is covered in the second research question, but some were for peer to peer KS.

The observations revealed that non-managers worked together in the same office every day and informal group meetings were observed, however level one managers and level two managers spent limited time together (once or twice per month in person, and weekly via conference calls) as each manager operated in a different location. These differences may impact the results since Ba (time spent together) was different for each group. Ba was taken into consideration during the triangulation section of this research paper.

A typical peer to peer one-on-one meetings was 30 minutes in length. The theme obtained from the one-on-one meetings between peers was that the meetings were informal and not focused towards KS via socialization, however in certain scenarios KS via socialization would occur during the meeting through question and answer (Q&A). For example, in one observation between two non-managers that lasted for about 30 minutes, half of the meeting was small talk and business-related items. Then during conversation, one of the employees asked his peer about a best practice, and the peer revealed his strategy around selling a technology product to customers. There were about five minutes dedicated to KS via socialization during the meeting.

Group-meetings were typically led by the manager, and in certain instances peer to peer KS via socialization would occur, especially if the manager asked a question or encouraged the employees to share their know-how. Employees contributed their knowledge frequently, but it was more difficult for the manager to obtain participation for peer to peer knowledge seeking. There was also less time allotted in the meeting for knowledge seeking when compared to knowledge contributing. For example, during one of the observations in a group meeting that was one hour in length, 15 minutes were dedicated to performance results and company communications, and 30 minutes were dedicated to knowledge contributing from manager to employee. About 10 minutes were dedicated to two top performers picked by the manager to share their knowledge with the group. Then five minutes dedicated to opening the floor for questions (knowledge seeking). Questions were not asked during the time-allotted, event after multiple attempts from the manager, and the last five minutes were dedicated to concluding the meeting.

Coaching sessions were mainly used for manager to employee knowledge contributing which is covered in the second research question section. Training sessions were conducted by an instructor for longer periods of time (four to eight hours). During the training sessions, the employees were often broken into groups to work on small projects. During the break-out sessions KS via socialization amongst peers was observed. There were also more knowledge contributing behaviors during the breakout than knowledge seeking behaviors. For example, during one breakout session in a training, one of the level two managers shared her way of managing her time for location visits with her peers. Then another manager shared his best practices around managing his time effectively. There were limited knowledge seeking questions asked during the breakout sessions amongst the peers.

For job-shadow sessions, employees were encouraged by manager to job-shadow another employee. The knowledge seeker was typically a new hire, or an employee who was relatively new to the company. The knowledge contributor was a senior employee who had experience and know-how. The job shadow sessions were on the higher end on tacitness, however there was a limited amount of job-shadow sessions as uncovered by the company records data, and confirmed with the observation data. The job shadow session typically lasted for an hour for non-managers, and a day for level one managers and level two managers. The job-shadow sessions had a balanced amount of knowledge seeking and knowledge also driven by Q&A. For example, in one job-shadow session a level one manager asked his peer what he was doing in a performance area to bring about superior results, and the knowledge contributor attributed his success to his coaching method, he then shared his way of coaching, and demonstrated his style on the sales floor. The Q&A continued throughout the session, and the knowledge seeker did not

appear to be hesitant to ask questions, neither did the knowledge contributor appear to be hesitant to candidly answer those questions.

The results of the observation data analysis provided two themes that showcased the differences between tacit knowledge seeking via socialization and tacit knowledge contributing via socialization amongst peers. Specifically, the first theme obtained from the qualitative content analysis (when combining all the events together) was similar to the survey findings as there were more tacit knowledge contributing behaviors than tacit knowledge seeking behaviors amongst peers. The 23 observation notes were analyzed with the Qualitative Data Analysis (QDA) Miner following the steps outlined in Chapter 3. After each document was coded, the data display in Table 17 was developed to analyze the codes for peer-to-peer KS via socialization. As Table 17 shows, 65.52% of the codes were for knowledge contributing via socialization at the peer-to-peer level, while only 34.48% of the codes were for knowledge seeking via socialization at the peer to peer-to-peer level. Furthermore, knowledge seeking amongst level two managers (3.45%) was lower than the mean for the overall organization (16.67%).

Table 17

Data Display for Codes of Observation Analysis for KS via Socialization amongst Peers

Variable	Count of Codes	Percent of Codes for Each Level	Percent of Codes for Each Variable
KCP			**65.52%**
Level Two Managers	6	20.69%	
Level One Managers	7	24.14%	
Non-Managers	6	20.69%	
KSP			**34.48%**
Level Two Managers	1	3.45%	
Level One Managers	5	17.24%	
Non-Managers	4	13.79%	
Total	**29**	**100.00%**	**100.00%**

The second theme obtained from the observation data analysis provided insight on the amount of tacit knowledge being shared during each event. For group-meetings, and one-on-one meetings, there was limited amount of tacit knowledge sharing during each session, specifically a mean of five minutes per 30 minutes (16.66%). For training sessions, it was higher, as the time dedicated to tacit knowledge sharing was closer to one hour for a four-hour session (25%). Lastly, for mentoring and job-shadow sessions, the time dedicated to tacit knowledge sharing was closer to 30 minutes for a one-hour session (50%). However, there was limited time dedicated to KS via socialization events, especially for peer to peer mentoring and job shadow sessions.

The interview results for KS via socialization showcased that employees' perception of OC impacted the reasons for KSP. Employees who perceived the culture as competitive, competitive-clan, and bureaucratic, mainly sought knowledge to get advice and clarification on day-to-day tasks, and in some cases to seek best practices. Employees who perceived the OC as competitive sought knowledge through observing while employees who perceived the OC as clan were more likely to ask questions. For example, a participant who perceived the OC to be competitive answered the KSP question as follows: "I don't ask questions much, I just observe and look for mannerisms". However, employees who perceived the culture as clan mainly sought knowledge to obtain best practices and tactics, in some cases for problem solving, and they were more comfortable seeking knowledge by asking questions. For example, a non-manager who perceived the OC to be dominant with clan characteristics answered the question related to KSP as follows: "If I see myself struggling in an area, and I see a peer who is exceeding in that area, I try to speak to them at least once per week to pick their brain on what is it that they are doing

that I'm not doing? To get an idea, maybe if I change one aspect of my approach to their approach, it may lead to a positive outcome". Appendix X shows the axial codes for KSP and KCP.

The interview results for KS via socialization showcased that employees at various levels of the organization sought and contributed knowledge for distinct reasons depending on organizational level as well. Based on the axial codes obtained through the coding process for KSP in the overall organization, employees mainly sought knowledge during the following situations: (1) To get advice or clarification on day-to-day tasks, (2) when struggling with a performance area, and (3) when seeking best practices and tactics. Level two managers and level one managers sought knowledge mainly to get advice or confirmation on how to handle a task, and in some cases when they were struggling in a performance area. However, non-managers sought knowledge mainly to obtain best practices and tactics, and in some cases to get advice or clarification on day-to-day tasks. Furthermore, the frequency for KSP differed amongst the three levels. Specifically, level two managers sought knowledge from peers two to three times per month, while level one mangers sought knowledge from peers weekly, and non-managers sought knowledge from peers daily. Level-two manager were asked during the semi-structured interview to shed light on the reason for low KSP in the organization? Factors such as gaining knowledge through explicit means rather than socialization, time constraints, and lack of social capital were brought up, but OC was also brought up by respondents as a factor, for example one level-two manager who perceived the OC to be competitive stated the following regarding low KSP: "I believe it's a cultural issue where people don't feel comfortable reaching out, others may think 'why does this person not know how to do a particular job responsibility or task' perhaps they feel it will expose them as they don't know".

Likewise, for KCP, employees' perception of OC also had an impact on KCP. Employees who perceived the OC as competitive contributed knowledge in the following situations: (1) when knowledge was sought, (2) to give advice and share best practices, and (3) when they noticed that their peer was struggling in a performance area. While employees who perceived the OC as clan dominant contributed knowledge to their peers to give advice and share best practices. Employees who perceived the OC as competitive dominant with clan characteristics contributed knowledge when their peers sought knowledge and when they noticed that their peers were struggling in an area while employees who perceived the OC as bureaucratic only contributed when their peers sought knowledge. For example, a non-manager who perceived the OC as dominated by bureaucratic responded to the KCP question as follows: "Only when they ask", and another responded with "I don't". While a non-manager who perceived the OC to be clan dominate responded with the following: "As much as I can, if I see they need help or assistance, I just point out to them areas of opportunity, and give them my suggestions as a peer as to how I would have handled that situation differently".

Likewise, for KCP for the overall organization, employees contribute knowledge in the following situations: (1) When knowledge was sought, (2) during group meetings, and (3) to share best practices. Level two managers contributed knowledge mainly when knowledge was sought by their peers, secondly during group meetings, and in some cases when they noticed that their peer was struggling. Similarly, level one mangers contributed knowledge when their peers sought knowledge, secondly during group meetings, and in some cases, they contributed knowledge proactively only if there was a relationship and trust established between the knowledge seeker. While non-managers contributed knowledge mainly to give advice and share

best practices, in some cases if knowledge was sought, and rarely when a process was done improperly.

The competitive dominance within the organization did not have an observed negative impact on KCP based on the survey, observation, and interview data, hence participants were asked during the semi-structured interview an additional question to help with determining why KCP was high within the organization when the overall OC was dominated with competitive characteristics? The responses suggested that perceived competitive OC did not negatively impact knowledge contributing, especially when it was sought. For example, one of the level two managers who perceived the OC to be competitive responded with the following: "I genuinely think people want to help, I want people to be better, because if you truly are a competitive person, if all those people around you are getting better, naturally what that should do to you as a competitive person is to be better than them, so it just brings up the level of competition, it keeps going up. You want to be surrounded by as good people as possible, because that will raise the bar".

Triangulation for First Research Question

The triangulation results for the first question are broken into the results for OC and knowledge seeking amongst peers for overall organization, non-managers, level-one managers, and level-two managers. Then the results for OC and knowledge contributing amongst peers for overall organization, non-managers, level-one managers, and level-two managers is covered. Table 18 showcases a summary of the triangulation for the first research question.

KSP for the overall organization showcased that when employees perceived the OC to be competitive-bureaucratic, they were less likely to seek knowledge from their peers, while

employees who perceived the OC to be clan dominant displayed a higher level of KSP. The results were backed partially by the MANCOVA results and the chart in Figure 13, as it displayed the lowest means for KSP when OC was perceived as competitive-bureaucratic and competitive-mixture, and the highest mean when OC was perceived as clan-competitive. Furthermore, the results were supported by the negative correlation between the extent to which employees perceived the organizational leadership to be bureaucratic and KSP, displayed in correlation table 12. Lastly, the interview data supported the result as employees who perceived the OC as competitive or bureaucratic were more likely to seek knowledge for clarification on day-to-day tasks, and only in some cases sought knowledge from peers for best practices. While employees who perceived the OC to be clan dominant sought knowledge for best practices and tactics as exhibited in the interview results.

Although the observation, interviews, and survey data showcased there were lower KSP behaviors than KCP behaviors in the organization, which had a perceived OC dominated by competitive characteristics, there were not enough data to support the claim that perceived competitive OC negatively impacted KSP. However, the effect of perceived competitive when mixed with bureaucratic characteristics was negatively related to KSP.

Per the descriptive chart of the survey analysis in Figure 10, non-managers had a lower KSP than level-one managers, but a higher KSP than level two managers. Similarly, per the observation results in Table 17, the KSP was also lower for level-one managers but higher for level two managers. Although the interview results showed that non-managers sought knowledge from their peers daily which was higher than the managers' frequency, based on the observation data, the frequency was due to the amount of time being spent together (Ba), as non-managers

worked in the same location with their peers, while managers worked in separate locations from their peers. Hence the results for the overall organization was the same across non-managers.

Similarly, based on the survey, observations, and interview data, level one managers who perceived the OC as competitive-bureaucratic were also less likely to seek knowledge from their peers. However, level one managers who perceived the OC as competitive-mixture were more likely to seek knowledge from their peers, while clan dominance did not show a positive impact on KSP for level-one managers. Based on the observation and interview data, the anomaly may be contributed to low Ba as level-one managers only interacted with each other in person once per month, and minimally via weekly conference calls, which were led by level-two managers. Hence the results for the overall organization was concluded to be the same for level one mangers.

Table 18

Summary of Triangulation for First Research Question

Triangulation	Evidence		
Result	**Surveys**	**Observations**	**Interviews**
* Competitive-bureaucratic OC was negatively related to KSP for the overall organization	Supported by MANCOVA, descriptive statistics, and correlation tables	Supported by low KSP behaviors observed throughout organization which had a dominant competitive OC	Supported by the finding: Employees who perceived the OC to be bureaucratic sought knowledge from peers infrequently for clarification on day-to-day tasks, and only in some cases for best practices, and sought knowledge by observing
* Clan OC was positively related to KSP for the overall organization	Supported by MANCOVA, and descriptive statistics	N/A	Supported by the finding: Employees who perceived the OC to be clan dominant frequently sought knowledge for best practices and tactics, problem solving, and sought knowledge by asking questions
* Competitive-bureaucratic OC was negatively related to KSP for level one managers	Supported by the descriptive statistics	Supported by low KSP behaviors observed throughout level one managers, who had a dominant competitive OC	Supported by the finding: Level one managers who perceived the OC to be bureaucratic sought knowledge from peers infrequently for clarification on day-to-day tasks, and only in some cases for best practices
* Competitive OC was negatively related to KSP for level two managers	Supported by descriptive statistics	Supported by low KSP behaviors observed throughout level two managers who had a dominant competitive OC	Supported by the finding: Level two managers who perceived the OC as competitive rarely sought best practices from their peers
* Competitive OC was positively related to KCP for the overall organization if the knowledge was sought after by peers	Supported by descriptive statistics, correlation tables	Supported by high KCP behaviors observed in events in the organization, which had a dominant competitive culture	Supported by multiple respondents who perceived OC as competitive stating that they contributed knowledge, especially if it was sought after
* Competitive-bureaucratic OC was negatively related to proactive KCP for non-managers and level one managers	Partially supported by descriptive statistics	N/A	Supported by multiple respondents who perceived the OC to be competitive-bureaucratic who stated that they would only contribute knowledge to peers if it was sought
* Clan and competitive OC was positively related to KCP for non-managers, and level one managers	Supported by descriptive statistics	Supported by high KCP behaviors observed in events for non-managers and level one managers	Supported by multiple respondents who perceived the OC as clan or competitive who stated that they contribute knowledge to their peers to share best practices, tactics, and when it was sought after
* Clan OC was positively related to KCP, and competitive OC was negatively related to KCP for level two managers	Supported by descriptive statistics	N/A	Supported by multiple respondents who perceived the OC as clan that proactively contributed knowledge to peers, and respondents who perceived the OC as competitive that contributed mainly when it was sought after.

For level two managers, based on the triangulation of the three data sources, employees who perceived the OC as competitive were less likely to seek knowledge from their peers, and employees who perceived the OC to be clan were more likely to see knowledge from their peers. The result was backed by the interview data, observation data, and the survey results displayed in the bar chart in Figure 15. Hence level two managers differed from non-managers and level one managers for perceived competitive OC and KSP.

For KCP, the results from the observations, correlation tables, and interviews showcased that when employees perceived OC to be competitive, they were more likely to contribute knowledge if it was sought after by their peers. The interview results showed that knowledge seeking may have a moderating role on KCP especially if the perceived OC was competitive or bureaucratic, because one of the main themes throughout the interview was that employees were willing to contribute their knowledge when their peers sought the knowledge. The result that perceived competitive OC may positively be related to KCP based on knowledge seeking moderation was also supported by the positive correlation between perceived competitive OC and KCP displayed in table 12, and the bar chart in Figure 10 showcasing higher levels of KCP when compared to KSP in the organization. The results were also backed by the observation data that showcased higher levels of KCP than KSP as displayed in table 17, and interview data. There were no significant findings found for innovative, clan, and bureaucratic OC impacts on KCP for the overall organization. The effect of OC on KCP should be investigated further with a larger sample size; more details are covered during the future research section of this paper.

The triangulation results showed that there were limited findings for OC interaction with KCP for each level. For non-managers and level one managers, employees who perceived the OC to be competitive-bureaucratic were less likely to proactively contribute knowledge to their

peers, sharing only when their peers sought the knowledge. While employees who perceived the OC to be dominated with clan characteristic or mainly competitive characteristics were more likely to volunteer knowledge to their peers. For level-two managers, employees who perceived the OC to be competitive with low clan characteristics were also less likely to proactively contribute knowledge to their peers, sharing only when it was sought. Level-two managers who perceived the OC to have higher clan characteristics were more likely to contribute knowledge to their peers if they noticed that their peer was struggling in a particular area.

Overall when competitive culture was coupled with bureaucratic characteristics, it had a negative relationship with KS via socialization amongst peers, and specifically on knowledge seeking amongst peers, more than on knowledge contributing amongst peer. However, when the OC was perceived as competitive without bureaucratic characteristics, it was not negatively related to KSP, and had a positive relationship with KCP. Clan culture showed to be positively related to KS via socialization (KSP and KCP). No significant interactions were found for innovative culture. Furthermore, the results were largely similar for the three levels of the organization. The multi-level perspective should be investigated further to focus on the impacts of organizations levels on KS.

Data Synthesis for Second Research Question

Survey and Company Records Data Analysis for Second Research Question

The survey results for KS via socialization between levels were itemized into the following: Employee seeking knowledge from manager (KSM), employee contributing knowledge to manager (KCM), manager seeking knowledge from employee (KSE), and manager contributing knowledge to employee (KCE). The radar plots alongside the chart in figure 16 were used to compare between OC results and between level KS.

The means for KS via socialization from manager to employee were higher than the means for KS via socialization from employee to manager. Moreover, the mean for KCM was higher than the mean for KSM for the overall organizational and for each level within, which indicated that more knowledge was contributed to managers than sought after. Similarly, the mean for KCM was highest for between level one managers and level two managers. KSM between level one managers and level two managers displayed the lowest mean (4.798), while KCE between level one managers and non-managers displayed the highest mean (6.867). Table 19 displays the details for KS via socialization for the overall organizational, and for each level. Figure 15 showcases a bar chart comparing each level to the overall organization.

