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The Experiences of Team Managers with Knowledge Sharing within Diverse Virtual Teams

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This is to certify that the doctoral dissertation by

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2020

Abstract

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by

Amy Jarrell

MPhil, Walden University, 2019

MSM, Colorado Technical University, 2016

BS, Colorado Technical University, 2014

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

As remote work rises across the United States, barriers continue to challenge virtual collaboration by obstructing knowledge sharing which affects an organization's ability to leverage knowledge. Despite increased research on virtual teams, how virtual team managers facilitate knowledge sharing between individuals within diverse virtual teams across different time zones is not well understood. This qualitative, narrative inquiry study addressed the gap in the literature and the research question by exploring how virtual team managers in the United States describe their daily online experiences with knowledge sharing between individual team members with varied cultural perspectives working in different time zones. This study was framed through Cropanzano, Anthony, Daniels, and Hall's concepts of reciprocal exchange and social exchange. Data were gathered through 8 video-telephonic, semistructured interviews of virtual team managers in the United States. Thematic analysis and a critical event analysis approach revealed 5 conceptual categories concerning the answering of the research question. The findings showed that approaches incorporated in virtual workspaces can diminish challenges and barriers pertaining to knowledge sharing in a virtual environment when fostering positive relationship development of team members, utilizing a variety of technologies and platforms, and openly communicating and supporting team members. The knowledge acquired in this study may help promote social change through a deeper understanding of how knowledge is shared among team members and the various influences that drive knowledge sharing in virtual workspaces.

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Dedication

I dedicate my work to my husband and children who have patiently stood by me and provided endless love and support. To Cy, when we started our life together, I would never have imagined that our path would take us to where we are today. My best days are with you and the kids, and I am proud of the life we have together. Thank you for your understanding, patience, support, and time during my academic endeavors; it means the world to me. Finally, thank you for your unconditional love and friendship. You are truly amazing, and I cannot wait to see what our next chapter has in store for us!

To Chelsey, Annabella, and Cy II, you are my three most precious gifts in life and the inspiration for all that I do. Thank you for the wonderful and amazing children that you are and for your understanding, patience, and time when I had to study and write. When you grow up, I hope my accomplishments in life inspire you to achieve the goals and dreams you set for yourselves. Most of all, I hope that you let nothing get in the way of becoming who you truly want to be.

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Chapter 1: Introduction to the Study

Remote work across the United States has risen to 43% since 2012, while

workplace collaboration has increased to 67% in the last 3 years (Gallup, 2016; Gartner,

Inc, 2018). However, the lack of face-to-face contact has a significant influence on

productivity, as 45% of virtual team respondents in a recent survey identified relationship

building as the main contributor to the level of work productivity (RW3 CultureWizard,

2016). As organizations adapt to the demands of globalization, the development and use

of virtual teams are steadily climbing (Gilson, Maynard, Jones Young, Vartiainen, &

Hakonen, 2015; Marlow, Lacerenza, & Salas, 2017). Nonetheless, knowledge sharing,

collaboration, and team cohesion are among the top adversities influencing effective

work performance in virtual team environments (Dulebohn & Hoch, 2017; Hill, Seo, &

Kang, 2014; Paul, Drake, & Liang, 2016). Although there is much literature on virtual

teams and knowledge sharing, research is absent in integrating specific challenges of

virtual team leaders and respective solutions to issues such as effective knowledge

sharing across academic literature and industry practices (Eisenberg & Krishnan, 2018).

The utilization of virtual teams offers significant benefits to organizations

regarding cost effectiveness, flexibility, time efficiency, and diverse collaboration

(Eisenberg & Krishnan, 2018). But these benefits also present barriers to virtual teams

that differ in comparison to those of traditional face-to-face teams. Geographic

differences, constructs of intra-organizational relationships, cultural diversity, and

communicating across time zones significantly challenge how virtual team members

communicate, develop relationships, and share knowledge (Gilson et al., 2015; Haas &

Cummings, 2015; Oparaocha, 2016). Regardless of the technology that facilitates virtual team interaction, it is the human connection and willingness to share information that guides knowledge exchange. Extending the concepts of reciprocal exchange and social exchange in a virtual team environment may benefit field practices and scholarship by providing a deeper understanding of how knowledge is shared in complex and diverse virtual team environments that span across time zones.