Table 19

Descriptive Statistics for Between Level KS via Socialization

Overall Organization						
KS via Socialization	N	Minimum	Maximum	Mean	Std. Deviation	Variance
KSM	82	1	7	5.198171	1.62292	2.63385
KCM	82	1	7	5.945122	1.28201	1.64356
KCE	26	6	7	6.836538	0.32359	0.10471
KSE	26	5.25	7	6.653846	0.50038	0.25038
Between Level One Managers and Level Two Managers						
KS with Manager (Level one manager to level two manager)						
KSM	21	1	7	4.797619	1.91804	3.67887
KCM	21	2.5	7	6.119048	1.12255	1.26012
KS with Employees (Level two manager to level one manager)						
KCE	5	6	7	6.7	0.41079	0.16875
KSE	5	6	7	6.75	0.43301	0.1875
Between Non-Managers and Level One Managers						
KS with Manager (Non-manager to level one manager)						
KSM	56	1	7	5.4241	1.49234	2.227
KCM	56	1	7	5.8438	1.36479	1.863
KS with Employees (Level one manager to non-manager)						
KCE	21	6	7	6.869048	0.30227	0.09137
KSE	21	5.25	7	6.630952	0.52213	0.27262

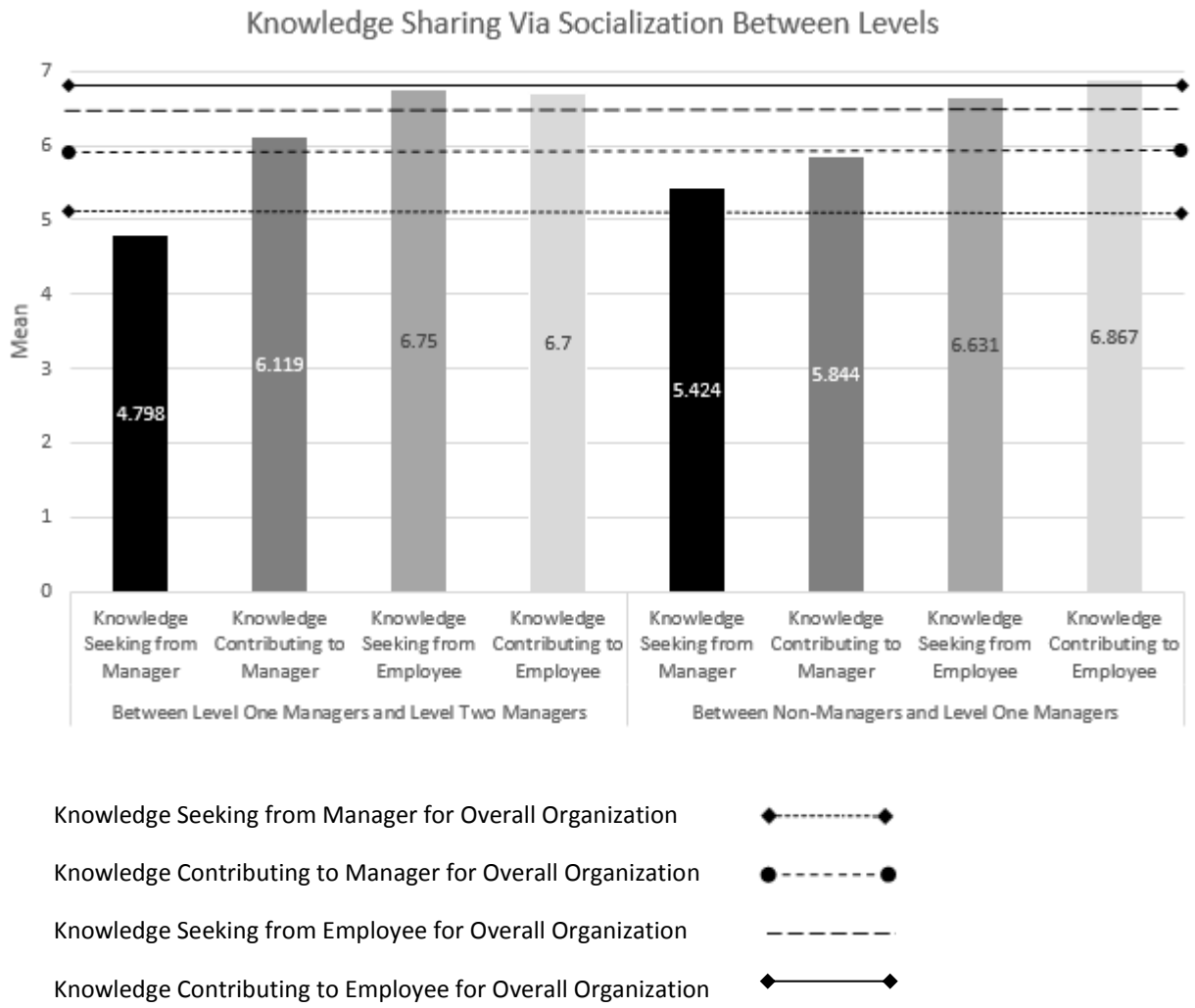

Figure 15: Bar Chart of Survey Results for KS via Socialization Between Levels

Per the radar chart in the first question, the OC results displayed that level one managers had the highest mean for perceived competitive culture. However, for perceived clan culture, level two managers had the highest mean, and for perceived bureaucratic culture, the non-managers had the highest mean. Figure 16 displays the comparison of each level for OC through the bar graph, and the line shows perceived OC for the overall organization.

Figure 16: OC Results for Each Level and Overall Organization

When KS via socialization was compared to OC data, the correlation results showcased that there was a low but statistically significant positive correlation between KSM and the extent to which employees perceived the OC to be clan dominant ($r = 0.250$, $n = 82$, $p < 0.05$). There was also a medium but statistically significant positive correlation between KSE and the extent to which employees perceived the OC to be innovative ($r = 0.501$, $n = 82$, $p < 0.01$). Table 20 showcases the correlations for OC and KS via socialization for between level knowledge sharing.

Table 20

Correlation Table for OC and Between Level KS via Socialization for Overall Organization

OC Type	Correlations and Significance	KSM	KCM	KSE	KCE
Clan Culture	Pearson Correlation	**.250***	-0.064	0.041	0.539
	Sig. (2-tailed)	0.023	0.569	0.841	0.005
	N	82	82	26	26
Innovative Culture	Pearson Correlation	-0.004	0.012	**.501****	0.116
	Sig. (2-tailed)	0.974	0.916	0.009	0.573
	N	82	82	26	26
Competitive Culture	Pearson Correlation	-0.131	0.055	-0.201	0.221
	Sig. (2-tailed)	0.241	0.624	0.326	0.277
	N	82	82	26	26
Bureaucratic Culture	Pearson Correlation	-0.073	-0.036	-0.055	0.176
	Sig. (2-tailed)	0.517	0.747	0.791	0.390
	N	82	82	26	26
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					

Per the detailed correlation analysis for the six dimensions within the OC data and KS via socialization, there was also a low but statistically significant positive correlation between KSM and the extent to which employees perceived the organizational leadership to be clan dominant ($r = 0.276$, $n = 82$, $p < 0.05$). There was also a medium and statistically significant negative correlation between KCE and the extent to which employees perceived the organizational glue to be based upon clan culture ($r = -0.501$, $n = 26$, $p < 0.01$). Furthermore, there was a medium and statistically significant positive correlation between KSE and the extent to which employees perceived the organizational glue to be based upon innovation ($r = 0.456$, $n = 26$, $p < 0.05$). There was also a medium and statistically significant negative correlation between KCE and the extent to which employees perceived the strategic emphasis to clan dominant ($r = -0.533$, $n = 26$,

$p < 0.01$). Moreover, there was also a low but statistically significant negative correlation between KSM and the extent to which employees perceived the strategic emphasis to be dominated by competitive culture ($r = -0.223$, $n = 26$, $p < 0.0$). Table 21 showcases the correlations between the OC dimensions and KS via socialization from multi-level perspective for the overall organization.

Table 21

Correlation Table for OC Dimensions and Between Level KS via Socialization

Organizational Culture Dimensions	Correlation and Significance		KSM	KCM	KSE	KCE
Organizational Leadership	Clan	Pearson Correlation	**.276***	0.038	0.023	-0.298
		Sig. (2-tailed)	0.012	0.736	0.913	0.139
		N	82	82	26	26
Organizational Glue	Clan	Pearson Correlation	0.157	-0.037	0.117	**-.501****
		Sig. (2-tailed)	0.159	0.741	0.571	0.009
		N	82	82	26	26
	Innovative	Pearson Correlation	-0.088	-0.098	**.456***	0.195
		Sig. (2-tailed)	0.433	0.383	0.019	0.339
		N	82	82	26	26
Strategic Emphasis	Clan	Pearson Correlation	0.139	-0.042	-0.021	**-.533****
		Sig. (2-tailed)	0.213	0.710	0.919	0.005
		N	82	82	26	26
	Competitive	Pearson Correlation	**-.223***	-0.032	-0.097	0.328
		Sig. (2-tailed)	0.044	0.776	0.638	0.102
		N	82	82	26	26
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

The results from the MANCOVA detailed during the first research question also showcased that KCM violated the Levene's test, hence it was not interpreted, however KSM met the Levene's test hence it was interpreted. OC did not show a significant impact on KSM (F = 0.979, p = 0.454, η_p^2 = 0.095). Appendix V showcases the details of the tests of between-subjects effects. However, the results showcased a meaningful interaction as the mean for KSM was lowest when the employees perceived the dominant OC to be bureaucratic. Similarly, the mean for KSM was lower when the employees perceived the dominant OC to be competitive-bureaucratic, competitive, and competitive-mixture. Therefore, competitive culture's potential negative impact on KSM needs further investigation that is covered in the future research section. Conversely, the mean for KSM was meaningfully higher when the employees perceived the dominant OC to be a clan-mixture. Figure 17 showcases the results for the interaction between KSM and OC obtained from the MANCOVA results.

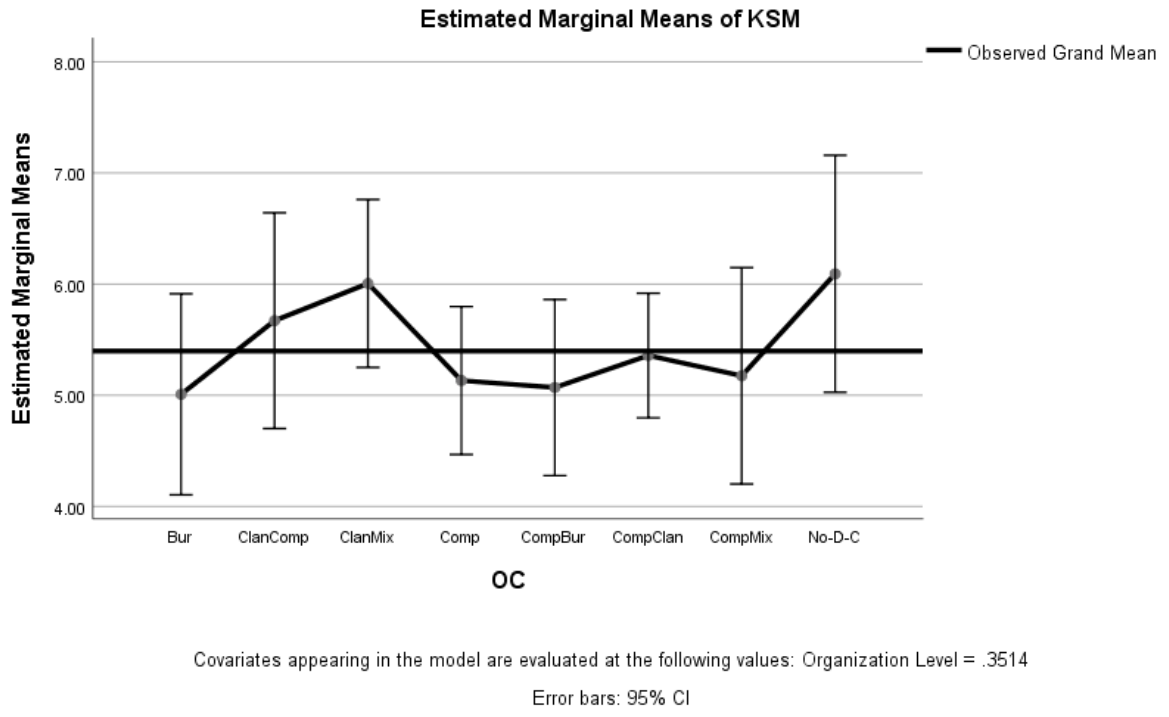

Figure 17: MANCOVA Results: Interactions between OC and KSM

For KS via socialization between the levels, company records were found for one-on-one meetings, group meetings, coaching sessions, training sessions, mentoring sessions, and job-shadow sessions between non-managers and level one managers, and level one managers and level two managers. Table 22 shows the table of means for each KS via socialization event that is recorded per employee for each month of the calendar year of 2017. The company records data showcased that the company had a formal process for manager to employee KS via socialization, formalized by monthly meetings, coaching sessions, and trainings documented in an IT platform. Mentoring sessions were not documented in the same platform but were tracked by a development program that was tracked by the HR department.

Table 22

Monthly Means Per Employee for Company Records of KS via Socialization for Year of 2017

Between Level 1 Manager & Non-Manager (Means)						
	One-On-One Meetings	Group Meetings	Coaching Sessions	Training Attendance	Mentoring Sessions	Job-Shadow Sessions
Jan	1.7	6.0	13.7	0.0	0.4	0.03
Feb	1.4	4.6	9.9	0.7	0.3	0.05
Mar	0.7	3.7	10.6	0.0	0.4	0.00
Apr	1	4.8	10.5	0.8	0.4	0.03
May	1.7	5.7	10.8	0.0	0.5	0.03
Jun	1.4	5.6	10.7	0.0	0.4	0.00
Jul	0.7	4.3	7.1	0.6	0.4	0.03
Aug	1.5	5.5	10.5	0.0	0.3	0.00
Sep	1.2	5.0	11.3	0.7	0.4	0.00
Oct	1	5.2	9.2	0.0	0.3	0.03
Nov	0.9	4.2	7	0.0	0.3	0.00
Dec	0.7	2.3	7.9	0.0	0.0	0.00
Between Level 2 Manager & Level 1 Manager (Means)						
	One-On-One Meetings	Group Meetings	Coaching Sessions	Training Attendance	Mentoring Sessions	Job-Shadow Sessions
Jan	7	0.6	4.8	1	0.4	0.03
Feb	6.4	0.6	4.2	0	0.4	0.03
Mar	5.6	0.8	3.8	1	0.6	0
Apr	6	0.6	4.6	0	0.4	0.02
May	7.4	0.6	3.6	0	0.4	0
Jun	6.6	1	4	1	0.6	0.02
Jul	5.2	0.6	3.4	0	0.4	0
Aug	5.8	0.6	3.6	1	0.4	0.02
Sep	3.6	1	2.8	0	0.2	0
Oct	4.2	0.6	3.2	0	0.4	0.03
Nov	4	0.6	3	0	0.2	0
Dec	3.5	0.6	2.7	0	0	0

The data for between level one managers and non-managers, represents the mean for each KS via socialization event for each non-manager per month. The most records were found for coaching sessions with the highest mean for amount of coaching sessions for each non-manager

per month (9.92), followed by group meetings (4.76), and one-on-one meetings (1.75), while the lowest events were mentoring sessions (0.47), training sessions (0.78), and job-shadow sessions (0.05). For between level one managers and non-managers, the most records were found for one-on-one meetings with the highest mean (5.44), followed by coaching sessions (3.64), and group meetings (0.68). While the lowest means were for mentoring sessions (0.60), trainings sessions (0.33), and job-shadow sessions (0.01). Table 23 displays the descriptive statistics for each KS via socialization event for between level one managers and non-managers, from the highest to lowest mean, with N representing the number of months (January to December) Table 24 shows the results for between level two managers and level one managers.

Table 23

Company Records of KS via Socialization (Between Level One Managers and Non-Mangers)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Coaching Sessions	12	6.97	13.66	9.9200	1.90341
Group Meetings	12	2.32	6.00	4.7567	1.02551
One-on-one Meetings	12	0.72	1.75	1.1708	0.37371
Mentoring Sessions	12	0.00	0.47	0.3450	0.12831
Training Sessions	12	0.00	0.78	0.2267	0.33732
Job Shadow Sessions	12	0.00	0.05	0.0167	0.01826
Mean	12	1.67	3.79	2.7393	0.63109

Table 24

Company Records of KS via Socialization (Between Level Two Managers and Level One Managers)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
One-on-one Meetings	12	3.50	7.40	5.4417	1.34263
Coaching Sessions	12	2.70	4.80	3.6417	0.67347
Group Meetings	12	0.60	1.00	0.6833	0.15859
Mentoring Sessions	12	0.00	0.60	0.3667	0.16697
Training Sessions	12	0.00	1.00	0.3333	0.49237
Job Shadow Sessions	12	0.00	0.03	0.0125	0.01357
Mean	12	1.13	2.47	1.7465	0.47460

The mean for KS via socialization for level one managers and non-managers (2.74) was 56% larger than the mean for the level two managers and level one managers (1.75). The mean for KS via socialization for level one managers and non-managers was larger than the mean for the level two managers and level one managers for four types of events; group meetings (696%), coaching sessions (272%), and job-shadow sessions (133%). However, the mean for between level one managers and level two managers was larger than the mean for non-managers and level-one managers for one-on-one meetings (465%), training sessions (147%), and mentoring sessions (106%). The company records data did not provide insight into knowledge seeking and knowledge contributing, and the tacitness of the knowledge being shared was not examinable, hence observation, and interview data were vital to adequately measure the variable. Furthermore, the group meetings were higher based on the company records data, but the recoded meetings were formal meetings, and informal (unrecorded) meetings were not accounted for, the observation analysis sheds light on total meetings that include unrecorded meetings for KS.

Observation and Interview Data Analysis for Second Research Question

The results of the observation data analysis provided three themes for KS via socialization for overall organization, between level one managers and level two managers, and non-managers and level one managers. The theme for group meetings, mentoring, training, and job-shadow sessions for the second question were the same as the themes uncovered for the first question. The theme for one-one-one meetings was also the same as the first questions, except the meetings were more formal between managers and employees.

However, coaching sessions were mainly used for manager to employee knowledge contributing. The observation data supported the company records data as coaching sessions were the most prominent KS via socialization event within the organization. The managers followed a model to coach their subordinates which consisted of knowledge contributing by helping the employee to self-discover. The model started with recognizing the employees' successes, then helping the employees to self-discover their opportunity areas by asking questions to help the employee to realize the problem. After the self-discovery process, an action plan was created collaboratively with a time-line to propose a solution to the problem or improve a performance area. The coaching session was on the higher end of tacitness when compared to meetings. For example, in one observation during the self-discovery section of the coaching session, a level one manager asked a non-manager: "what do you think you could you have done differently during that transaction to further personalize it?" and the employee answered: "I could have asked the customer more questions to uncover more about who they are as person", and the manager answered: "I agree, why do you think it is important to ask those questions to the customer?". Then during the action plan portion of the coaching session, the manager made recommendations as follows: "When I was a seller, I would always ask the customer two

questions, ‘where do you work?’ and ‘what do you like to do for fun?’, I want you to ask these two questions to every customer, and I guarantee you will see a difference in your results”.

Due to the limited amount of mentoring sessions occurring within the organization, only two events were observed. The mentoring sessions had the most tacit knowledge sharing behaviors because the session was less formal and the knowledge seeker was comfortable to ask more questions, when compared to the coaching sessions which were led by the manager and were more formal. For example, in one of the sessions, the mentee asked: “what should I do to progress my career and make my-self indispensable?” and the mentor replied by giving the mentee internal resources that the company provided for career progress, and shared his story on how he has progressed throughout the company. The story was elaborate and had many details that included “know-how” and know-why” during the session.

For overall KS via socialization, the first theme gained from the qualitative content analysis was similar to the results of the first question, as there were more tacit knowledge contributing behaviors than tacit knowledge seeking behaviors between the various levels. As Table 25 shows that 62.50% of the codes were for knowledge contributing via socialization for between levels, while only 37.50% of the codes were for knowledge seeking via socialization for between levels.

Table 25

Data Display for Codes of Observation Analysis for KS via Socialization Between the Two Levels

Tacit Knowledge Contributing Via Socialization Between Levels			**62.50%**
Between Level Two Managers & Level One Managers	13	32.50%	
Between Level One Managers & Non-Managers	12	30.00%	
Tacit Knowledge Seeking Via Socialization Between Levels			**37.50%**
Between Level Two Managers & Level One Managers	8	20.00%	
Between Level One Managers & Non-Managers	7	17.50%	
Total	**40**	**100.00%**	**100.00%**

The second theme was also the same as the first question for the amount of tacit knowledge shared during each event. Similarly, for coaching sessions, group-meetings, and one-on-one meetings, there was a mean of five minutes per 30 minutes (16.66%). For training sessions, it was one hour for a four-hour session (25%), and for mentoring and job-shadow sessions, the time dedicated to tacit knowledge sharing was closer to 30 minutes for a one-hour session (50%).