In this introductory chapter, I discuss the background literature and the problem statement, identifying the gap in scholarly literature. Next, I present the purpose of the study, research question, conceptual framework, and nature of the study, demonstrating alignment within this study. Finally, I conclude the chapter with a discussion on the significance of the study, assumptions, limitations, and a conclusion.

Background of the Study

Technology has influenced organizational team development and the incorporation of virtual teams over the past several decades (Eisenberg & Krishnan, 2018; Gilson et al., 2015; Hill et al., 2014). Modern organizations are able to expand and grow their operations across distance, time, and space while capitalizing on access to diverse groups of people. But as virtual teams become more prevalent in organizations, there is a growing concern in how teams develop in technology-based environments (Marlow et al., 2017). Past research has been focused on various aspects of virtual team organizations to determine influences of important behaviors found in knowledge sharing and the relationship that exists between wellbeing and social capital (Chumg, Cooke, Fry, & Hung, 2015). The magnitude of virtual teams has also received considerable attention

as scholars highlight global virtual teams in research, examining the interrelation of factors such as team environment and team motivation (Killingsworth, Xue, & Liu, 2016). As the complexity of modern teams increases, diversity is questioned on a variety of levels. Functional, geographical, and hierarchical diversity may be significant influences on communicative interactions across virtual channels and knowledge exchange (Kim, 2018).

A specific focus of research related to the study's topic is social exchange, which is important to the study of virtual teams as well as knowledge sharing. Researchers have investigated the topics separately and on occasion together to develop new knowledge regarding modern organizations. As virtual teams continue to evolve, and the leveraging of knowledge becomes increasingly critical to achieving success in contemporary organizations, scholars have applied social exchange theory to understand better the behaviors associated with knowledge exchange in such environments (Coun, Peters, & Blomme, 2018; Hung, Lai, Yen, & Chen, 2017; Romeike, Nienaber, & Schewe, 2016). Additionally, social exchange theory helps identify key elements in user motivation regarding knowledge exchange in virtual communities (Gang & Ravichandran, 2015). Researchers have integrated social exchange with other perspectives such as organizational behavior to argue the effects of various types of leadership and the influence that is imparted on knowledge sharing (Wu & Lee, 2017). Although the role of trust in knowledge sharing in virtual team contexts have been examined through various lens, social exchange theory has been utilized to further study collaboration and team effectiveness (Alsharo, Gregg, & Ramirez, 2017). Social exchange theory has also been

applied to the examination of the relationship between virtual team feedback on information processing and learning in virtual teams (Peñarroja, Orengo, Zornoza, Sánchez, & Ripoll, 2015).

The need for an increased understanding of how virtual managers facilitate knowledge sharing between individuals within diverse virtual teams across different time zones has been documented as a gap in the literature (Endres & Chowdhury, 2019; Kim, 2018). There are a significant number of factors that add to the challenges and barriers that affect knowledge sharing in digital workspaces, considering the complexity of virtual team environments (Endres & Chowdhury, 2019; Killingsworth et al., 2016). Continued research on virtual team diversity and knowledge sharing across time zones may benefit the field of management as organizations rely on effective knowledge sharing over virtual means to remain competitive and sustainable in their respective industries (Killingsworth et al., 2016).