The third theme showcased that there were more KS via socialization behaviors between the levels (57.97%), than amongst peers (42%). Specifically, there were more tacit knowledge contributing via socialization behaviors from managers to employees (36.23%) than between peers (27.54%) with a difference of 8.69%, and more tacit knowledge seeking via socialization behaviors from employees to managers (21.74%) than between peers (14.49%) with a difference of 7.25%. Table 26 showcases the data display for observations.

Table 26

Data Display for Codes of Observation Analysis for KS via Socialization Between the Two Levels

Variable	Count of Codes	Percent of Codes for Each Level	Percent of Codes for Each Variable	Total Percent for KS Via Socialization
KCP			**27.54%**	**42.03%**
Level 2	6	8.70%		
Level 1	7	10.14%		
Non-Managers	6	8.70%		
KSP			**14.49%**	
Level 2	1	1.45%		
Level 1	5	7.25%		
Non-Managers	4	5.80%		
KCE			**36.23%**	**57.97%**
Between Level 1 & Level 2	13	18.84%		
Between Non -Managers & Level 1	12	17.39%		
KSM			**21.74%**	
Between Level 1 & Level 2	8	11.59%		
Between Non -Managers & Level 1	7	10.14%		
Total	**69**	**100.00%**	**100.00%**	**100.00%**

The interview results for KS via socialization for between employees and managers showcased employees' perception of OC had an impact on KSM. Employees who perceived the OC to be dominated by competitive characteristics sought knowledge from their managers mainly when it was their first time encountering a situation, and in some cases for problems that they did not have the resources or know-how to solve on their own. For example, a non-manager who perceived the OC to be competitive answered the KSM questions as follows: "I reach out to my manager almost every other day when a customer has a specific question that I have not dealt with before". While employees who perceived the OC to be dominated by clan characteristics mainly sought knowledge to gain a different perspective on handling a situation, and to get advice for developmental opportunities. For example, one non-manager who perceived the OC to be clan dominant answered the KSM question as follows: "I seek knowledge from my manager

all the time, I ask him question on how to handle certain situations, also to pick his brain and learn the management mentality, and get advice on what I need to do to get to the next step in my career". Employees who perceived the OC to be dominated by competitive and clan characteristics sought knowledge from their managers when collaborating on decisions that have an impact on the larger team, and in some cases to gain a different perspective on how to handle a situation. For example, a level one manager who perceived the OC to be dominated by competitive and clan characteristics answered the KSM question as follows: "I ask my manager questions in situations where the decision has a larger impact on the territory, and may require approval, so I'd brainstorm with him to make sure I reach the best decision". Employees who perceived the OC to be dominated by bureaucratic characteristics only sought knowledge from their managers in some cases when it was their first time encountering a situation. For example, a level one manager who perceived the OC to be bureaucratic stated: "I only call my manager when I run into a problem that I haven't ran into before". While another replied with: "I don't".

The three levels also sought knowledge from their managers in distinct situations and reasons. For KSM within the overall organization employees sought knowledge from their managers for the following reasons: (1) When it is the first time encountering a situation, (2) to gain a different perspective on how to handle a situation and development, and (3) for a problem where they did not have the resources or know-how to resolve. However, the frequency of KSM was consistent across the levels, with 21 of 23 respondents stating that they sought knowledge from their mangers two to three times per month, one responded with "quarterly", and one with none. Non-managers sought knowledge from level one managers in the following situations: (1) When it was their first time encountering a situation, in some cases (2) To gain a different perspective on how to handle a situation, and (3) for problems that they did not have the

resources or know-how to resolve. For example, a non-manager responded to the KSM question as follows: “I come to my manager with things that I have not dealt with before”, five of the 10 non-managers replied with a similar answer to the quote provided in the example above. Another example provided by one of the non-managers for KSM was as follows: “I ask my manager how to handle certain situations like how to interact with a new person on the team”, three of the non-managers replied similarly. Another example provided by a non-manager regarding KSM was as follows: “Normally I seek knowledge from my manager when it’s something that is outside of my control, if I can’t fix it on my own, I ask my manager”, two of the 10 non-managers replied similarly.

Level one managers sought knowledge from level two managers mainly when they encountered a situation for the first time, in some cases for a problem that they did not have the resources or know how to resolve, and in rare cases to get advice for developmental opportunity areas. One of the examples that a level one manager used to answer the KSM questions was as follows: “The first time I had to progress someone to a step of discipline, I asked my manager, because I had never completed that paperwork, it was my first time I had to actually fill out one of those forms”. Level two managers sought knowledge from their managers mainly to gain a different perspective on handling a situation, and when collaborating on decisions that have an impact on the larger team. For example, a level two manager answered the KSM question by stating: “I ask my manager to see what he would do if he were in my position and going through the same problem”, three of the five level two managers answered the KSM question in a comparable way. Another example given by a level two manager was as follows: “I ask my manager to get a different perspective to find out what’s preventing us from getting to where we need to be as a team as a whole. So, when the team is struggling collectively, I would call the

manager to get his feedback". Two of the five level two managers answered the KSM question in a similar way.

For KCM within the overall organization, employees contributed knowledge to their managers in the following situations: (1) to share best practices that are currently working, (2) when it is beneficial to the team, and (3) to share new findings and ideas. Employees' perception of OC had less of an impact on KCM than KSM. Employees who perceived the OC as competitive, clan, and competitive clan contributed knowledge to their managers to share new findings and ideas, and to share best practices that are currently working for them. For example, one of the common responses that was given by one of the level one managers was as follows: "I share my knowledge with my manager when there is something out there that no one knows about that I stumble across, or a new idea to share best practices". Employees who perceived the OC to as bureaucratic only contributed knowledge to their managers in some cases to share best practices. One of the example provided by a level one manager who perceived the OC to be bureaucratic answered the KCM question as follows: "I contribute to my manager when there is a way that I know works, or best practice that can help people to avoid making mistakes and doing things the wrong way". Three of the four respondents who perceived the OC to be dominated with bureaucratic characteristics responded in a similar way, and one responded stated that he did not contribute knowledge to his manager.

For organizational levels, level two managers contributed knowledge to their managers mainly when the knowledge was beneficial to the team, during one-on-one meetings, and in some cases to share new findings and ideas. For example, a level two manager answered the KCM question as follows: "I would contribute knowledge when I see it would beneficial to the group, for example the leadership program idea, when I see that the state can benefit from the

program, I would share, because it worked for my team". Non-managers and level one managers contributed knowledge to their managers mainly to share best practices that are currently working for them, when the knowledge was beneficial to the team, and in some cases to share new findings and ideas. For example, a level one manager answered the KCM question by stating: "I share knowledge with her regularly to share what's working for us and to share why we do things the way we do". Four of the eight respondents answered similarly. Appendix Y displays the axial codes for KCM for the three levels.

Employees' perception of OC also showed different results for KSE. Managers who perceived the OC to be competitive sought knowledge from their subordinates to gain feedback, and to also seek best practices that were currently working. An example for KSE that was provided by one of the level one managers who perceived the OC to be competitive was as follows: "Weekly, I try to get their feedback on what they experience with customers, their point of view on certain things, what kind of objections are they having trouble with? so I can help them". Another example by a different respondent was as follows: "To inquire on what's working for them this month, to see what they are doing differently, we learn things from them the same way they learn from us". Managers who perceived the OC as clan dominant and bureaucratic sought knowledge from their subordinates mainly to seek best practices that were currently working but had differences in their attitudes towards the knowledge, as managers who perceived the OC to be clan dominant valued the knowledge from employees more than the managers who perceived the OC to be bureaucratic. For example, one of the level two managers who perceived the OC as clan dominant answered the KSE question as follows: "The most important person in the company is the person working in the frontlines, most of the best ideas and best practices didn't come from a VP sitting in their office, they came from someone who

works directly with customer, so I try to get that firsthand experience by asking for it daily". While a level one manager who perceived the OC to be bureaucratic answered as follows: "Infrequently, may be once per week to see what is working for them, and what's not working".

Likewise, managers sought knowledge from their subordinates within the overall organization mainly to seek best practices that were currently working, and to get feedback. However, level two managers sought knowledge from their subordinate to gain insight specific to the level one managers' job role. For example, one of the level two managers answered the KSE questions as follows: "It's the best place to get it (knowledge), at the end of the day I'm not the one who's out there doing the selling, if one location in the territory is doing well, it's because the reps (non-managers) in that store are doing something fantastic that the manager (level one manager) is having them do, so the more we can extract that (knowledge) from the frontlines and share it with the other locations, the better off we're going to be". Level one managers mainly sought knowledge from non-managers for feedback. For example, a level one manager answered the KSE question as follows: "In every meeting we have, I give them an opportunity to speak up and give me feedback to see if they want me to do something differently sort of like a stop, start, continue. For coaching for example, I'd say something like 'this is the way I do things regularly, but if you'd like for me to change it, please speak up' because not everyone is the same".

For KCE, managers' perception of OC also showed different results. Managers who perceived the OC to be competitive or bureaucratic contributed knowledge to their subordinates to improve their performance. For example, one of the level one managers who perceived the OC to be competitive answered the KCE questions as follows: "Daily, during meetings and huddles, I give knowledge to them in a situation when their performance is not where the rest of the area

is, when they are clearly an outlier, I give them some ideas on what they could be doing, and feedback from my own observations". While managers who perceived the OC as clan dominant contributed knowledge to their subordinates to guide them towards better decisions. For example, a level two manager who perceived the OC to be clan dominant answered the KCE question as follows: "Daily, I'd ask 'let's think about what that looks like if you do this?' to get them to think about their decisions, and I'd ask, 'what have you don't today to impact your people in a positive way?' to share my experience with them indirectly to get them to think about situations with the right mentality, and act on them effectively".

Similarly, managers contributed knowledge to their subordinates mainly to share proven tactics to help with their subordinates' performance. Level one managers contributed knowledge to non-managers mainly to improve their subordinates' performance, and to share proven tactics that can help with their performance. For example. a level one manager answered the KCE question as follows: "If I see a conversation is not going well in a sale, I'd have a coaching discussion with the rep (non-manager) to share with them ways on how they can improve for example 'why don't you try it this way, it may work out better for you' to help them out". Level two managers contributed knowledge to level one managers to guide them towards better decision making, and to share proven tactics that may help with their performance. For example, a level two manager answered the KCE question as follows: "I'd share for overall performance management, any opportunity I have to guide them, I always do, every time we have a conversation, I try to plant a seed or water whatever knowledge I have shared with them to see for example 'what are you doing about a particular bottom performer? and why?' and I'm constantly coaching them".

Triangulation for Second Research Question

The triangulation results for between level KS via socialization are divided into the results for overall organization, the results for between non-managers and first level managers, and the results between level one managers and level two managers. The impacts of OC on KS via socialization are covered for each variable (KSM, KCM, KCE, and KSE).

The triangulation results for OC and KSM for the overall organization showcased that employees who perceived the OC as bureaucratic were less likely to seek knowledge from their managers as displayed by the chart in MANCOVA results and interview analysis. They would only seek knowledge when it was their first time encountering a situation. While employees who perceived the OC as clan dominant were more likely to seek knowledge from their manager, backed by the MANCOVA chart, correlation tables 18 and 19, and the interview analysis. Employees who perceived the OC to be dominated with clan characteristics were also more likely to seek knowledge from their managers to gain a different perspective on handling a situation, and to get advice for developmental opportunities.

Perceived OC and KSM did not show distinct results during the quantitative analysis for the various organizational levels. However, the qualitative data analysis from the observations and interviews showed that non-managers who perceived the OC as competitive sought knowledge for issues they never encountered before, while employees who perceived the OC to be dominated with clan characteristics where more likely to seek knowledge from managers for developmental opportunities and advice on how to handle certain situations.

Table 27

Summary of Triangulation for Second Research Question

Triangulation Result	Evidence			
	Surveys	**Company Records**	**Observations**	**Interviews**
* Bureaucratic OC was negatively related to KSM for all examined levels within organization	Supported by MANCOVA chart, and descriptive statistics	N/A	N/A	Supported by the data from multiple respondents who perceived the OC as bureaucratic stating that they would only seek knowledge from their managers infrequently and only when it was their first time encountering an issue
* Clan OC was positively related to KSM for all examined levels within organization	Supported by MANCOVA chart, and descriptive statistics, and correlation tables	N/A	N/A	Supported by the data from multiple respondents who perceived the OC as clan stating that they seek knowledge from their manager frequently to gain a different perspective, and get advice for career opportunities
* No interaction found for OC and KCM for all examined levels within organization	Supported by MANCOVA, correlations, and descriptive tables	N/A	N/A	Supported by the lack of patterns or themes found during the qualitative analysis for OC and KCM
* Competitive OC was positively related KCE for all examined levels within organization	Supported by the descriptive statistics	Supported by the coaching session counts, and meeting counts found for KCE	Supported by observations of coaching events, training sessions, and meetings	Supported by the data where multiple respondents stated that they contributed knowledge to their subordinates daily and for various reasons
* OC and KSE interaction was consistent for all examined levels within organization	Supported by the descriptive statistics	N/A	N/A	Supported by the lack differentiating patterns or themes found during the qualitative analysis for OC and KSE
* Innovative OC was positively related to KSE for all examined levels within organization	Supported by correlation tables	N/A	N/A	N/A
* Bureaucratic OC was negatively related to KSE for all examined levels within organization	Supported by the descriptive statistics	N/A	N/A	Supported by the data from respondents who perceived OC as bureaucratic who stated that they did not seek knowledge from their employees as frequently and only sough it for best practices

Similarly, level one managers who perceived OC to be bureaucratic or competitive-bureaucratic were less likely to seek knowledge from their managers, and only sought knowledge when it was their first time encountering a problem, backed by the interview results and the descriptive statistics. While employees who perceived the OC to be dominated with clan characteristics were also more likely to seek knowledge from their managers and sought knowledge more for developmental and experiential opportunities.

The triangulation results for OC and KCM showed that there was not a significant interaction found between the two variables for the overall organization. Similarly, there was not a significant interaction found between OC and KCM for between non-managers and level one mangers, and for between level one managers and level two managers. The results were backed by the non-significant findings in the MANCOVA, correlations, descriptive tables, and interview data analysis.

Based on the company record data, descriptive statistics, and observations for KCE, managers who perceived the OC as competitive were more likely to contribute knowledge to their subordinates. However, managers who perceived the OC to be dominated by bureaucratic characteristics were less likely to contribute knowledge to their subordinates. Although perceived clan culture did not show a negative relationship with KCE based on the interview data, it was found that managers who perceived the organizational glue to be dominated by clan culture were also less likely to contribute knowledge to their subordinates based on the descriptive statistics and the correlation results in table 19. The result was also consistent for KCE between non-managers and level one managers, and for KCE between level two managers and level one managers.

For OC and KSE, the quantitative data analysis was consistent for overall organization and for between non-managers and level one managers, and level one managers and level two managers. Managers who perceived the OC to be innovative were more likely to seek knowledge from their subordinates backed by the correlation results in Table 19. Managers who perceived the OC as competitive also showed high levels for KSE based on the descriptive statistics, observations, and interview data. While managers who perceived the OC as bureaucratic showed lower levels for KSE as shown in the descriptive tables and the bar chart in Figure 15.

Summary

The Delphi Team assisted with developing valid and reliable survey and interview instruments. The pilot test indicated that there was redundancy within the questions, which were removed to improve reliability. The instruments facilitated the measuring of the KS via socialization construct at multiple levels of the organization.

The company records data showcased that the organization did not have a formal process for KS via socialization at the peer level, however they had a system for KS via socialization for between managers and subordinates at the various levels. The data showed that the process was focused on coaching sessions, one-on-one meetings, and group meetings, and low for training, mentoring, and job shadow sessions. The observations analysis displayed that there was more knowledge contributing via socialization than knowledge seeking via socialization within the organization.

The results from the multi-method analysis showcased that OC had a significant interaction on KS via socialization for the overall organization, and distinct results for peer-to-peer KS, and employee-manager KS at multiple levels of the organization. For the first question

on KS between peers, perceived competitive-bureaucratic OC was negatively related to KSP for overall organization (especially for level one managers), and negatively related to proactive KCP for non-managers and level-one managers. While perceived competitive OC was negatively related to KSP for level two managers only, and positively related to KCP for overall organization (especially if knowledge was sought after by peers). Perceived clan OC was positively related to KSP and KCP for overall organization. While perceived competitive OC was positively related to KCP for non-managers and level one managers, but negatively related to KCP for level two managers.

For the second question on vertical KS between various levels, perceived bureaucratic OC was negatively related to KSM, and negatively related to KSE for the all levels. Perceived clan OC was positively related to KSM, and no interaction was found for OC and KCM interactions. Furthermore, perceived competitive OC was positively related to KCE, and the interaction between OC and KSE was consistent throughout the various levels in the organization. Table 28 showcases the findings for the first and second research question for each perceived culture type.

Table 28

Summary of Research Findings for perceived OC type and KS via Socialization

OC Type	Relationship to KS Variables
Competitive	KCP: Positively related to knowledge contributing to peers for non-managers and level one managers (especially if knowledge was sought after by peers), but negatively related for level two managers. KSP: Negatively related to knowledge seeking from peers for level two managers only. KCM: N/A KSM: N/A KCE: Positively related to knowledge contributing to subordinates for all levels KSE: N/A
Competitive-Bureaucratic Mixture	KCP: Negatively related to proactive knowledge contributing to peers for non-managers and level-one managers. KSP: Negatively related to knowledge seeking from peers for all overall organization (especially for level one managers) KCM: N/A KSM: N/A KCE: Positively related to knowledge contributing to subordinates for all levels. KSE: N/A
Clan	KSP: Positively related to knowledge seeking from peers for overall organization KCP: Positively related to knowledge contributing to peers for overall organization KCM: N/A KSM: Positively related to knowledge seeking from managers for overall organization KCE: N/A KSE: N/A
Bureaucratic	KSP: N/A KCP: Negatively related to knowledge contributing amongst peers for non-managers and level one managers. KCM: N/A KSM: Negatively related to knowledge seeking from managers for overall organization KCE: N/A KSE: Negatively related to knowledge seeking from subordinates for all levels.

Chapter 5

Conclusions, Implications, Recommendations, and Summary

Introduction

In this chapter the conclusions, implications, and recommendations are presented. First, the conclusions for the first and second research questions regarding the interaction between organizational culture (OC) and knowledge sharing (KS) via socialization are covered. Second, the limitations of this research are presented. Third, the implications are covered for the contributions for knowledge management (KM) and information systems (IS) literature, alongside implications for professional organizations. Fourth, recommendations for organizations and future research are presented. Last, the summary is covered to end the study.

Conclusions

Per Cavaliere and Lombardi, (2015), Wiewiora et al. (2013), and Suppiah and Sandhu, (2011), OC and KS were shown to have a significant interaction. However, the results of the three studies produced inconsistent indications of the interactions between OC types and KS. The inconsistences were due to the limitations of those studies. Besides limitations regarding geographic locations (Italy, Australia, and Malaysia), one of the limitations of the three studies was the disregard for the direction of knowledge flow (i.e. amongst peers, or between levels). Another limitation was the lack of focus on the theoretical foundation of the organizational knowledge creation theory. To detail the interactions between OC and KS, this research focused on the flow of knowledge amongst peers, and between various levels, and further focused on socialization (adopted from the organizational knowledge creation theory). Two research questions were addressed. The first question examined the interaction between OC and KS via

socialization amongst peers for the three levels of the organization. The second question examined the interaction between OC and KS via socialization for non-managers and first level managers, and first level managers and second level managers.

For the first question, there was a significant interaction between OC and KS via socialization, but there were distinct relationships between the examined KS variables and the numerous OC types for each level of the organization. Perceived competitive culture was positively related to knowledge contributing to peers for non-managers and level one managers (especially if knowledge was sought after by peers), but was negatively related for level two managers. Perceived competitive culture was also negatively related to knowledge seeking from peers for level two managers. Perceived competitive-bureaucratic culture was negatively related to proactive knowledge contributing to peers for non-managers and level-one managers, and negatively related to knowledge seeking from peers for the overall organization (especially for level one managers). Perceived clan culture was positively related to knowledge seeking from peers for the overall organization. There were no significant interactions for perceived bureaucratic culture and knowledge sharing via socialization amongst peers. Innovative culture was not analyzed due to limited data as discussed in Chapter 4.

For the second research question, there were also distinct conclusions for the relationships between the four OC types and KS via socialization amongst managers and employees for the various levels of the organization. Perceived competitive-bureaucratic culture were positively related to knowledge contributing to subordinates, but there were no significant findings for knowledge sharing with manager. Perceived clan culture was positively related to knowledge seeking from manager, for all levels of the organization, but there were no significant findings for knowledge contributing to manager, and knowledge sharing with subordinates

(seeking nor contributing). Perceived bureaucratic culture was negatively related to knowledge seeking from manager, and knowledge seeking from employee, but there were no significant findings for knowledge sharing with manager, and knowledge contributing to employee.

Suppiah and Sandhu, (2011) and Wiewiora et al. (2013) showcased that there was a negative relationship between perceived competitive culture and KS, however KS was not itemized into knowledge seeking and contributing. Cavaliere and Lombardi, (2015) itemized KS into knowledge seeking and contributing and displayed that perceived competitive culture did not have a negative impact on knowledge contributing, nor a positive impact on knowledge seeking. Cavaliere and Lombardi, (2015) also discovered that perceived bureaucratic culture was not negatively related to knowledge seeking and knowledge contributing. The findings of the previous studies are summarized in Table 29.

Table 29

Summary of Previous Studies for OC Types and KS

OC Type	**Studies and Results**		
	Suppiah and Sandhu, (2011)	***Wiewiora et al. (2013)***	***Cavaliere and Lombardi, (2015)***
Competitive	Negatively related to KS	Negatively related to KS	Not negatively related to knowledge contributing, and not positively related to knowledge seeking
Clan	Positively related to KS	Positively related to KS	Strongly positively related to knowledge contributing, but not for knowledge seeking.
Bureaucratic	Negatively related to KS	N/A	Not negatively related to knowledge seeking nor contributing
Innovative	N/A	N/A	Positively related to knowledge contributing, but not to knowledge seeking

This research did not support the finding of Suppiah and Sandhu, (2011) and Wiewiora et al. (2013) regarding competitive culture, and partially supported the finding of Cavaliere and Lombardi, (2015), as it showcased that perceived competitive culture was not negatively related to knowledge contributing via socialization amongst peers. Moreover, this research extended the findings of Cavaliere and Lombardi, (2015), because it was discovered that perceived competitive culture was positively related to knowledge contributing to subordinates for the overall organization. Similarly, distinct from the previous studies, it was found that perceived competitive culture was positively related to knowledge contributing to peers for the overall organization (especially non-managers, and level one managers), if the knowledge was sought after. However, perceived competitive culture was negatively related to knowledge sharing amongst peers (seeking & contributing) for level two managers, which partially supported the findings of Suppiah and Sandhu, (2011) and Wiewiora et al. (2013). The findings suggest that higher level managers are more negatively impacted by competitive culture than lower level employees with respect to knowledge sharing amongst peers.

This study partially supported the findings of Suppiah and Sandhu, (2011), Wiewiora et al. (2013), and Cavaliere and Lombardi, (2015), that perceived bureaucratic OC was negatively related to KS. Moreover, this study specifically displayed that perceived bureaucratic culture was negatively related to knowledge seeking from manager, and knowledge seeking from subordinates for the overall organization, but not for knowledge sharing amongst peers for the overall organization. Perceived bureaucratic culture was only negatively related to knowledge contributing amongst peers for non-managers and level one managers. The findings of the study suggest that perceived bureaucratic culture had a stronger negative impact on lower level employees, more than higher level employees. The findings of the negative relationship of

perceived bureaucratic culture and KS were mostly consistent with previous finings but displayed further details on the negative impacts perceived bureaucratic OC had on KS via socialization both between levels and amongst peers.

This study also partially supported the findings of Suppiah and Sandhu, (2011), Wiewiora et al. (2013), and Cavaliere and Lombardi, (2015), that perceived clan culture was positively related to KS. This study showcased that perceived clan culture was positively related to KS via socialization amongst peers for the overall organization (especially for non-managers, and level one managers), and knowledge seeking from manager for all levels of the organization. But distinct from previous studies, no significant positive results were found for the positive impacts of perceived clan culture on knowledge contributing to manager, and knowledge sharing between manager and subordinates.

Furthermore, it was concluded that an interaction was not present between perceived OC and knowledge contributing to manager. Moreover, various organizational levels showcased varying results for knowledge sharing amongst peers, but did not show varying results for knowledge seeking from subordinates. Table 30 showcases the results of this study compared against the previous results in the literature.

Table 30

Summary of Findings Compared to Previous Studies for OC Types and KS

OC Type	Suppiah & Sandhu, (2011)	Wiewiora et al. (2013)	Cavaliere & Lombardi, (2015)	Findings from this Research for: Knowledge contributing to peers (KCP), Knowledge seeking from peers (KSP), Knowledge contributing to manager (KCM), Knowledge seeking from manager (KSM) Knowledge contributing to employee (KCE) Knowledge seeking from employee (KSE)
Comp	Negatively related to KS	Negatively related to KS	Not negatively related to knowledge contributing, and not positively related to knowledge seeking	KCP: Positively related for non-managers and level one managers (especially if knowledge was sought after by peers), but negatively related for level two managers. KSP: Negatively related for level two managers only. KCM: N/A KSM: N/A KCE: Positively related for all levels. KSE: N/A
Clan	Positively related to KS	Positively related to KS	Strongly positively related to knowledge contributing, but not for knowledge seeking.	KSP: Positively related for overall organization KCP: Positively related for overall organization KCM: N/A KSM: Positively related for overall organization KCE: N/A KSE: N/A
Bur	Negatively related to KS	N/A	Not negatively related to knowledge seeking and contributing	KSP: N/A KCP: Negatively related to knowledge contributing amongst peers for non-managers and level one managers. KCM: N/A KSM: Negatively related for overall organization KCE: N/A KSE: Negatively related to for all levels.
Inn	N/A	N/A	Positively related to knowledge contributing, but not to knowledge seeking	N/A
Comp-Bur Mix	N/A	N/A	N/A	KCP: Negatively related to proactive knowledge contributing to peers for non-managers and level-one managers. KSP: Negatively related for overall organization (especially for level one managers) KCM: N/A KSM: N/A KCE: Positively related to knowledge contributing to subordinates. KSE: N/A

Limitations

There were limitations that were encountered during this study that may impact the validity of the conclusions. As expected, since data were collected from one organization, the results may not be representative of all organizations. The culture within the examined organization was predominately perceived to be competitive. Furthermore, the conclusions made for competitive culture were for organizations with moderately competitive culture, but not for organizations with extremely competitive culture; the respondents scored competitive OC moderately high with a mean of 37 out of 100. Hence if another organization has a higher level of competitive culture (for example: mean of 80 out of 100 points), then the conclusions may be different. Similarly, for the other OC types.

Another limitation of this research was that organizational culture was only measured through the organizational culture assessment instrument (OCAI) and the interview instrument. The toolkit theory was not examined, which might have been able to provide additional insight. The dynamic culture types within the organization did not perfectly fit into the competing values framework (CVF) of the OCAI as expected. For the multivariate analysis of covariance, 50 or more points were used to determine cultural dominance, but there were many cases where two culture types had to be combined to reach 50 or more points, which created mixed cultures such as competitive-bureaucratic, or competitive-clan. The mixed culture types manifested due to the limitations of the OCAI survey. Although the interview helped with overcoming some of those limitations, the findings may have been stronger if other theories were used in combination with CVF to measure OC.

Furthermore, as expected in the limitations section within the first chapter, tacit knowledge was a difficult variable to adequately measure due to its complexity and intangible

nature. Although, multiple data points (surveys, observations, interviews, and company records) were gathered, there remained limitations that may have impacted the validity of this study. For example, during observations, there was limited amount of tacit knowledge sharing observed throughout the organization. The observations for tacit knowledge sharing were conducted as "snapshots" at random points in time and might not be representative of the actual flow of tacit knowledge in the organization. Although this study focused on socialization (which the literature identified as the main construct for tacit-to-tacit knowledge sharing), limited tacit knowledge was observed throughout various socialization sessions. Therefore, although the findings are specific to socialization, they may not unequivocally be representative of tacit knowledge.

Additionally, as anticipated, the sample may have not been representative of the population. The sample was within the New England region of the United States and taken from one organization (sales) within the company. The geographic factors may have impacted the results, and organizational factors (specific to the sales department) may have impacted the results as well. Although this study provided sufficient results for most of the variables within the model, a sample drawn from multiple organizations (Sales, Operations, IT, HR, and Finance), in various geographic locations within the company may strengthen the results. Drawing a larger sample from multiple organizations located in various regions within the United States may also shed light on the rest of the variables that were not captured in this study (i.e. impacts of innovative culture on KS via socialization).

Implications

This section presents the implications for the conclusions discussed above in two sub-sections. The first sub-section presents the contributions of this research's conclusions to the KM

and IS body of knowledge. The second sub-section covers the impacts of the conclusions on professional organizations.

Contributions to KM and IS Literature

This study extended the findings of previous research by delineating the variables for KS. Suppiah and Sandhu, (2011) and Wiewiora et al. (2013) examined the interaction between OC and overall KS. Cavaliere and Lombardi, (2015) extended the findings by itemizing KS into knowledge seeking and knowledge contributing. This research further extended the findings by shedding light on OC and KS while specifically focusing on KS via socialization vertically (between levels) and horizontally (amongst peers), throughout three organizational levels. This research contributed to the KM and IS literature by showcasing that there are differences in the interactions of OC and KS results when examined for peer-to-peer knowledge sharing, and between manager and employee knowledge sharing. One of the implications made in this study showcased that competitive OC did not negatively impact KS via socialization, but was positively related to manager to subordinate knowledge contributing, and partially positively related to knowledge contributing to peers, if the knowledge was sought after. It was also found that competitive culture may also be negatively related to knowledge seeking from peers, especially when combined with bureaucratic culture. Moreover, another implication was that the results for perceived bureaucratic culture were mostly consistent when compared to previous research. However, the details were distinct as perceived bureaucratic culture was shown to negatively impact knowledge contributing amongst peers for non-managers and level one managers, and knowledge seeking from manager and subordinate, but did not negatively impact knowledge seeking from peers, nor knowledge contributing to manager and employee. The result is logical as employees may be more comfortable seeking knowledge horizontally from their

peers rather than seeking knowledge vertically from their manager in a bureaucratic environment. Similarly, the findings for clan culture were partially consistent with previous research, but distinct details were provided regarding perceived clan culture. It was discovered that perceived clan culture was positively related to knowledge sharing amongst peers, and knowledge seeking from manager, but not positively related to knowledge contributing to manager, nor knowledge sharing with subordinates.

The new findings also indicated that OC had distinct impacts on KS between peers, KS between manager and subordinates, and KS between subordinates and manager. Therefore, this research put forth a set of variables that future researchers can apply to examine KS via socialization in detail. The variables were knowledge seeking from peers (KSP), knowledge contributing to peers (KCP), knowledge seeking from manager (KSM), knowledge contributing to manager (KCM), knowledge contributing to employee or subordinate (KCE), and knowledge seeking from employee or subordinate (KSE).

Furthermore, another implication obtained from this study was that the impacts of OC on knowledge seeking as a vital area to further examine. Due to the low levels of knowledge seeking when compared to knowledge contributing in this study, the value of knowledge contributing may be questioned if knowledge seeking is not present. Therefore, lack of knowledge seeking may be the problem, not lack of knowledge contributing. Lack of knowledge contributing may be a symptom, and if lack of knowledge seeking is solved, it may automatically solve the knowledge contributing conundrum from an OC perspective.

Although the findings were limited to KS via socialization, they indirectly shed light on ways researchers may use the findings for the other dimensions of the organizational knowledge

creation theory or SECI (Socialization, externalization, combination, and internalization). Specifically, based on SECI, socialization is the essence and starting point of knowledge creation. Therefore, for a researcher to examine externalization, combination, or internalization adequately, they must first fully understand the details of socialization as it is the essence of knowledge conversion. Ignoring points such as the implications discovered in this study for KS via socialization and the various variables (KSM, KSP, KCP, KCM, KCE, and KSE), then going directly into complex examinations of externalization or combination, may manifest into unnecessary problems and inconsistent results due to lack of understanding in the essence (socialization).

Impact for Professional Organizations

The impacts of this research on professional organizations include what was recommended by previous studies on the need to avoid bureaucratic culture as it hinders knowledge sharing, and the need to develop a clan culture as it facilitates knowledge sharing. Furthermore, this study showcased that mixing competitive culture with clan culture should not hinder knowledge sharing. Moderately competitive culture may also help with manager to employee knowledge contributing. However, mixing competitive culture with bureaucratic culture hinders knowledge sharing and should be avoided if the company values knowledge. Moreover, this research discovered that lack of knowledge seeking is a problem that should be addressed by building clan culture to encourage employees to seek knowledge from peers. Building a system that facilitates knowledge seeking, and creating an open environment where employees are comfortable to ask questions will also positively impact knowledge contributing behaviors throughout the organization.

Additionally, this study may help organizations with the flow of knowledge depending on their desired goals. If an organization wants to increase knowledge sharing amongst peers, and knowledge seeking from manager, it should foster a culture that is dominant by clan characteristics. If it desires to drive knowledge vertically where managers contribute knowledge to subordinates, then fostering a competitive culture would achieve that goal. This study also showcased that a mixture between clan and competitive culture would create a healthy knowledge sharing environment. While mixture of competitive culture with bureaucratic culture would hinder horizontal knowledge sharing amongst peers, it would not hinder vertical knowledge sharing between subordinate and manager, or vice-versa.

Although more difficult and complex, managers of organizations should put more emphasis on the first half of knowledge conversion, which is tacit knowledge focused, due to the value of tacit knowledge. Although intangible, the leadership within organizations should foster a culture that encourages practical ways to quickly share tacit knowledge to other employees via socialization (tacit to tacit knowledge conversion). The culture of the organization should drive tacit KS via socialization activities that are high in tacitness such as job shadowing, mentoring, and training sessions.

Recommendations for Professional Organizations

This section is divided into three sub-sections to provide recommendations for organizations. The first section provides recommendations that are people focused, the second section is process focused, and the last is technology focused. The recommendations are limited to organizations that are similar to the one examined in this study.

People

The organizational leadership should focus on decreasing bureaucracy within the firm, because bureaucratic culture was predicated to have a negative relationship with knowledge seeking from manager and knowledge contributing to employees. Especially for lower level employees, leadership should focus on decreasing bureaucratic culture by enabling employees to seek tacit knowledge from their managers for empowerment. The leadership should increase clan culture characteristics such as development, team work, and family-like environment, because clan culture was predicted to have the highest positive relationship with knowledge sharing amongst peers, and knowledge seeking from manager. Competitive culture characteristics are encouraged to increase knowledge contributing to employees, however it is recommended to accompany the competitive culture with clan culture. It is also strongly recommended to avoid bureaucratic culture characteristic mixing with competitive culture as the mixture would hinder knowledge sharing amongst peers.

If the organization currently has a dominant bureaucratic culture or competitive-bureaucratic mixture, it is recommended to increase subordinate to manager and peer-to-peer knowledge seeking activities. The results of this study showcased, even when bureaucratic culture was dominant, if knowledge was sought, employees did not have an issue with contributing knowledge. Therefore, it is recommended to increase knowledge seeking activities which are predicted to consequently increase knowledge contributing. For example, during a one-hour meeting or coaching session, rather than dedicating 10 minutes towards the end of the meeting for Q&A, it is recommended to dedicate half of the meeting to Q&A, to encourage knowledge seeking.

Process

If an organization has a dominant competitive culture, competitive-bureaucratic culture, or bureaucratic culture, it is recommended for leadership to foster clan culture by institutionalizing a subordinate to manager, and peer to peer knowledge seeking process that is part of the day to day operation. Based on the results of this study, the three socialization activities which had the highest rate of tacit knowledge sharing were job-shadowing, mentoring, and in-person training sessions. Hence, managers are encouraged to increase those socialization activities through a weekly process to grant employees a platform for tacit knowledge exchange, with the employee (knowledge seeker) driving the activities via preparing and asking questions.

The time invested in knowledge seeking via socialization would pay dividends in the future, because as knowledge seeking increases, knowledge contributing would increase. Also, when the knowledge seeker is driving the knowledge transfer by asking questions, the knowledge becomes more valuable to the knowledge seeker, since he or she is requesting the knowledge. Consequently, the knowledge that is currently in the minds of select individuals would be transferred to most members of the organization, which will yield substantial benefits.

Technology

To support the suggested knowledge seeking process for organizations with a dominant competitive culture, competitive-bureaucratic culture, or bureaucratic culture, an application may be developed. The application should allow knowledge seekers to store and retrieve notes taken during knowledge seeking sessions. It is recommended that the notes inputted by the users to flow into the company's database, and users should be able to search for, and retrieve the notes from the database, because it would allow employees to recall certain aspect of their experience during their job-shadow, trainings, and mentoring sessions. From an explicit knowledge

perspective, the notes may also be analyzed by the company using big data analytics to shed light on new insights. Also, the application usage data may be analyzed to measure the adoption of the system. Figure 18 showcases an example of the general infrastructure that may be used for the application from the interface layer, down to the repositories layer. This recommendation assumes the organization has a cloud-based hardware infrastructure. For a smaller organization, the design might be different.

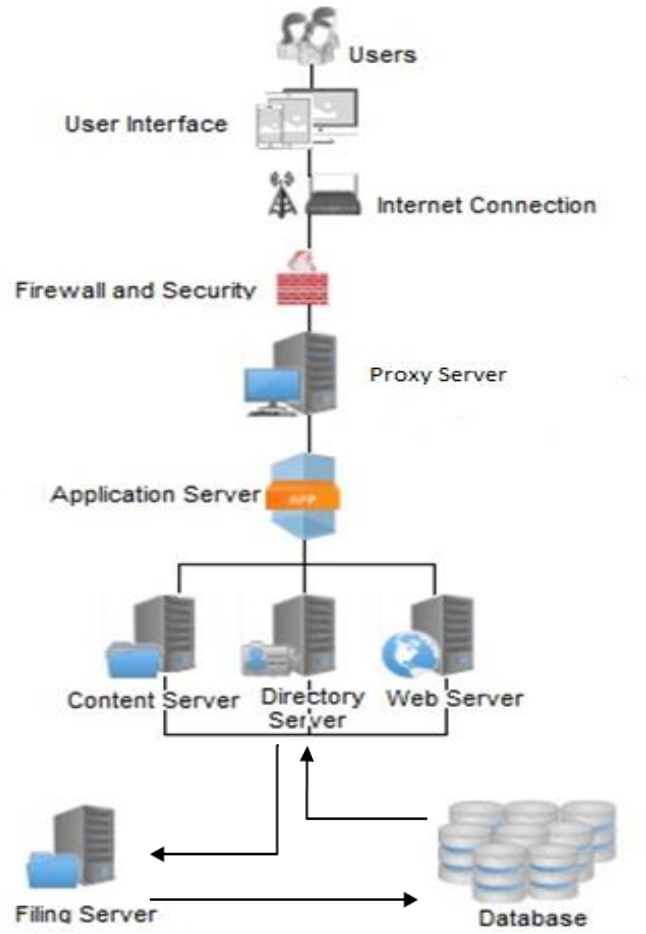

Figure 18: Example of Hardware Infrastructure for Knowledge Seeking Application

Recommendations for Future Research

Based on the conclusions of this study, future research on OC and KS may go in many directions depending on the researchers' resources. From a theoretical perspective, if the researchers have the time and resources, the first and most valuable option is to examine OC and KS via all dimensions of SECI. For the internalization dimension of SECI, the researcher may add knowledge seeking from content (KS-C) as knowledge workers may resort to an explicit KM platform to obtain knowledge. The research should include KS (knowledge seeking and knowledge contributing for various levels) and include knowledge seeking as moderator for knowledge contributing. Future research may place the variables examined in this research (KCP, KCM, KSP, KSM, KCE, and KSE) into the SECI model and conduct a multi method study to examine the relationships between OC and all the SECI dimension. Figure 19 showcases the theoretical framework.