Problem Statement

The success of virtual teams depends on the ability of the team leader and individuals to share knowledge among themselves and synthesize it in a meaningful way (Schecter & Contactor, 2019). Remote work across the nation has risen to 43% since 2012 (Gallup, 2016; Gartner, 2018), which is a result of organizations adapting to the demands of globalization (Gilson et al., 2015; Marlow et al., 2017). Virtual teams allow for flexibility and accessibility of collaborating with diverse groups of people (Eisenberg & Mattarelli, 2017; Jimenez, Boehe, Taras, & Caprar, 2017). However, there are

challenges in virtual team environments such as knowledge sharing, collaboration, and team cohesion (Dulebohn & Hoch, 2017; Hill et al., 2014; Paul et al., 2016).

The general management problem is that virtual team managers often obstruct knowledge sharing within virtual teams due to the lack of understanding on how to share knowledge effectively between individuals with varied cultural perspectives working in different time zones (Killingsworth et al., 2016; Ng & Tung, 2018). Diversity, behaviors, and social relationships act as barriers inhibiting tacit knowledge sharing in virtual work environments, yet there is limited literature focusing on how intra-organizational relationships influence the willingness to share in these complex spaces (Kim, 2018; Schaubroeck & Yu, 2017). Despite increasing research on virtual teams, there is a gap in integrating specific challenges of virtual team leaders and respective solutions to issues such as effective knowledge-sharing across academic literature and industry practices (Eisenberg & Krishnan, 2018). The specific management problem is that how virtual managers facilitate knowledge sharing between individuals within diverse virtual teams across different time zones is not well understood (Endres & Chowdhury, 2019; Kim, 2018).

Purpose of the Study

The purpose of this qualitative, narrative inquiry study was to explore the daily online experiences of virtual team managers in the United States with knowledge sharing between individual team members with varied cultural perspectives working in different time zones. A narrative inquiry method was used to meet the purpose of the study through storytelling from virtual team managers in the United States to gain a deeper

understanding of how they facilitate knowledge sharing between individuals with varied cultural perspectives working in different time zones. The narrative inquiry method is used to represent human experiences, leading to a detailed understanding of participants' daily experiences within their environment (Clandinin, 2016; Webster & Mertova, 2007). The holistic sensemaking that results from a narrative approach provides a reflexive perspective of participants' daily experiences (Clandinin & Connelly, 2000; Webster & Mertova, 2007). To ensure trustworthiness of data, a narrative analysis of critical events was used along with transparency in data collection to track the full description of events within the story as recommended by Clandinin (2016) and Webster and Mertova (2007).

Research Question

How do virtual team managers in the United States describe their daily online experiences with knowledge sharing between individuals with varied cultural perspectives working in different time zones?

Conceptual Framework

This study was framed through Cropanzano, Anthony, Daniels, and Hall's (2017) concepts of reciprocal exchange and social exchange. Cropanzano et al. developed their concepts of reciprocal exchange and social exchange on the foundation of social exchange theory (Blau, 1964), which explains that every individual is trying to maximize their wins and applies to market relations and social relations such as friendship. Reciprocal exchange and social exchange have common features to explain social phenomena in management and organizations (Cropanzano et al., 2017). For instance, a series of successful reciprocal exchanges might lead to a high-quality social exchange

relationship providing numerous benefits to employees and organizations, whereas a series of negative exchanges have the opposite effect. Similarly, positive initiating actions can elicit positive feelings, whereas negative initiating actions elicit negative feelings (Cropanzano et al., 2017).

Exploring knowledge sharing as a social interaction in intra-organizational relationships of diverse virtual teams further advances the theory of social exchange, as knowledge is an asset to organizations (Ipe, 2003). It is important to look at external and internal factors because organizations evolve based on variations with internal and external factors based on societal change, creating a cycle that influences knowledge exchange in organizations (Cropanzano et al., 2017). External factors such as individual perceptions and behaviors, culture, and context dictate the value of knowledge, types of relationships, and rewards in knowledge sharing (Ipe, 2003; Killingsworth et al., 2016; Peng, 2013). Additionally, internal factors such as the nature of knowledge, motivations to share, and opportunities to share interconnect while influencing each other on a nonlinear basis (Choudhary & Sarikwal, 2017; Ipe, 2003; Jinyang, 2015). Although each factor does not exert the same amount of influence on knowledge sharing, each of these factors is influenced by elements of an organization such as objectives, structure, practices and policies, and culture (Ipe, 2003).