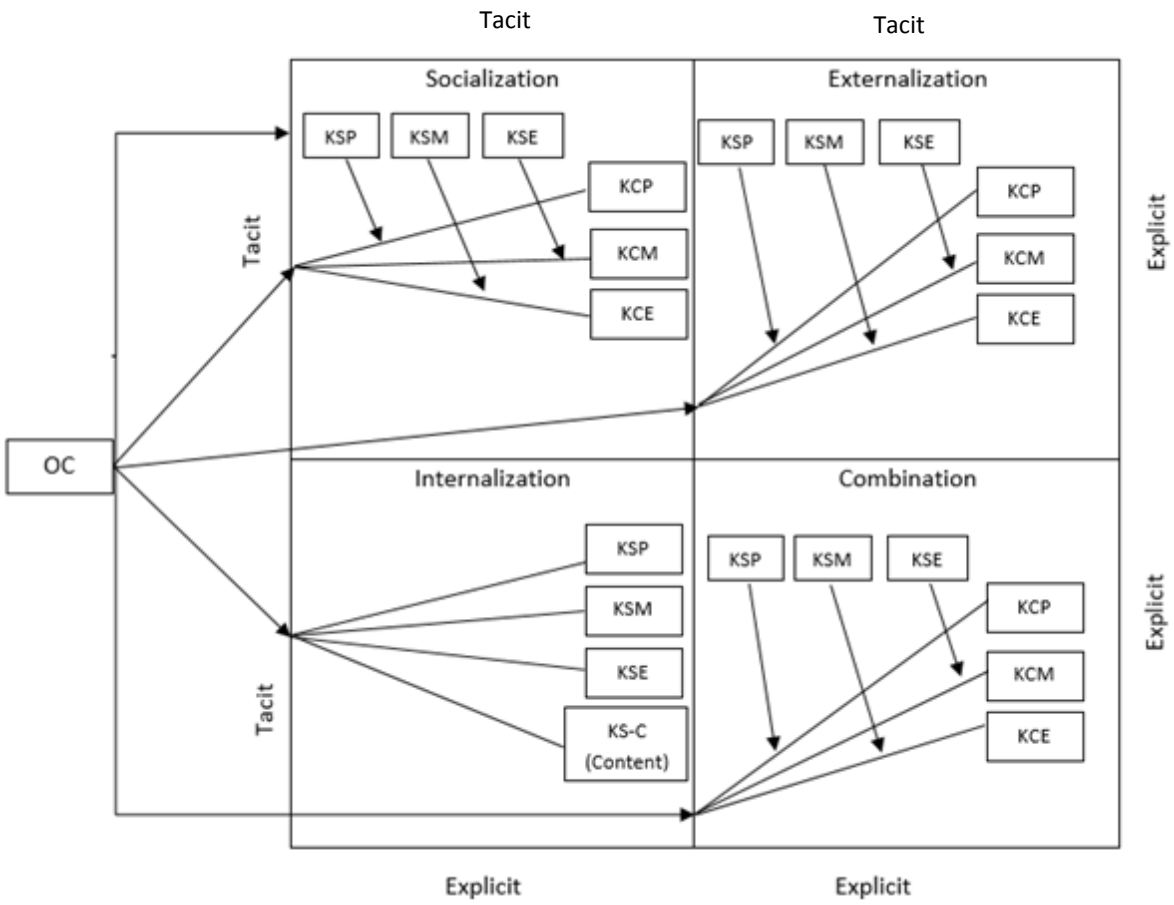

Figure 19: Theoretical Framework for Future Research

If the researchers' resources are limited, the second direction may be taken to examine OC impacts on KS by focusing on one of the dimension within SECI in each of the four quadrants. For example, examine the impacts of OC on knowledge contributing (KCP, KCM, and KCE) via externalization, or focus on OC impacts on knowledge seeking (KSP, KSM, and KSE) via internalization.

Future research may further focus on organizational culture's impacts on KS via socialization (KCP, KCM, KSP, KSM, KCE, and KSE) by conducting a similar multi-method case study, but picking a different operationalization for OC. For example, examine OC from the toolkit theory perspective rather than the competing values perspective, or combine the two

theories. A researcher may choose to develop a new instrument that is approved by an expert panel, or enhance the OCAI survey to examine the impacts of OC on KS.

Future research may further differentiate by capturing a larger sample size, or by conducting the research within multiple organizations, or both. If a significantly larger sample size is captured, a causal study may be undertaken to examine the causal relationship between bureaucratic culture, innovative culture, and KS (seeking and contributing). The researcher must control for job role, personal traits, and many more factors to establish a causal model. One way to control for job role is to eliminate non-mangers within the department, and only focus on management employees. Then the research may use structural equation modeling (SEM) to invoke a structural model that attributes relationships between OC and KS via socialization. The latent variables would be OC and KS via socialization, and the items of the survey would represent the observed variables. The SEM should be backed with qualitative data to ensure that the variables are measured trough as many perspectives as possible.

The organizational levels may also be expanded for future research. If a researcher can get access to level three, level four, level five, and level six management, the researcher should duplicate the model of this study, but examine the multiple level perspective from level one to level six managers, which would be a significant contribution to the multi-level aspect of the body of knowledge.

The operationalization used for KS in this study (KCP, KCM, KSP, KSM, KCE, and KSE) may be taken and applied to other theories separate from organizational culture theory. For example, future research may extend the findings of this study by examining why knowledge seeking is lower than knowledge contributing in certain organizations? The interaction between

the theory of reasoned action and knowledge seeking via socialization may be examined to help with answering the question.

Summary

The literature review showcased that there were contradictions in the literature regarding findings of OC and KS interactions, which posed a problem for research (Suppiah & Sandhu, 2011; Wiewiora et al., 2013; Cavaliered & Lombardi, 2015). The literature review also uncovered that there was a need to investigate the interaction of OC and KS at multiple levels of the organization (Cavaliered & Lombardi, 2015). There were also no studies found that focused on KS through the socialization aspect of the knowledge creation theory and concentrating on knowledge seeking and knowledge contributing between and within organizational levels. The theoretical framework created a model to examine the interaction between OC and KS via socialization for seeking and contributing behaviors to examine the research problem. The two research questions focused on the interaction between OC and KS via socialization for seeking and contributing behaviors amongst peers, and between managers and subordinates at the three levels of the organization. Based on the research questions, it was determined that a multi-method study was most appropriate to capture the necessary data due to the complexity of the problem.

For OC, permission to use the OCAI survey was obtained from the copyright holder, and for KS via socialization, a new survey and interview instrument were developed that were reviewed by an expert panel through the Delphi-Technique. After two rounds of revisions, the instruments were approved. After approval, a pilot test including 20 participants was conducted to test for reliability. The Cronbach Alpha test was used, and items that did not meet the

reliability standards were removed, until the Cronbach Alpha met the set criteria. After the instruments were deemed valid and reliable, the data collection process was undertaken.

Data were collected of company records for the calendar year of 2017, alongside 23 observations, 82 surveys, and 23 interviews from an organization of 189 knowledge workers within a Fortune 50 company. The survey data were analyzed through descriptive statistics, correlation tables, MANCOVA, and visualization charts. The company records were analyzed through descriptive statistics. The observation and interview data were analyzed qualitatively through content analysis, open coding, axial coding, selective coding, and descriptive statistics. Then the data were triangulated to produce the results.

During the initial data analysis, company records showed that the organization did not have formal records for peer-to-peer knowledge sharing but had records for manager to subordinate knowledge contributing. The observation data showed that peer-to-peer knowledge sharing occurred although not recorded, but not to the same extent of manager to subordinate knowledge contributing.

For OC, the survey results showed that the dominant culture type within the organization was perceived as competitive by the employees, and level one managers ranked the highest amongst the three examined levels for perceived competitive culture. The interview results further supported the findings of the survey results regarding OC.

The observation results showcased that, although not accounted for in company records, peers sought knowledge from each other during group meetings, informal one-on-one meetings, breakout sessions during instructor led training sessions, and job shadow sessions. Managers contributed knowledge to their subordinates through coaching sessions which were documented

through an application interface and stored in company records. The observation results backed the company records data, that there were limited job-shadow sessions, mentoring sessions, and training sessions when compared to group meetings, one-on-one meetings, and coaching sessions. The observations also revealed that there was limited time dedicated to tacit KS via socialization during the sessions, where group meetings, and one-on-one meetings were the lowest in tacit knowledge sharing, while job shadows, mentoring, and training sessions were the highest in tacit knowledge sharing. The observation data also revealed that there were more knowledge contributing behaviors than knowledge seeking behaviors amongst peers and between levels and showcased that KS between levels was higher than KS amongst peers.

The descriptive statistics of the survey data results further supported the findings from the observations that knowledge seeking behaviors were lower than knowledge contributing behaviors, and showcased differences amongst the levels. For example, level two managers were discovered to have the lowest knowledge seeking behaviors. Additionally, the correlation results showcased a positive correlation between perceived competitive culture characteristics and knowledge contributing amongst peers, and a negative correlation between perceived bureaucratic culture characteristics and knowledge seeking. The MANCOVA results showed statistical significance for the interaction of OC on KS via socialization, but not for knowledge seeking or knowledge contributing separately. The visual bar charts showcased that, although not statistically significant, there was a meaningful interaction between OC and knowledge seeking amongst peers and between levels, however a meaningful interaction was not found for knowledge contributing based on the MANCOVA.

The interview data analysis discovered differences in attitudes and behaviors towards KS via socialization depending on OC and organizational level. Specifically, employees who

perceived the OC to be competitive were more likely to contribute to their peers if the knowledge was sought by their peers, while employees who perceived the culture to be clan were more likely to proactively contribute knowledge to peers. The interview results supported the findings of the survey regarding the negative relationship between bureaucratic culture and knowledge seeking amongst peers, the positive relationship between clan culture and knowledge contributing amongst peers, and the positive relationship between competitive culture and knowledge contributing amongst peers with knowledge seeking as a moderating variable. Furthermore, the interview analysis uncovered how perceived culture and organizational levels impacted KS via socialization for manager to subordinate KS and subordinate to manager KS, and further supported the findings of the survey analysis regarding clan, competitive, and bureaucratic cultures' impacts on KS. The interviews displayed that OC did not impact subordinate to manager knowledge contributing but supported the survey findings of perceived competitive culture having a positive relationship with manager to employee knowledge contributing.

The triangulated results showcased that perceived bureaucratic culture, and perceived competitive-bureaucratic culture had a negative relationship with KS via socialization amongst peers, between manager to subordinate knowledge seeking, and subordinate to manager knowledge seeking. However, perceived bureaucratic culture, and perceived competitive-bureaucratic culture did not have a negative relationship with knowledge contributing between manager and subordinate, and vice-versa. While perceived clan culture had a positive relationship with KS via socialization amongst peers, and knowledge seeking from managers, but not with knowledge contributing between manager and subordinate, and vice-versa. Perceived competitive culture was only discovered to have a negative relationship on knowledge seeking

for level two managers, while having a positive relationship with knowledge contributing to employees, and knowledge contributing amongst peers with knowledge seeking as moderating variable. The various levels also showcased distinct results which requires further investigation.

The impacts of the results were covered, as the findings extended the research literature by shedding light on the details of the interaction between OC and KS via socialization at multiple levels of the organization and discovering the importance of knowledge seeking. The impacts of the findings were covered, followed by implications for research and professional organizations. Recommendations for organization were made with an IS solution. The IS solution covered people, process, and technology needed to drive clan or developmental culture through a knowledge seeking system. The system is predicted to enhance knowledge seeking, which is predicted to consequently improve knowledge contributing, and overall knowledge sharing via socialization throughout the organization. The explicit knowledge stored through the proposed application would also provide valuable information to the organization for future use for big data analytics to help with aggregating themes that may help the company in developing a program for current employees, new hires, and employee successions, to assist the company with saving time and money, in addition to increasing intellectual capital. Finally, future research suggestions were made to extend the body of knowledge through various directions. The most valuable would be to examine the interaction of OC on KS via all aspects of the SECI model, and to capture a larger sample size within multiple organizations in various geographic locations.

Appendices

Appendix A

Permission to use the SECI (socialization, externalization, combination, internalization) model

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APA citation:
Nonaka, I., and Konno, N., (1998). The Concept of "Ba": Building A Foundation For Knowledge Creation. California Management Review. 40(3), 40-54. (Page 43)

Thanks

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Appendix B

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Appendix C

The Organizational Culture Assessment Instrument (OCAI)

In completing the instrument, you will be providing a picture of how your organization operates and the values that characterize it. No right or wrong answers exist for these questions just as there is not right or wrong culture. Every organization will most likely produce a different set of responses. Therefore, be as accurate as you can in responding to the questions so that your resulting cultural diagnosis will be as precise as possible.

You are asked to rate your organization in the first set of questions. To determine which organization to rate, you will want to consider the organization that is managed by your boss, the strategic business unit to which you belong, or the organizational unit in which you are a member that has clearly identifiable boundaries. Because the instrument is most helpful for determining ways to change the culture, you'll want to focus on the cultural unit that is the target for change. Therefore, as you answer the questions, keep in mind the organization that can be affected by the change strategy you develop.

The survey contains six questions. Each question has four alternatives. Divide 100 points among these four alternatives depending on the extent to which each alternative is similar to your own organization. Give a higher number of points to the alternative that is most similar to your organization. For example, in question one, if you think alternative A is very similar to your organization, alternative B and C are somewhat similar, and alternative D is hardly similar at all, you might give 55 points to A, 20 points to B and C, and five points to D. Just be sure your total equals 100 points for each question.

1. Dominant Characteristics		
A	The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.	
B	The organization is a very dynamic entrepreneurial place. People are willing to stick their necks out and take risks	
C	The organization is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented.	
D	The organization is a very controlled and structured place. Formal procedures generally govern what people do.	
	Total:	
2. Organizational Leadership		
A	The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing.	
B	The leadership in the organization is generally considered to exemplify entrepreneurship, innovating, or risk taking.	
C	The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.	

D	The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.	
	Total:	
3. Management of Employees		
A	The management style in the organization is characterized by teamwork, consensus, and participation.	
B	The management style in the organization is characterized by individual risk-taking, innovation, freedom, and uniqueness.	
C	The management style in the organization is characterized by hard driving competitiveness, high demands, and achievement.	
D	The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.	
	Total:	
4. Organization Glue		
A	The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.	
B	The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.	
C	The glue that holds the organization together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes.	
D	The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important.	
	Total:	
5. Strategic Emphases		
A	The organization emphasizes human development. High trust, openness, and participation persist.	
B	The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.	
C	The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.	
D	The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important.	
	Total:	
6. Criteria of Success		
A	The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.	
B	The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator.	
C	The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.	
D	The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical.	
	Total:	

Appendix D

Permission to use the OCAI (Organizational Culture Assessment Instrument)

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Appendix E

Proposed KS via Socialization Interview Instrument (Non-manager Version)

Introduction and purpose: My name is Ali Baker and I am conducting research to complete a Ph.D degree at Nova Southeastern University. The aim of the research is to shed light on the interaction between organizational culture and tacit knowledge sharing. Knowledge is divided into tacit and explicit knowledge, explicit knowledge is easily articulated, but tacit knowledge is difficult to articulate due to its complexity, tacit knowledge is analogous to knowing how to ride a bicycle, it is imbedded in the mind of the knower. When answering these questions, please keep tacit knowledge in mind.

Confidentiality and consent: The data gathered from the interview process will be aggregated to the organizational level; hence your individual answers will be kept confidential. Do I have your consent to conduct this interview?

*Note: (Items in blue will not be part of interview, but only used to showcase the identification of the various focus areas of the research)

OC Questions:

1. How would you describe the organizational culture of your company, and why?

2. What are the key values and basic assumptions of your organization?

Knowledge Seeking

3. Who do you consider as a knowledgeable person within your team that you seek to learn from? *Interviewer should remember name as it will be used throughout the interview*

   Is this person your manager or your co-worker?

   Keeping (knowledge contributor name) in mind, how often do you seek knowledge from him/her? Give me some examples.

4. What is your manager's name (or best performing co-worker's name)? *If the respondent answers question 4 with "manager", then ask for data regarding best performing co-worker, but if respondent answers 4 with "co-worker", then ask for data regarding manager. Interviewer should remember name as it will be used throughout the interview*

   Keeping (manager name or best performing co-worker's name) in mind, how often do you seek knowledge from him/her? Give me some examples. *If the respondent answers*

question 4 with "manager", then ask for data regarding best performing co-worker, but if respondent answers 4 with "co-worker", then ask for data regarding manager.

5. How much training and coaching do you seek from (best performing co-worker name)?

6. How much training and coaching do you seek from your (manager name)?

"Ba" at various levels

7. Describe the quality and quantity of the meetings you have with your co-workers? (data will be solicited for type of meeting, (face-to face, or virtual) time, topics, and tacit knowledge shared in meetings)

8. Describe the quality and quantity of the meetings you have with your manager? (data will be solicited for type of meeting, (face-to face, or virtual) time, topics, and type of tacit knowledge shared in meetings)

Knowledge Contributing

9. Who do you consider as a person who needs knowledge within your team that you can teach? *Interviewer should remember name as it will be used throughout the rest of interview*

   Keeping (knowledge seeker name) in mind, how often do you volunteer your knowledge to him/her? Give me some example

10. How often do you share your knowledge with (manager name)? Give me some examples?

11. How often do you volunteer to coach your (knowledge seeker name)? Give me some examples.

12. How often do you volunteer to coach (manager name)? Give me some examples.
    Sometimes upward coaching is necessary, and this will measure how much coaching is being done upward to measure upward tacit KS to help with the between level analysis.

Appendix F

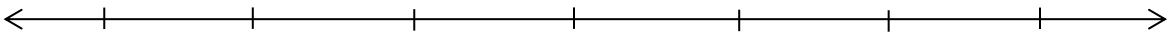
Proposed Tacit Knowledge Sharing Via Socialization Survey Instrument (Non-manager Version)

Knowledge is divided into tacit and explicit knowledge, explicit knowledge is easily articulated and can be found in books and manuals, but tacit knowledge is difficult to articulate due to its complexity and may not be learned through books or manuals, tacit knowledge is analogous to knowing how to ride a bicycle, it is embedded in the mind of the knower, when answering these questions, please keep tacit knowledge in mind.

Confidentiality and consent: The data gathered from the interview process will be aggregated to the organizational level; hence your individual answers will be kept confidential.

Rate each question from a level of 1 to 7 based on your level of agreement.

Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree
1	2	3	4	5	6	7



Knowledge Seeking Questions

Within levels

1. When I need training or coaching with a skill set, I ask my co-worker about it.
2. When I need help understanding a mindset, I seek mentoring from a co-worker.
3. I ask my co-workers to share their experience and stories to learn from them.
4. I shadow successful co-workers to learn from them.
5. I volunteer for new experience to gain knowledge.

Between levels

6. When I need training or coaching with a skill set, I ask my manager about it.
7. When I need help understanding a mindset, I seek mentoring from my manager.
8. I ask my manager to share his/her experience and stories to learn from him/her.
9. I seek to shadow my manager to learn from him/her.
10. I volunteer to help my manager to gain new experience.

Knowledge Contributing Questions

Within levels

11. When my co-workers need training or coaching for a skill set, I volunteer my knowledge to help.
12. When my co-workers ask for mentorship to help them with their mindset, I volunteer to mentor them.
13. I share my experience and stories with my teammates.
14. I am willing to allow co-workers to shadow me.
15. I encourage my co-workers to do new tasks to learn new knowledge

Between levels

16. When my manager asks for new ideas, I contribute my knowledge to help.
17. I share my knowledge with my manager.
18. I express my experience and share stories with my manager.
19. If I excel in a process, I encourage my co-workers to shadow me to share my way.
20. If I excel in a process, I encourage my co-workers to put it to practice

Appendix G

Proposed KS via Socialization Interview Instrument (Manager Version)

Introduction and purpose: My name is Ali Baker and I am conducting research to complete a Ph.D degree at Nova Southeastern University. The aim of the research is to shed light on the interaction between organizational culture and tacit knowledge sharing. Knowledge is divided into tacit and explicit knowledge, explicit knowledge is easily articulated, but tacit knowledge is difficult to articulate due to its complexity, tacit knowledge is analogous to knowing how to ride a bicycle, it is embedded in the mind of the knower, when answering these questions, please keep tacit knowledge in mind.

Confidentiality and consent: The data gathered from the interview process will be aggregated to the organizational level; hence your individual answers will be kept confidential. Do I have your consent to conduct this interview?

*Note: (Items in blue will not be part of interview, but only used to showcase the identification of the various focus areas of the research)

OC Questions:

1. How would you describe the organizational culture of your company, and why?

2. What are the key values and basic assumptions of your organization?

Knowledge Seeking

3. Who do you consider as a knowledgeable person within your team that you seek to learn from? *Interviewer should remember name as it will be used throughout the interview*

   Is this person your manager or your co-worker?

   Keeping (knowledge contributor name) in mind, how often do you seek knowledge from him/her? Give me some examples.

4. What is your manager's name (or best performing co-worker's name)? *If the respondent answers question 4 with "manager", then ask for data regarding best performing co-worker, but if respondent answers 4 with "co-worker", then ask for data regarding manager. Interviewer should remember name as it will be used throughout the interview*

   Keeping (manager name or best performing co-worker's name) in mind, how often do you seek knowledge from him/her? Give me some examples. *If the respondent answers*

question 4 with "manager", then ask for data regarding best performing co-worker, but if respondent answers 4 with "co-worker", then ask for data regarding manager.

5. How much training and coaching do you seek from (best performing co-worker name)?

6. How much training and coaching do you seek from your (manager name)?

"Ba" at various levels

7. Describe the quality and quantity of the meetings you have with your co-workers? (data will be solicited for type of meeting, (face-to face, or virtual) time, topics, and tacit knowledge shared in meetings)

8. Describe the quality and quantity of the meetings you have with your manager? (data will be solicited for type of meeting, (face-to face, or virtual) time, topics, and type of tacit knowledge shared in meetings)

Knowledge Contributing

9. Who do you consider as a person who needs knowledge within your team that you can teach? *Interviewer should remember name as it will be used throughout the rest of interview*

   Keeping (knowledge seeker name) in mind, how often do you volunteer your knowledge to him/her? Give me some example

10. How often do you share your knowledge with (manager name)? Give me some examples?

11. How often do you volunteer to coach your (knowledge seeker name)? Give me some examples.

12. How often do you volunteer to coach (manager name)? Give me some examples.
    Sometimes upward coaching is necessary, and this will measure how much coaching is being done upward to measure upward tacit KS to help with the between level analysis.

For managers:

How often do you volunteer your knowledge to the employees that work for you? Give me some examples.

13. How often do you seek knowledge from your employees that work for you? Give me some examples.
14. Describe the quantity and quality of the meetings you have with your employees.

Appendix H

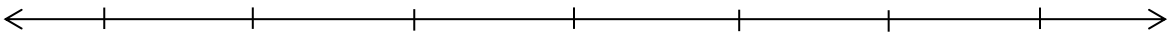
Proposed Tacit Knowledge Sharing Via Socialization Survey Instrument (Manager Version)

Knowledge is divided into tacit and explicit knowledge, explicit knowledge is easily articulated and can be found in books and manuals, but tacit knowledge is difficult to articulate due to its complexity and may not be learned through books or manuals, tacit knowledge is analogous to knowing how to ride a bicycle, it is embedded in the mind of the knower, when answering these questions, please keep tacit knowledge in mind.

Confidentiality and consent: The data gathered from the interview process will be aggregated to the organizational level; hence your individual answers will be kept confidential.

Rate each question from a level of 1 to 7 based on your level of agreement.

Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree
1	2	3	4	5	6	7



Knowledge Seeking Questions

Within levels

1. When I need training or coaching with a skill set, I ask my co-worker about it.
2. When I need help understanding a mindset, I seek mentoring from a co-worker.
3. I ask my co-workers to share their experience and stories to learn from them.
4. I shadow successful co-workers to learn from them.
5. I volunteer for new experience to gain knowledge.

Between levels

6. When I need training or coaching with a skill set, I ask my manager about it.
7. When I need help understanding a mindset, I seek mentoring from my manager.
8. I ask my manager to share his/her experience and stories to learn from him/her.
9. I seek to shadow my manager to learn from him/her.
10. I volunteer to help my manager to gain new experience.

Knowledge Contributing Questions

Within levels

11. When my co-workers need training or coaching for a skill set, I volunteer my knowledge to help.
12. When my co-workers ask for mentorship to help them with their mindset, I volunteer to mentor them.
13. I share my experience and stories with my teammates.
14. I am willing to allow co-workers to shadow me.
15. I encourage my co-workers to do new tasks to learn new knowledge

Between levels

16. When my manager asks for new ideas, I contribute my knowledge to help.
17. I share my knowledge with my manager.
18. I express my experience and share stories with my manager.
19. If I excel in a process, I encourage my co-workers to shadow me to share my way.
20. If I excel in a process, I encourage my co-workers to put it to practice

Manager Questions:

Downward Knowledge Contributing:

21. I train and coach my employees with their skillsets.
22. I mentor my employees to improve their mindsets.
23. I share my experience and stories with my employees.
24. I allow my employees to shadow me.
25. I allow my employees to learn by doing.

Downward Knowledge Seeking:

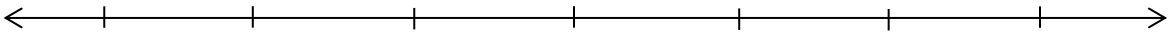
26. When I am seeking new ideas, I ask my employees to contribute.
27. I ask for my employees to share their know how with me.
28. I ask my employees to share their experience and stories with me.
29. I shadow my employees to learn from them.
30. I practice with my employees to learn more about their role

Appendix I

Expert Panel Validation Form for The Tacit Knowledge Sharing Via Socialization Survey Instrument

Rate each question from a level of 1 to 7 based on your level of agreement that the question adequately measures tacit knowledge or one of its dimensions.

Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree
1	2	3	4	5	6	7



*Note: (Items in blue will not be part of interview, but only used to showcase the identification of the various focus areas of the research)

Knowledge Seeking Questions

Within levels

1. When I need training or coaching with a skill set, I ask my co-worker about it.
2. When I need help understanding a mindset, I seek mentoring from a co-worker.
3. I ask my co-workers to share their experience and stories to learn from them.
4. I shadow successful co-workers to learn from them.
5. I volunteer for new experience to gain knowledge.

Between levels

6. When I need training or coaching with a skill set, I ask my manager about it.
7. When I need help understanding a mindset, I seek mentoring from my manager.
8. I ask my manager to share his/her experience and stories to learn from him/her.
9. I seek to shadow my manager to learn from him/her.
10. I volunteer to help my manager to gain new experience.

Knowledge Contributing Questions

Within levels

11. When my co-workers need training or coaching for a skill set, I volunteer my knowledge to help.
12. When my co-workers ask for mentorship to help them with their mindset, I volunteer to mentor them.
13. I share my experience and stories with my teammates.

14. I am willing to allow co-workers to shadow me.
15. I encourage my co-workers to do new tasks to learn new knowledge

Between levels

16. When my manager asks for new ideas, I contribute my knowledge to help.
17. I share my knowledge with my manager.
18. I express my experience and share stories with my manager.
19. If I excel in a process, I encourage my co-workers to shadow me to share my way.
20. If I excel in a process, I encourage my co-workers to put it to practice

Manager Questions:

Downward Knowledge Contributing:

21. I train and coach my employees with their skillsets.
22. I mentor my employees to improve their mindsets.
23. I share my experience and stories with my employees.
24. I allow my employees to shadow me.
25. I allow my employees to learn by doing.

Downward Knowledge Seeking:

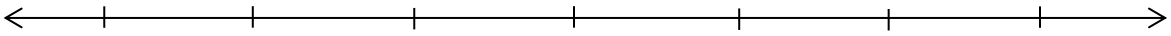
26. When I am seeking new ideas, I ask my employees to contribute.
27. I ask for my employees to share their know how with me.
28. I ask my employees to share their experience and stories with me.
29. I shadow my employees to learn from them.
30. I practice with my employees to learn more about their role

Appendix J

Expert Panel's Validation of The KS via Socialization Interview Instrument

Based on your knowledge management expertise, please rate these questions from a scale of 1-7 as to whether each question adequately measures tacit knowledge sharing or one of its dimensions at multiple levels of an organization.

Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree
1	2	3	4	5	6	7



Introduction and purpose: My name is Ali Baker and I am conducting research to complete a Ph.D degree at Nova Southeastern University. The aim of the research is to shed light on the interaction between organizational culture and tacit knowledge sharing. Knowledge is divided into tacit and explicit knowledge, explicit knowledge is easily articulated, but tacit knowledge is difficult to articulate due to its complexity, tacit knowledge is analogous to knowing how to ride a bicycle, it is embedded in the mind of the knower, when answering these questions, please keep tacit knowledge in mind.

Confidentiality and consent: The data gathered from the interview process will be aggregated to the organizational level; hence your individual answers will be kept confidential. Do I have your consent to conduct this interview?

*Note: (Items in blue will not be part of interview, but only used to showcase the identification of the various focus areas of the research)

Knowledge Seeking

1. Who do you consider as a knowledgeable person within your team that you seek to learn from? *Interviewer should remember name as it will be used throughout the interview*

   Is this person your manager or your co-worker?

   Keeping (knowledge contributor name) in mind, how often do you seek knowledge from him/her? Give me some examples.

2. What is your manager's name (or best performing co-worker's name)? *If the respondent answers question 4 with "manager", then ask for data regarding best performing co-worker, but if respondent answers 4 with "co-worker", then ask for data regarding manager. Interviewer should remember name as it will be used throughout the interview*

Keeping (manager name or best performing co-worker's name) in mind, how often do you seek knowledge from him/her? Give me some examples. *If the respondent answers question 4 with "manager", then ask for data regarding best performing co-worker, but if respondent answers 4 with "co-worker", then ask for data regarding manager.*

3. How much training and coaching do you seek from (best performing co-worker name)?

4. How much training and coaching do you seek from your (manager name)?

"Ba" at various levels

5. Describe the quality and quantity of the meetings you have with your co-workers? (data will be solicited for type of meeting, (face-to face, or virtual) time, topics, and tacit knowledge shared in meetings)

6. Describe the quality and quantity of the meetings you have with your manager? (data will be solicited for type of meeting, (face-to face, or virtual) time, topics, and type of tacit knowledge shared in meetings)

Knowledge Contributing

7. Who do you consider as a person who needs knowledge within your team that you can teach? *Interviewer should remember name as it will be used throughout the rest of interview*

   Keeping (knowledge seeker name) in mind, how often do you volunteer your knowledge to him/her? Give me some example

8. How often do you share your knowledge with (manager name)? Give me some examples?

9. How often do you volunteer to coach your (knowledge seeker name)? Give me some examples.

10. How often do you volunteer to coach (manager name)? Give me some examples.
    Sometimes upward coaching is necessary, and this will measure how much coaching is being done upward to measure upward tacit KS to help with the between level analysis.

For managers:

11. How often do you volunteer your knowledge to the employees that work for you? Give me some examples.

12. How often do you seek knowledge from your employees that work for you? Give me some examples.
13. Describe the quantity and quality of the meetings you have with your employees.

Appendix K

Expert Panel's Qualifications Table

Participant	Qualifications		
	Academic	**Research**	**Professional**
1	Ph.D. in Information Systems, MBA in Management, B.S. in General Studies	Information Systems, Knowledge Management, Strategy, Culture and Leadership	Chief Information Officer, Professor and Associate Dean
2	Ph.D. in Information Systems, M.S. in Computer Science, B.S. in Computer Science	Information Systems, Knowledge Management, Leadership, Computer Science	Professor, Vice President and Product Manager
3	Ph.D. in Information Systems. M.S. in Management Information Systems, B.S. Nautical Science, Certified Quality Engineer (ASQ), Project Management Professional Certificate (PMP)	Information Systems, Knowledge Management, Project Management	Associate Dean, and Professor
4	Ph.D. in Information Systems, MBA in Marketing, BS in Management Information Systems, PMP	Information Systems, Knowledge Management, Virtual Teams, Virtual worlds, Project Management	Senior Technical Project Manager, Senior Lecturer
5	Ph.D. in Computing Technology in Education, M.S. in Business Education, B.S. Business Management	Computing Technology in Education, Innovation, Knowledge Management, Computing Technology in Education	R&D Innovation and Ideation Manager
6	Ph.D. in Information Systems, M.S. Project Management, B. S. In Business Management and Marketing, PMP	Information Systems, Knowledge Management, Knowledge Sharing	Senior Executive Director, Associate Dean and professor
7	Ph.D. in Library and Information Science, MPA in Public Administration, B.S. in Library and Information Science	Library and Information Science, Knowledge Management	University Librarian, Library Director

Appendix L

First Round Feedback of Expert Panel's Validation of The KS via Socialization Survey Instrument

Question	Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree	Total	Mean
Q1	0	1	1	0	0	2	3	7	5.43
Q2	0	1	1	0	1	1	3	7	5.29
Q3	0	0	0	0	1	1	5	7	6.57
Q4	0	0	1	0	0	1	5	7	6.29
Q5	0	0	1	0	1	1	4	7	6
Q6	0	1	1	0	0	2	3	7	5.43
Q7	0	1	1	0	1	1	3	7	5.29
Q8	0	0	1	0	0	0	6	7	6.43
Q9	0	0	2	0	0	2	3	7	5.57
Q10	0	0	0	0	1	0	6	7	6.71
Q11	0	1	1	0	0	2	3	7	5.43
Q12	0	1	1	0	1	0	4	7	5.43
Q13	0	0	0	0	0	1	6	7	6.86
Q14	0	0	1	0	0	0	6	7	6.43
Q15	0	1	0	0	0	0	6	7	6.29
Q16	0	0	0	0	0	1	6	7	6.86
Q17	0	0	0	0	0	1	6	7	6.86
Q18	0	0	0	0	2	0	5	7	6.43
Q19	0	2	1	0	0	0	4	7	5
Q20	0	1	0	0	0	1	5	7	6.14
Q21	0	0	1	0	1	1	4	7	6
Q22	0	1	1	0	0	2	3	7	5.43
Q23	0	0	0	0	0	1	6	7	6.86
Q24	0	0	1	0	0	0	6	7	6.43
Q25	0	0	0	0	0	0	7	7	7
Q26	0	0	0	0	0	0	7	7	7
Q27	0	0	0	0	1	1	5	7	6.57
Q28	0	0	0	0	1	1	5	7	6.57
Q29	0	1	0	0	0	0	6	7	6.29
Q30	0	0	0	0	1	2	4	7	6.43

Appendix M

First Round Feedback of Expert Panel's Validation of The KS via Socialization Interview Instrument

Question	Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree	Total	Mean
Q1	0	1	0	0	2	1	3	7	5.57
Q2	0	1	0	1	1	2	2	7	5.29
Q3	0	0	1	0	1	2	3	7	5.86
Q4	0	0	2	0	1	1	3	7	5.43
Q5	0	0	1	0	2	2	2	7	5.57
Q6	0	0	1	0	2	2	2	7	5.57
Q7	0	0	0	1	2	3	1	7	5.57
Q8	0	0	0	0	2	1	4	7	6.29
Q9	0	0	0	0	1	1	1	7	6.57
Q10	0	1	0	1	1	1	3	7	5.43
Q11	0	1	0	1	0	1	4	7	5.71
Q12	0	0	1	0	0	1	5	7	6.29
Q13	0	0	1	0	0	1	5	7	6.29

Appendix N

Second Round Results of Expert Panel's Validation of The KS via Socialization Survey Instrument

Question	Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree	Total	Mean
Q1	0	0	0	0	0	0	7	7	7
Q2	0	0	0	0	0	0	7	7	7
Q3	0	0	0	0	0	1	6	7	6.86
Q4	0	0	0	0	1	0	6	7	6.71
Q5	0	0	0	0	0	0	7	7	7
Q6	0	0	0	0	0	0	7	7	7
Q7	0	0	0	1	1	0	5	7	6.29
Q8	0	0	0	0	2	0	5	7	6.43
Q9	0	0	0	0	0	1	6	7	6.86
Q10	0	0	0	0	0	0	7	7	7
Q11	0	0	0	0	1	0	6	7	6.71
Q12	0	0	0	0	1	0	6	7	6.71
Q13	0	0	0	0	1	0	6	7	6.71
Q14	0	0	0	0	1	0	6	7	6.71
Q15	0	0	0	0	1	0	6	7	6.71
Q16	0	0	0	0	0	0	7	7	7
Q17	0	0	0	1	0	0	6	7	6.57
Q18	0	0	0	0	0	0	7	7	7
Q19	0	0	0	1	1	1	4	7	6.14
Q20	0	0	0	0	1	1	5	7	6.57
Q21	0	0	0	0	0	0	7	7	7
Q22	0	0	0	0	1	0	6	7	6.71
Q23	0	0	0	0	0	0	7	7	7
Q24	0	0	0	0	0	0	7	7	7
Q25	0	0	0	1	1	0	5	7	6.29
Q26	0	0	0	0	0	1	6	7	6.86
Q27	0	0	0	0	0	0	7	7	7
Q28	0	0	0	0	0	0	7	7	7
Q29	0	0	0	1	0	0	6	7	6.57
Q30	0	0	0	0	0	1	6	7	6.86

Appendix O

Second Round Feedback of Expert Panel's Validation of The KS via Socialization Interview Instrument

Question	Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree	Total	Mean
Q1	0	0	0	2	1	1	3	7	5.71
Q2	0	0	0	1	1	1	4	7	6.14
Q3	0	0	0	1	1	1	4	7	6.14
Q4	0	0	0	1	0	1	5	7	6.43
Q5	0	0	0	1	1	1	4	7	6.14
Q6	0	0	0	1	1	1	4	7	6.14
Q7	0	0	0	2	1	1	3	7	5.71
Q8	0	0	0	1	1	1	4	7	6.14
Q9	0	0	0	1	1	1	4	7	6.14
Q10	0	0	0	1	1	1	4	7	6.14
Q11	0	0	0	1	1	1	4	7	6.14
Q12	0	0	0	1	1	1	4	7	6.14
Q13	0	0	0	1	2	0	4	7	6.00

Appendix P

Organizational Culture & Knowledge Sharing via Socialization Survey (Including Manager Questions)

*1. Please specify your management level

- Non-Manager (Consultant)
- Level 1 Manager (Sales Manager)
- Level 2 Manager (Area Manager)

The survey instrument contains two sets of questions, first set of questions is concerned with measuring organizational culture, and the second set is concerned with measuring knowledge sharing.