Conducting this study through the lens of reciprocal exchange and social exchange may contribute a deeper understanding of knowledge sharing among managers across functional, geographical, and hierarchical categories of diversity in a virtual team environment. Video-telephonic, semistructured interviews were used to capture narratives

of the daily, lived experiences of virtual team managers based in the United States and how they experience knowledge sharing between individuals with varied cultural perspectives in different time zones. Using a critical event approach during data collection and analysis offered insight into internal and external factors that influence knowledge sharing in dynamic virtual team environments. This brief overview of the conceptual framework for this study is elaborated on in Chapter 2.

Nature of the Study

For this study, I employed a qualitative research method. The focus of this research was to explore virtual team managers and their daily online experiences of knowledge sharing between individuals with varied cultural perspectives working in different time zones. Applying a quantitative method was not suitable because operationalization of variables, manipulation of parameters, or predicting and testing of relationships did not fit the purpose of the study (Harkiolakis, 2017). Conversely, qualitative methods are used to discover the meaning of a phenomenon as constructed by society (Merriam & Grenier, 2019). The implementation of a qualitative research method offers reflexivity in the research process along with the flexibility in using nonstandardized approaches to data generation, which was relevant and complementary to this study (Eriksson & Kovalainen, 2015).

Narrative inquiry helped identify common themes and patterns (Pinnegar & Daynes, 2007) in understanding the experiences shared by virtual team managers regarding knowledge sharing among diverse team members (Andrews, 2007). Perceptions of participants were gathered through in-depth interviews to meet the

purpose of this study. Narrative inquiry allowed for the telling and retelling of participants' experience revealing future insight as opposed to a case study approach that helps analyze a phenomenon in a bounded context (Clandinin & Connelly, 2000; Ravitch & Carl, 2016). Narrative inquiry also allows for the presentation of rich participant descriptions through storytelling aimed at revealing a deeper understanding of human experiences as they are lived on a daily basis (Clandinin, 2016; Webster & Mertova, 2007). Further, a narrative inquiry approach was appropriate to address the purpose of this study, as it offers a support process for participants when disclosing sensitive, critical events of life experiences unlike other qualitative designs such as with ethnography, phenomenology, and case studies (Connelly & Clandinin, 1990; Miller, 2017). Narrative inquiry is descriptive in how participants make sense of what is occurring, whereas a phenomenological study is used to understand the essence of the phenomenon (Clandinin & Connelly, 2000; Moustakas, 1994).

The sample population for the study included virtual team managers in the United States across functional, geographical, and hierarchical categories in their organizations. Purposeful sampling was used to collect rich and descriptive data of eight participants at which point saturation was achieved. Saturation occurs in data collection when the addition of more participants does not reveal new or relevant information (Ravitch & Carl, 2016). The sample population met the following inclusion criteria: adults over the age of 18 residing in the United States, employed as a virtual team manager for a minimum of 2 years, and participates in daily interaction with a diverse virtual team.

Participants for the study were gathered through the social media networks Facebook and LinkedIn, and the interviews were conducted over videotelephone platforms.

Considering the complexity that exists with intra-organizational relationships in virtual team environments, a critical event approach was used in the data collection and analysis process to reinforce the validity and trustworthiness of the data (Webster & Mertova, 2007). Additionally, considering temporality, sociality, and place during the inquiry process helps break down and categorize lived experiences (Clandinin, 2016). As the critical events that result from participants' lived-experiences reflect the most memorable and impressionable experiences, participants' narratives were categorized into critical events as a way of confirming and broadening situations that arise from the described events (Webster & Mertova, 2007). A critical event approach consists of two stages. The first stage involves interpreting participant's narratives through restorying to categorize and assign events while the second stage requires cross-checking collected events and categories for comparative purposes, and to ensure trustworthiness (Ollerenshaw & Creswell, 2002; Webster & Mertova, 2007). The aim of this two-stage process is to co-construct meanings, themes, and images to produce an interpretation that is participant guided (Ollerenshaw & Creswell, 2002). Although triangulation is used in qualitative research to satisfy validity, it is not recommended in narrative inquiry-based research, as it is nearly impossible to achieve (Webster & Mertova, 2007).