In completing the first set of questions, you will be providing a picture of how your organization operates and the values that characterize it. No right or wrong answers exist for these questions just as there is not right or wrong culture. Every organization will most likely produce a different set of responses. Therefore, be as accurate as you can in responding to the questions so that the results are as precise as possible.

You are asked to rate your organization in the first set of questions. To determine which organization to rate, you will want to consider the organization that is managed by your boss, the strategic business unit to which you belong, or the organizational unit in which you are a member that has clearly identifiable boundaries.

The survey contains six questions. Each question has four alternatives. Divide 100 points among these four alternatives depending on the extent to which each alternative is similar to your own organization. Give a higher number of points to the alternative that is most similar to your organization. For example, in question one, if you think alternative A is very similar to your organization, alternative B and C are somewhat similar, and alternative D is hardly similar at all, you might give 65 points to A, 10 points to B and C, and 15 points to D. Just be sure your total equals 100 points for each question.

Confidentiality and consent: *The data gathered from the interview process will be aggregated to the organizational level; hence your individual answers will be kept confidential.*

Please divide 100 points among these four alternatives depending on the extent to which each alternative is similar to your own organization. Give a higher number of points to the alternative that is most similar to your organization.

Organizational Culture

***1. Dominant Characteristics**

A. The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves. ___

B. The organization is a very dynamic entrepreneurial place. People are willing to stick their necks out and take risks. ___
C. The organization is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented. ___
D. The organization is a very controlled and structured place. Formal procedures generally govern what people do. ___

***2. Organizational Leadership**

A. The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing. ___
B. The leadership in the organization is generally considered to exemplify entrepreneurship, innovating, or risk taking. ___
C. The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus. ___
D. The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency. ___

***3. Management of Employees**

A. The management style in the organization is characterized by teamwork, consensus, and participation. ___
B. The management style in the organization is characterized by individual risk-taking, innovation, freedom, and uniqueness. ___
C. The management style in the organization is characterized by hard driving competitiveness, high demands, and achievement. ___
D. The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships. ___

***4. Organization Glue**

A. The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high. ___
B. The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge. ___
C. The glue that holds the organization together is the emphasis on achievement and goal accomplishment. Aggressiveness and winning are common themes. ___
D. The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important. ___

***5. Strategic Emphases**

A. The organization emphasizes human development. High trust, openness, and participation persist. ___
B. The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued. ___
C. The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant. ___
D. The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important. ___

***6. Criteria of Success**

A. The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people. ___

B. The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator. ___
C. The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key. ___
D. The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling and low-cost production are critical. ___

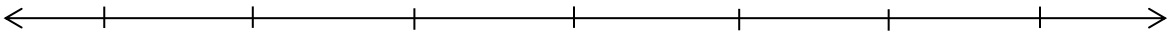
Tacit Knowledge Sharing via Socialization

In the second set of questions, you are asked to give feedback regarding knowledge sharing, and specifically focusing on tacit knowledge sharing.
(Knowledge is divided into tacit and explicit knowledge, explicit knowledge is easily expressed and can be found in books and manuals, but tacit knowledge is difficult to express due to its complexity and may not be learned through books or manuals. Tacit knowledge is analogous to knowing how to ride a bicycle, it is embedded in the mind of the knower). When answering these questions, please keep tacit knowledge in mind.

Clarification of terms used in survey:
Coaching: Formal session used for knowledge sharing
Training: Informal session used for knowledge sharing
Mentoring: Close and personal meeting used for knowledge sharing
Job-shadowing: Observing a co-worker or manager for specific time for purpose of knowledge seeking.

Please rate each question below based on your level of agreement

Strongly Disagree	Somewhat Disagree	Slightly Disagree	Neutral	Slightly Agree	Somewhat Agree	Strongly Agree
1	2	3	4	5	6	7



1. I ask my manager to train or coach me with a specific task when I need assistance.
2. I ask my manager to mentor me throughout my work problems.
3. I ask my manager to share his/her work experiences and stories with me in order to learn from his/her experiences.
4. I ask to job-shadow my manager in order to learn from him/her.
5. I ask a co-worker (peer manager) to train or coach me with a specific task when I need assistance.
6. I ask a co-worker (peer manager) to mentor me throughout my work problems.
7. I ask a co-worker (peer manager) to share his/her work experiences and stories in order to learn from him/her.
8. I ask to job-shadow successful co-workers (peer managers) to learn from them.
9. When my manager asks for new ideas, I contribute my knowledge to help.

10. I share my knowledge and work experiences with my manager.
11. If I do well in a process, I offer my manager to observe my process in order to share my best-practices.
12. If I excel in a process, I encourage my manager to put it to practice.
13. I volunteer to train and coach my co-workers (peer managers) with particular tasks.
14. I volunteer to mentor a co-worker (peer manager) throughout his/her work problems.
15. I share my work experiences and stories with my teammates (peer managers).
16. I allow co-workers (peer managers) to job-shadow me in order to share my knowledge.
17. I encourage my co-workers to volunteer for new tasks so they can gain new knowledge.
18. I share my knowledge with my employees by training and coaching them.
19. I mentor my employees throughout their work problems.
20. I share my experiences and stories with my employees.
21. I allow my employees to job-shadow me so they can learn new tasks.
22. When I am seeking new ideas, I ask my employees to contribute.
23. I ask my employees to share their know-how with me.
24. I ask my employees to share their work experiences and stories with me.
25. I ask to observe my employees to gain insight from them.

Appendix Q

KS via Socialization Interview Instrument (Including Manager Questions)

Introduction and purpose: My name is Ali Baker and I am conducting research to complete a Ph.D degree at Nova Southeastern University. The aim of the research is to shed light on the interaction between organizational culture and tacit knowledge sharing. Knowledge is divided into tacit and explicit knowledge, explicit knowledge is easily expressed, but tacit knowledge is difficult to express due to its complexity, it is imbedded in the mind of the knower, when answering these questions. An extreme example of tacit knowledge is knowing how to ice-skate, for the purpose of this interview we will use concepts such as sales, management, and leadership as tacit knowledge. When answering these questions please keep tacit knowledge in mind, not explicit knowledge.

Clarification of terms used in interview:
Knowledge: Tacit Knowledge
Coaching: Formal session used for knowledge sharing
Training: Informal session used for knowledge sharing

Confidentiality and consent: The data gathered from the interview process will be aggregated to the organizational level; hence your individual answers will be kept confidential. Do I have your consent to conduct this interview?

1. How would you describe the organizational culture of your company, and why?
2. What are the key values of your organization?
3. What are some of the informal and formal rules of engagement?
4. Think of a person on your team who you consider knowledgeable, and that would you seek as a mentor. Please keep his/her name in your mind.
   Follow up 1: Is this person your manager or your co-worker?
   Follow up 2: How frequently do you seek knowledge from him/her?
   Follow up 3: Give me an example of a situation where you would seek knowledge from him/her?
5. How frequently do you seek knowledge from a co/worker / or manager? (*if the respondent answers previous question with "manager", then ask for data regarding best performing co-worker, but if respondent answered with "co-worker", then ask for data regarding manager).*
   Follow up: Give me an example of a situation where you would seek knowledge from him/her?
6. How frequently do you seek training and coaching from your co-workers?
7. How frequently do you seek training and coaching from your manager?

8. Describe the quality and quantity of the meetings you have with your co-workers for the purpose of knowledge sharing? (solicit data for type of meeting, (face-to face, or virtual) time, topics, and tacit knowledge shared in meetings)

9. Describe the quality and quantity of the meetings you have with your manager for the purpose of knowledge sharing? (data will be solicited for type of meeting, (face-to face, or virtual) time, topics, and type of tacit knowledge shared in meetings)
10. Think of a person who you consider as a person who lacks knowledge within your team. Please keep his/her name in your mind.
    Follow up 1: How frequently do you volunteer your knowledge to him/her?
    Follow up 2: Please give me an example of a situation where you would contribute knowledge to him/her?
11. How frequently do you contribute your knowledge to your manager?
12. How frequently do you coach or train your co-workers?
    In what situations do you coach and train your co-workers?
13. In what situation do you contribute your knowledge to your manager?

For management employees only:

14. Describe the quantity and quality of the meetings you have with your employees for the purpose of knowledge sharing.
15. How frequently do you volunteer your knowledge to employees who work for you?
    Follow up: In what situations do you volunteer your knowledge to your employees? Please give me an example.
16. How frequently do you seek knowledge from employees who work for you?
    Follow up: In what situations do you seek your knowledge from employees? Please give me an example.

Appendix R

MANCOVA Assumption testing: Residual Table for Mahalnobis Distance for Before and After Removal of Outliers

Before Removal of Outliers: Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.1417	9.1495	5.9756	1.10187	82
Std. Predicted Value	-2.572	2.880	.000	1.000	82
Standard Error of Predicted Value	.492	2.106	.894	.363	82
Adjusted Predicted Value	2.9971	9.3954	5.9958	1.11124	82
Residual	-5.17984	10.74024	.00000	3.80644	82
Std. Residual	-1.327	2.751	.000	.975	82
Stud. Residual	-1.370	2.799	-.002	1.003	82
Deleted Residual	-5.52548	11.12049	-.02021	4.03744	82
Stud. Deleted Residual	-1.378	2.934	.004	1.020	82
Mahal. Distance	.300	**22.585**	3.951	4.600	82
Cook's Distance	.000	.118	.012	.021	82
Centered Leverage Value	.004	.279	.049	.057	82

After Removal of Outliers: Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.5759	8.2139	5.9231	.82545	78
Std. Predicted Value	-2.843	2.775	.000	1.000	78
Standard Error of Predicted Value	.515	1.804	.954	.313	78
Adjusted Predicted Value	3.4988	9.0247	5.9293	.88516	78
Residual	-5.06866	10.59348	.00000	3.85967	78
Std. Residual	-1.279	2.672	.000	.974	78
Stud. Residual	-1.327	2.732	-.001	1.008	78
Deleted Residual	-5.45695	11.07399	-.00624	4.13915	78
Stud. Deleted Residual	-1.334	2.864	.007	1.025	78
Mahal. Distance	.313	**14.969**	3.949	3.455	78
Cook's Distance	.000	.200	.015	.029	78
Centered Leverage Value	.004	.194	.051	.045	78

Appendix S

MANCOVA Assumption testing: Shapiro Wilk Results Before and After Transformation

Tests of Normality Before Transformation (Organizational Level Groups)

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Organization Level	Statistic	df	Sig.	Statistic	df	Sig.
KSM	.00	.138	51	.017	.913	51	.001
	1.00	.158	19	.200*	.898	19	.045
	2.00	.201	5	.200*	.938	5	.648
KSP	.00	.108	51	.189	.927	51	.004
	1.00	.237	19	.006	.855	19	.008
	2.00	.181	5	.200*	.940	5	.665
KCM	.00	.177	51	.000	.869	51	.000
	1.00	.249	19	.003	.853	19	.007
	2.00	.358	5	.035	.771	5	.046
KCP	.00	.147	51	.008	.902	51	.000
	1.00	.284	19	.000	.737	19	.000
	2.00	.269	5	.200*	.894	5	.376

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Tests of Normality Before Transformation (OC Groups)

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	OC	Statistic	df	Sig.	Statistic	df	Sig.
KSM	1.00	.237	15	.023	.852	15	.019
	2.00	.193	18	.074	.908	18	.079
	3.00	.228	8	.200*	.939	8	.603
	4.00	.182	9	.200*	.935	9	.526
	5.00	.195	10	.200*	.923	10	.383
	6.00	.257	6	.200*	.861	6	.191
	7.00	.205	7	.200*	.869	7	.181
	8.00	.224	5	.200*	.846	5	.182
KSP	1.00	.187	15	.169	.904	15	.110
	2.00	.129	18	.200*	.960	18	.607
	3.00	.132	8	.200*	.985	8	.982
	4.00	.156	9	.200*	.915	9	.355

	5.00	.138	10	.200*	.954	10	.720
	6.00	.129	6	.200*	.991	6	.991
	7.00	.224	7	.200*	.902	7	.345
	8.00	.224	5	.200*	.881	5	.314
KCM	1.00	.294	15	.001	.758	15	.001
	2.00	.118	18	.200*	.939	18	.284
	3.00	.268	8	.094	.784	8	.019
	4.00	.178	9	.200*	.912	9	.327
	5.00	.176	10	.200*	.911	10	.287
	6.00	.315	6	.063	.767	6	.029
	7.00	.351	7	.009	.762	7	.017
	8.00	.356	5	.037	.773	5	.048
KCP	1.00	.242	15	.018	.763	15	.001
	2.00	.156	18	.200*	.912	18	.094
	3.00	.286	8	.052	.821	8	.048
	4.00	.167	9	.200*	.930	9	.479
	5.00	.189	10	.200*	.861	10	.078
	6.00	.153	6	.200*	.958	6	.801
	7.00	.336	7	.017	.762	7	.017
	8.00	.352	5	.042	.773	5	.048

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Tests of Normality After Transformation (Organizational Level Groups)

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Organization Level	Statistic	df	Sig.	Statistic	df	Sig.
KSM	.00	.101	52	.200*	.958	52	.064
	1.00	.143	18	.200*	.950	18	.422
	2.00	.237	4	.	.942	4	.665
KSP	.00	.082	52	.200*	.967	52	.153
	1.00	.206	18	.053	.891	18	.051
	2.00	.250	4	.	.878	4	.329
KCM	.00	.070	52	.200*	.989	52	.914
	1.00	.096	18	.200*	.983	18	.979
	2.00	.269	4	.	.896	4	.411
KCP	.00	.078	52	.200*	.983	52	.676
	1.00	.154	18	.200*	.944	18	.332
	2.00	.250	4	.	.945	4	.683

*. This is a lower bound of the true significance.

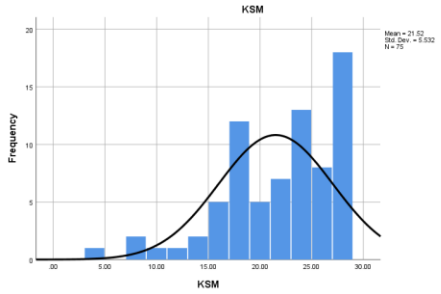
a. Lilliefors Significance Correction

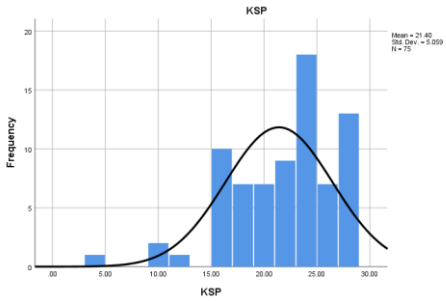
Tests of Normality After Transformation (OC Groups)

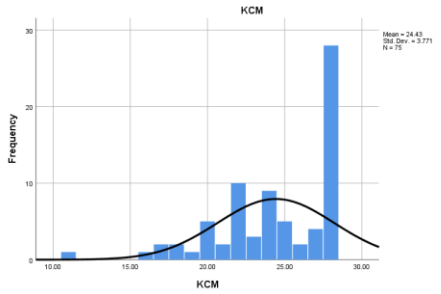
		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	OC	Statistic	df	Sig.	Statistic	df	Sig.
KSM	1.00	.086	14	.200*	.970	14	.873
	2.00	.193	18	.074	.908	18	.079
	3.00	.228	8	.200*	.939	8	.603
	4.00	.182	9	.200*	.935	9	.526
	5.00	.195	10	.200*	.923	10	.383
	6.00	.257	6	.200*	.861	6	.191
	7.00	.205	7	.200*	.869	7	.181
	8.00	.224	5	.200*	.846	5	.182
KSP	1.00	.196	14	.149	.906	14	.140
	2.00	.129	18	.200*	.960	18	.607
	3.00	.132	8	.200*	.985	8	.982
	4.00	.156	9	.200*	.915	9	.355
	5.00	.138	10	.200*	.954	10	.720
	6.00	.129	6	.200*	.991	6	.991
	7.00	.224	7	.200*	.902	7	.345
	8.00	.224	5	.200*	.881	5	.314
KCM	1.00	.310	14	.001	.814	14	.007
	2.00	.118	18	.200*	.939	18	.284
	3.00	.307	8	.026	.817	8	.044
	4.00	.178	9	.200*	.912	9	.327
	5.00	.176	10	.200*	.911	10	.287
	6.00	.302	6	.092	.835	6	.118
	7.00	.347	7	.011	.780	7	.026
	8.00	.359	5	.034	.769	5	.044
KCP	1.00	.266	14	.008	.856	14	.027
	2.00	.156	18	.200*	.912	18	.094
	3.00	.305	8	.027	.827	8	.055
	4.00	.167	9	.200*	.930	9	.479
	5.00	.189	10	.200*	.861	10	.078
	6.00	.153	6	.200*	.958	6	.801
	7.00	.263	7	.155	.863	7	.159
	8.00	.359	5	.034	.769	5	.044

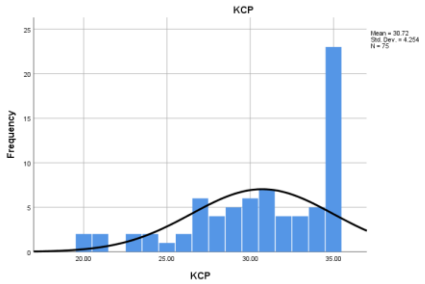
Appendix T

MANCOVA Assumption testing: Results Before Transformation of Data for Normalization



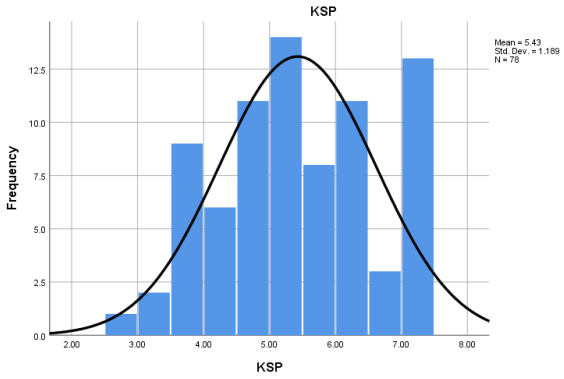


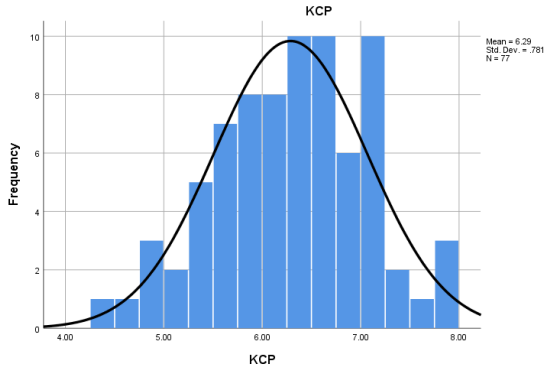


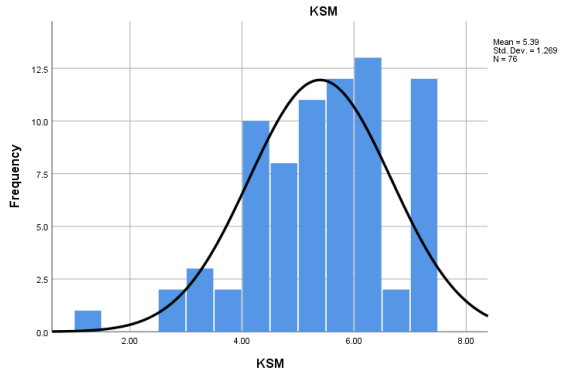


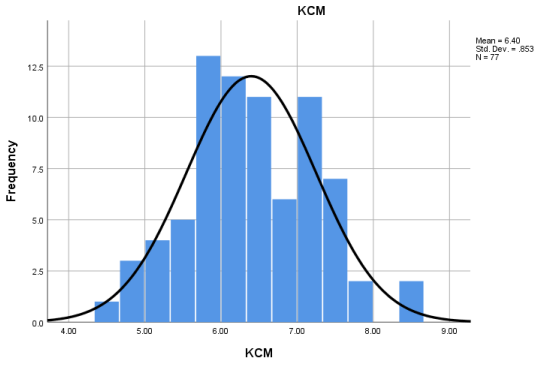
Appendix U

MANCOVA Assumption testing: Results After Transformation of Data for Normalization









Appendix V

MANCOVA Results: Between-Subjects Factors, Levene's Test of Equality of Error Variances, and Tests of In-Between Subjects Effects

Between-Subjects Factors

		N
OC	Bur	7
	ClanComp	6
	ClanMix	10
	Comp	13
	CompBur	9
	CompClan	18
	CompMix	6
	No-D-C	5

Levene's Test of Equality of Error Variances[a]

	F	df1	df2	Sig.
KSM	1.063	7	66	.397
KSP	1.044	7	66	.410
KCM	5.447	7	66	.000
KCP	3.717	7	66	.002

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Level + OC

Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[e]
Corrected Model	KSM	22.458[a]	8	2.807	1.981	.063	.196	15.846	.769
	KSP	11.588[b]	8	1.448	1.002	.443	.110	8.015	.426
	KCM	9.507[c]	8	1.188	1.751	.103	.177	14.012	.706
	KCP	10.711[d]	8	1.339	2.623	.015	.244	20.985	.892
Intercept	KSM	1563.200	1	1563.200	1102.975	.000	.944	1102.975	1.000
	KSP	1429.861	1	1429.861	989.061	.000	.938	989.061	1.000

	KCM	2052.996	1	2052.996	3025.880	.000	.979	3025.880	1.000
	KCP	1887.440	1	1887.440	3698.052	.000	.983	3698.052	1.000
Level	KSM	9.867	1	9.867	6.962	.010	.097	6.962	.739
	KSP	.254	1	.254	.176	.677	.003	.176	.070
	KCM	.038	1	.038	.057	.813	.001	.057	.056
	KCP	1.583	1	1.583	3.102	.083	.046	3.102	.411
OC	KSM	9.711	7	1.387	.979	.454	.095	6.852	.389
	KSP	11.274	7	1.611	1.114	.365	.107	7.799	.442
	KCM	9.391	7	1.342	1.977	.072	.176	13.841	.729
	KCP	9.735	7	1.391	2.725	.015	.227	19.073	.877
Error	KSM	92.122	65	1.417					
	KSP	93.969	65	1.446					
	KCM	44.101	65	.678					
	KCP	33.175	65	.510					
Total	KSM	2270.606	74						
	KSP	2304.817	74						
	KCM	3053.993	74						
	KCP	2945.856	74						
Corrected Total	KSM	114.580	73						
	KSP	105.557	73						
	KCM	53.608	73						
	KCP	43.886	73						

a. R Squared = .196 (Adjusted R Squared = .097)

b. R Squared = .110 (Adjusted R Squared = .000)

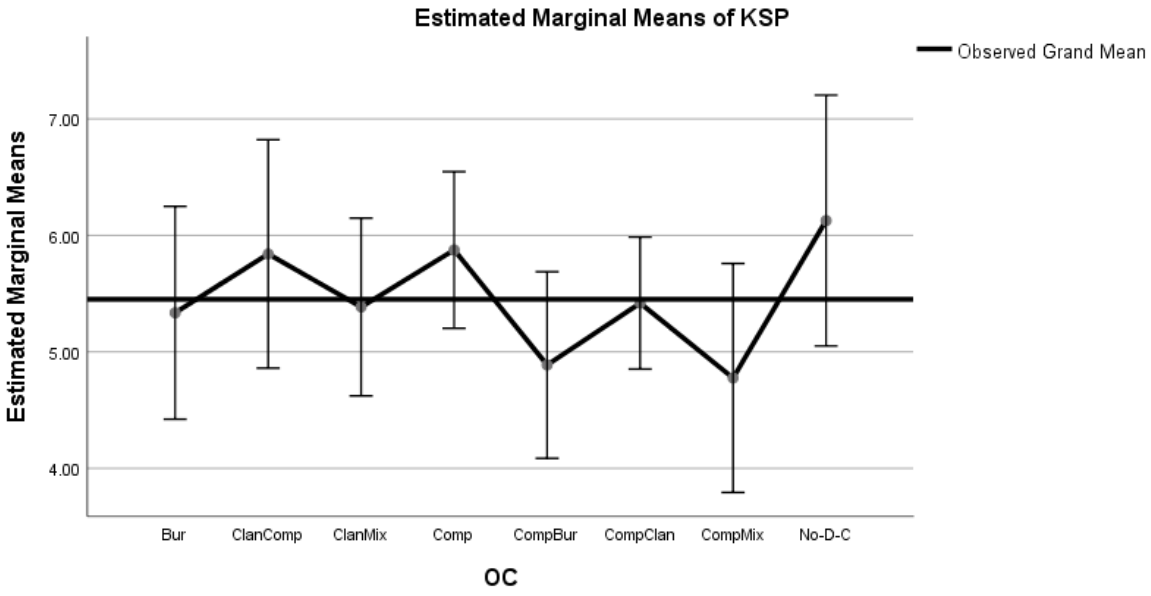
c. R Squared = .177 (Adjusted R Squared = .076)

d. R Squared = .244 (Adjusted R Squared = .151)

e. Computed using alpha = .05

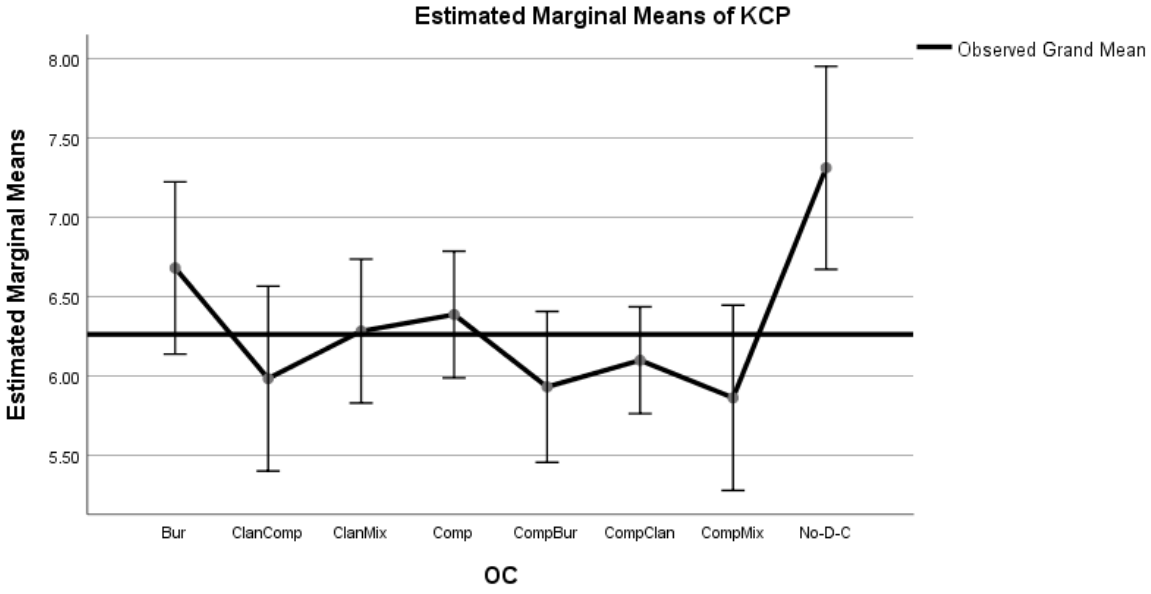
Appendix W

MANCOVA Results: Estimated Marginal Means Charts



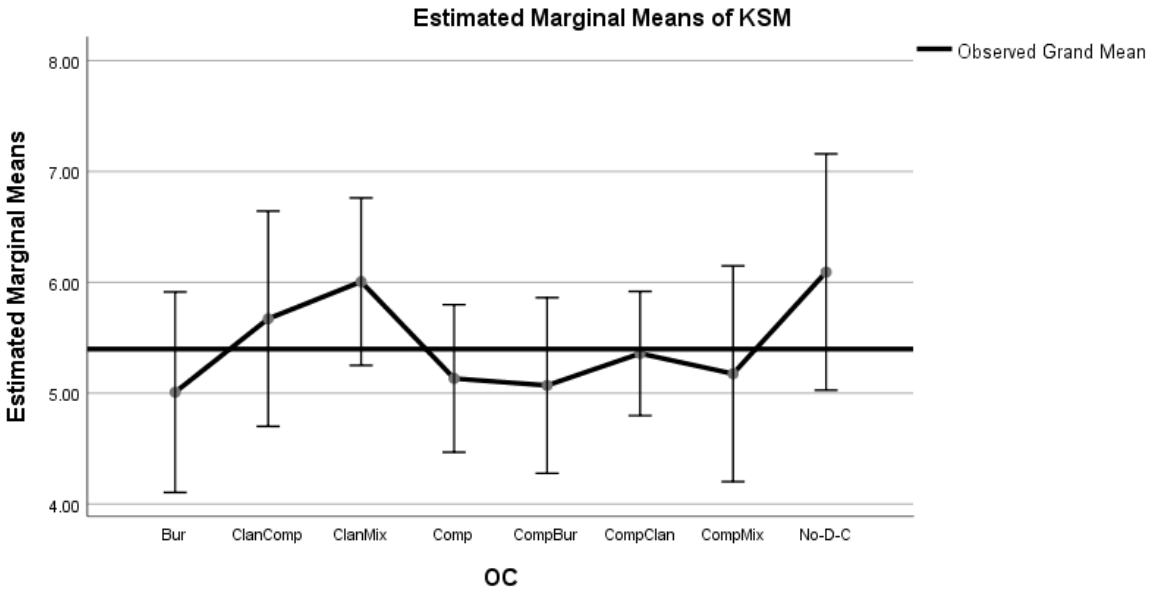
Covariates appearing in the model are evaluated at the following values: Organization Level = .3514

Error bars: 95% CI



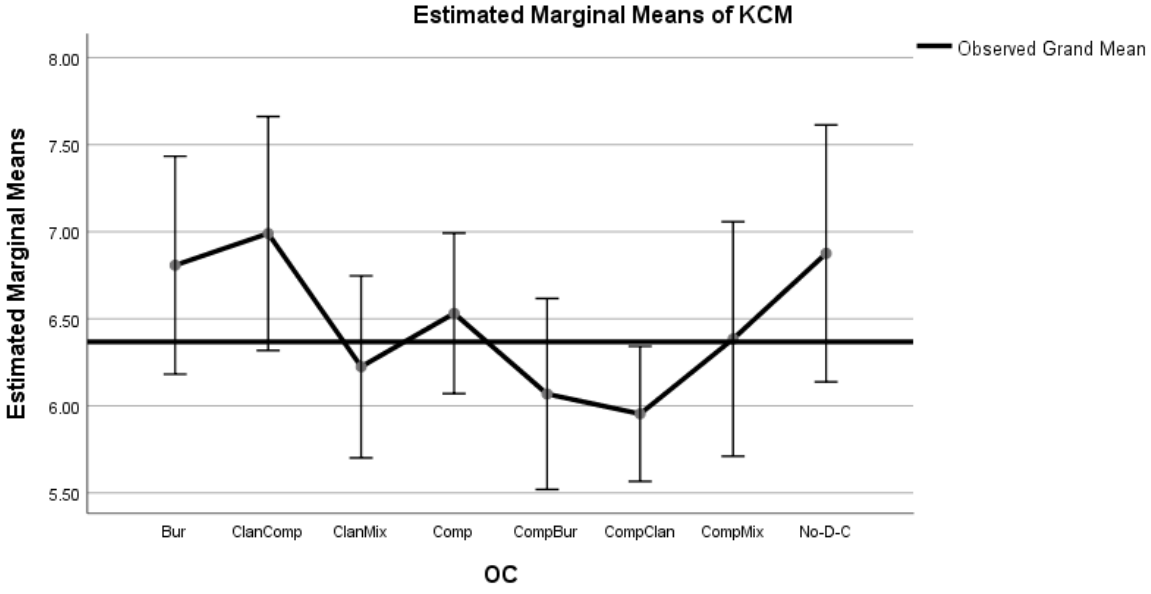
Covariates appearing in the model are evaluated at the following values: Organization Level = .3514

Error bars: 95% CI



Covariates appearing in the model are evaluated at the following values: Organization Level = .3514

Error bars: 95% CI



Covariates appearing in the model are evaluated at the following values: Organization Level = .3514

Error bars: 95% CI

Appendix X

Interview Axial Codes for KS via Socialization Amongst Peers for RQ1

KSP Axial Codes			
Level Two Managers	**Level One Managers**	**Non-Managers**	**Overall**
To get advice or confirmation on how to handle a task.	To get advice or clarification on day-to-day tasks.	When seeking best practices and tactics.	To get advice or clarification on day-to-day tasks.
When struggling with a performance area.	When struggling with a performance area.	To get advice or clarification on day-to-day tasks.	When struggling with a performance area.
			When seeking best practices and tactics.
Frequency: 2 to 3 times per month	*Frequency:* Weekly	*Frequency:* Daily	*Frequency:* Various across groups with non-managers having the highest frequency

OC and KSP Axial Codes			
Competitive	**Clan**	**Competitive-Clan**	**Bureaucratic**
To get advice or clarification on day-to-day tasks	When seeking best practices and tactics	To get advice or clarification on day-to-day tasks	To get advice or clarification on day-to-day tasks
To seek best practices and tactics	Problems solving	To seek best practices and tactics	To seek best practices and tactics

KCP Axial Codes			
Level Two Managers	**Level One Managers**	**Non-Managers**	**Overall**
When they seek it	When they seek it	To give advice and share best practices	When they seek it
During group meetings	During group meetings	If they seek it	During group meetings
When I notice they are struggling in an area	If there is a relationship and trust is established	When a process is done improperly	To share best practices
Frequency: Weekly	*Frequency:* Monthly	*Frequency:* Weekly	*Frequency:* Various across groups with non-managers having the highest frequency

OC and KCP Axial Codes			
Competitive	**Clan**	**Competitive-Clan**	**Bureaucratic**
When they seek it	To give advice and share best practices	When they seek it	When they seek it
To give advice and share best practices		When I notice they are struggling in an area	
When I notice they are struggling in an area			

Appendix Y

Interview Axial Codes for KS via Socialization Between Levels for RQ2

KSM Axial Codes			
Level Two Managers	**Level One Managers**	**Non-Managers**	**Overall**
To gain a different perspective on how to handle a situation	When it is the first time encountering a situation.	When it is the first time encountering a situation.	When it is the first time encountering a situation.
When collaborating on decision that has an impact on the larger team.	For a problem that I don't have the resources or know-how to solve on my own.	To gain a different perspective on how to handle a situation.	To gain a different perspective on how to handle a situation and development.
	To get advice for developmental opportunity areas.	For a problem that I don't have the resources or know-how to solve on my own.	For a problem that I don't have the resources or know-how to solve on my own.
Frequency: 2 to 3 times per month	*Frequency:* 2 to 3 times per month	*Frequency:* 2 to 3 times per month	*Frequency:* 2 to 3 times per month (Consistent across groups)

OC and KSM Axial Codes			
Competitive	**Clan**	**Comp-Clan**	**Bureaucratic**
When it is the first time encountering a situation.	To gain a different perspective on how to handle a situation	When collaborating on a decision that has an impact on the larger team.	When it is the first time encountering a situation.
For a problem that I don't have the resources or know-how to solve on my own.	To get advice for developmental opportunities.	To gain a different perspective on how to handle a situation	

KCM Axial Codes			
Level Two Managers	**Level One Managers**	**Non-Managers**	**Overall**
When it is beneficial to the team	To share best practices that are currently working	To share best practices that are currently working	To share best practices that are currently working
During one-on-one meetings	When it is beneficial to the team	When it is beneficial to the team	When it is beneficial to the team
To share new findings and ideas	To share new findings and ideas	To share new findings and ideas	To share new findings and ideas
Frequency: Weekly	*Frequency:* Weekly	*Frequency:* Weekly	*Frequency:* Weekly

OC and KCM Axial Codes			
Competitive	**Clan**	**Competitive-Clan**	**Bureaucratic**
To share new findings and ideas	To share new findings and ideas	To share new findings and ideas	To share best practices that are currently working
To share best practices that are currently working	To share best practices that are currently working	To share best practices that are currently working	
When it is beneficial to the team			

KCE Axial Codes		
Level Two Managers	**Level One Managers**	**Overall**
To guide them towards better decisions	To improve their performance	To share proven tactics and strategies that can help with performance
To share proven tactics and strategies that can help with performance	To share proven tactics and strategies that can help with performance	
Frequency: Daily	*Frequency:* Daily	*Frequency:* Daily

OC and KCE Axial Codes			
Competitive	**Clan**	**Competitive-Clan**	**Bureaucratic**
To improve their performance	To guide them towards better decisions	To share proven tactics and strategies that can help with performance	To improve their performance

KSE Axial Codes		
Level Two Managers	**Level One Managers**	**Overall**
To seek best practices that are currently working	To seek best practices that are currently working	To seek best practices that are currently working
To gain knowledge specific to their job role	To understand the obstacles, they are facing	To seek feedback
To seek feedback	To seek feedback	
Frequency: Daily	*Frequency:* Weekly	*Frequency:* Level two managers have higher frequency for KSE

OC and KSE Axial Codes			
Competitive	**Clan**	**Competitive-Clan**	**Bureaucratic**
To seek feedback	To seek best practices that are currently working	To seek best practices that are currently working	What is working well, and what is not working
To seek best practices that are currently working		To seek feedback	

Appendix Z

Institutional Review Board (IRB)

NOVA SOUTHEASTERN UNIVERSITY
Institutional Review Board

MEMORANDUM

To: **Ali Baker**
College of Engineering and Computing

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

Date: **October 26, 2017**

Re: **IRB #: 2017-617; Title, "An Investigation of the Interaction between Organizational Culture and Knowledge Sharing through Socialization: A Multi-Level Perspective"**

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

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

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

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

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

Cc: Timothy J Ellis, Ph.D.
Ling Wang, Ph.D.

3301 College Avenue • Fort Lauderdale, Florida 33314-7796
(954) 262-0000 • 800-672-7223, ext. 5369 • Email: *irb@nova.edu* • Web site: www.nova.edu/irb

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The Graduate School of Computer and Information Sciences

Certification of Authorship of Doctoral Course Assignment

Submitted to: Dr. Timothy Ellis

Student's Name: Ali Baker

Date of Submission: 4/28/2018

Purpose and Title of Submission: Fulfillment of the requirements for the degree of Doctor of Philosophy in Information Systems: An Investigation of the Interaction between Organizational Culture and Knowledge Sharing through Socialization: A Multi-Level Perspective.

Certification of Authorship: I hereby certify that I am the author of this document and that any assistance I received in its preparation is fully acknowledged and disclosed in the document. I have also cited all sources from which I obtained data, ideas, or words that are copied directly or paraphrased in the document. Sources are properly credited according to accepted standards for professional publications. I also certify that this paper was prepared by me for this purpose.

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