Definitions

Definitions of key terms not commonly used or having multiple meanings have been provided to ensure clarity and accuracy in understanding. These terms were used throughout the study and are consistent with definitions in peer-reviewed literature.

Collaboration: Defined in an organizational setting as the presence of mutual influence between persons, open and direct communication and conflict resolution, and support for innovation and experimentation (Alsharo et al., 2017).

Diversity: Characteristics of groups that refer to demographic differences such as gender, race, ethnicity, or nationality, all of which potentially contribute to a cultural identity that stems from membership in sociocultural distinct demographic groups (Hajro, Gibson, & Pudelko, 2017).

Explicit knowledge: Referred to as searchable information such as with books, manuals, and various types of publications that can be written, taped, or made into a tangible form and easily transferred from one individual to another (Chumg et al., 2015; Razak, Pangil, Zin, Yunus, & Asnawi, 2016).

Intra-organizational relationship: Relationships within one organization (Oparaocha, 2016).

Knowledge sharing: Activities that individuals engage in that involve sending or receiving knowledge from others, and both the sender and receiver are equally entitled to the ownership of the knowledge during this process (J. Li, Yuan, Ning, & Li-Ying, 2015).

Tacit knowledge: Considered highly personalized and difficult to verbalize, capture, and transfer to others, as with first-hand knowledge and experiences over spans of time (Asrar-ul-Haq & Anwar, 2016; Razak et al., 2016).

Virtual teams: Groups of two or more geographically and/or organizationally dispersed people who coordinate primarily through a combination of telecommunications and communication technologies to accomplish a common and valued goal (Ford, Piccolo, & Ford, 2017).

Assumptions

Many assumptions are held by qualitative research, yet variations exist based on intricacies of the study, such as the intent and research design (Merriam & Grenier, 2019). As the intent of narrative inquiry is to capture human experiences holistically, the personal narratives of the research participants' experiences with a strong foundation of verisimilitude, reliability, and trustworthiness were essential during this study (Webster & Mertova, 2007).

The first assumption was that each participant would communicate a detailed description of their daily experiences, revealing critical events that are experienced based on their involvement in a virtual team environment. The second assumption was that the participants would be knowledgeable on the explored subject and that their answers to the interview questions would contain valuable facts and story configurations related to their professional experiences. The third assumption was that the participants would respond honestly recounting their daily experiences in a way that is transparent and trustworthy, thus providing rich and descriptive data consistent with narrative inquiry research. The

fourth assumption was that I would accurately and sufficiently record, journal, and transcribe information gathered from the videotelephonic interviews and audio recordings of the participants. Finally, the fifth assumption was that the qualitative data collection methods and data analysis instruments used in this study would effectively support the process of collecting data and determining themes to address the purpose of the study and the experienced phenomenon yielding accurate results.

Scope and Delimitations

This study used participants' daily experiences collected through a qualitative narrative approach. The objective was to provide a deeper understanding of the virtual team managers' daily online experiences with knowledge sharing between individual team members with varied cultural perspectives working in different time zones (Endres & Chowdhury, 2019; Kim, 2018). When evaluating the complexity of virtual team environments, there are a significant number of characteristics that add to the challenges and barriers that affect knowledge sharing in digital workspaces (Endres & Chowdhury, 2019; Killingsworth et al., 2016). Continued research on virtual team diversity and knowledge sharing across time zones is beneficial to the field of management as organizations rely significantly on sufficient knowledge sharing over virtual spaces to remain competitive and sustainable in their respective industries (Killingsworth et al., 2016).

The scope of the study included eight virtual team managers based in the United States who shared experience with the phenomena under study. The sample population met the following inclusion criteria: adults over the age of 18 residing in the United

States or U.S. territories, employed as a virtual team manager for a minimum of 2 years, and participated in daily interaction with a diverse virtual team. The inclusion criteria of the study's sample are consistent with sample criteria from similar studies of virtual team managers (Alsharo et al., 2017; Kim, 2018; Mattarelli, Tagliaventi, Carli, & Gupta, 2017).

The scope of the study excluded the use of the classical management theory during the development of the conceptual framework, literature review, and interview protocol, as those theories were developed from research conducted in traditional face-to-face environments. The conceptual framework for this study and the study's research design were grounded within the scope of Cropanzano et al.'s (2017) concepts of reciprocal exchange and social exchange. These concepts were developed based on the foundation of social exchange theory (Blau, 1964). Social exchange theory is prominent in social science research as it is used to explore human behavior and interactions that occur in social exchange settings (Alsharo et al., 2017). The concepts of reciprocal exchange and social exchange have been used to empirically investigate knowledge sharing behaviors along with expectations and norms of reciprocity among intra-organizational relationships and in virtual team environments (Connelly & Turel, 2016; Serenko & Bontis, 2016b; Vahtera, Buckley, Aliyev, Clegg, & Cross, 2017). Extending the concepts of Cropanzano et al. may provide a renewed conceptual understanding of how individuals in virtual teams decide to share knowledge, the types of knowledge they decide to share, and with whom they decide to share their knowledge.

The primary goal of qualitative research is to provide rich, descriptive context-relevant statements in a way that can be transferred or applied to a broader context (Ravitch & Carl, 2016). Transferability in research refers to the external validity of the data and results (Harkiolakis, 2017; Ravitch & Carl, 2016). In this study, I addressed transferability through member-checking upon completion of the interviews. Member-checking validates the accuracy of the participant's statements and ensures the content is representative of the meaning and understanding to that of the participant. Further, during data analysis, I addressed transferability by providing detailed descriptions of the data and respective context in the results.

Limitations

Limitations are inevitable because there are numerous factors to consider for each individual study relating to methodology and potential bias (Romeike et al., 2016). Limitations in this study and any interview-based study include misinterpretation and misrepresentation of the contents of the interview and the participant. Considering the interviews for this study were conducted over video, technical difficulties such as Internet connection and inaudible segments at times, interrupted the flow of the interview (Seitz, 2016). Additionally, although interviews conducted over Internet technology are comparable to face-to-face interviews, I still needed to consider lost intimacy to a degree and the inability to thoroughly read body language and nonverbal cues (Janghorban, Roudsari, & Taghipour, 2014; Seitz, 2016). As each interview transpires, research participants may have revealed bias or blurred events regarding their experiences with virtual teams and knowledge sharing. To improve the trustworthiness and credibility

during the study, I asked the participants probing and follow-up questions to encourage accurate and open responses to the interview questions (Rubin & Rubin, 2012).

Additionally, narrative inquiry is a way of understanding and inquiring into the experiences of others' lives, extending limitations to the study (Clandinin, 2016). For example, using a narrative inquiry approach could result in the misrepresentation of the daily experiences of virtual team managers and knowledge sharing in diverse virtual environments. To successfully overcome this limitation, I followed the guidelines of narrative methodologies to capture rich, descriptive information from the research participants (Clandinin, 2016). I also adhered to narrative guidelines during the coding and analysis process to establish rigor in the study (Syed & Nelson, 2015).

Significance of the Study

The purpose of this study was to explore the daily online experiences of virtual team managers through a qualitative, narrative inquiry approach to develop a deeper understanding of the knowledge sharing between diverse team members across different time zones. The results of this study may advance the discussion of knowledge sharing between individuals with varied cultural perspectives working in different time zones. The results of this study provide knowledge and information about knowledge sharing in diverse virtual environments for managers, leaders, and practitioners that seek further knowledge.

Significance to Practice

The rich, human connection that is experienced in traditional face-to-face work settings is absent in virtual team environments (Jinyang, 2015). Likewise, the diversity

that exists across various organizational levels adds to the layers of complexity of the relationships that occur in virtual workspaces (Kim, 2018). The influence these relationships have regarding the willingness to share knowledge across various levels in an organization impacts the organization's work performance (Ambos, Ambos, Eich, & Puck, 2016). Considering the practical significance of an organization's ability to leverage knowledge, a comprehensive understanding of the barriers experienced in virtual team performance as a result of relationship development is necessary (Paul et al., 2016; Peng, 2013). Thus, this study is meaningful in practice to organizational leaders and virtual team managers as each narrative is significant in its symbolic meaning and understanding of the social reality that occurs in intra-organizational relationship development (Søderberg, 2006). A deeper understanding of relationships in diverse virtual contexts may help managers create and maintain organizational climates that embrace and value diversity, member knowledge, expertise, and alternate perspectives (Kim, 2018).

Significance to Theory

Applying a context-rich interpretive approach through the lens of social exchange theory to meet the purpose of this study regarding virtual team managers' experiences with knowledge sharing offers a comprehensive exploration into complex human experiences (Webster & Mertova, 2007). Applying the social exchange theory to intra-organizational relationships in diverse virtual workspaces provides a theoretical understanding of the influence these relationships have on an individual's willingness in the knowledge exchange process (Cropanzano et al., 2017). This study revealed

experiences that may contribute to an important extension of the concepts and theory of

social exchange related to knowledge sharing in virtual teams, where the dynamics

among team members as well as team diversity vary from that of traditional face-to-face

teams (Hacker, Johnson, Saunders, & Thayer, 2019).

Significance to Social Change

Collecting data on how virtual team managers in the United States facilitate

knowledge sharing between individuals with varied cultural perspectives working in

different times zones may help drive social change through a deeper understanding of

how diverse relationships develop across virtual spaces and at what level.

Communication and relationship building through virtual means has become a norm in

society and an outlet to bring groups of people together for positive social change. But

negative consequences surface as a result of the ways society communicates, behaves,

and develops relationships through this virtual means (Peng, 2013; Vahtera, Buckley, &

Aliyev, 2017). Although quantitative-based studies have significantly contributed to

virtual team literature, it is important to explore through qualitative methods the nuances

of different types of diversity and various environmental characteristics (Kim, 2018).

These factors, along with communicative and relationship interactions, vary in ways that

cannot be captured through a quantitative approach (Kim, 2018). The experiences of how

intra-organizational relationships influence managers' willingness to share knowledge in

diverse virtual team environments contribute to the sensemaking of how organizations

and society are evolving.

Summary and Transition

In this chapter, I aligned the problem statement and purpose statement with the research question and the conceptual framework of this study. The unit of analysis, as indicated in the purpose statement, was virtual team managers based in the United States. The purpose of this qualitative, narrative inquiry study was to develop a deeper understanding of the experiences of how virtual team managers in the United States share knowledge with diverse individual team members across different time zones. Exploring knowledge sharing in virtual workspaces across different time zones may provide insight into how and why different types of knowledge are exchanged. Further, this study might reveal intra-organizational relationship aspects that influence the knowledge sharing process, which could influence positive social change in society. The utilization of virtual teams in organizations continues to rise across the nation; thus, the challenges of knowledge sharing with diverse team members across different times zones may be relevant to various positions, leaders, and managers in organizations and industries that employ virtual workers. Although scholars have studied virtual teams at different levels and in conjunction with various topics, a gap remains with integrating specific challenges of virtual team leaders and respective solutions to effective knowledge sharing across academic literature and industry practices (Eisenberg & Krishnan, 2018).

In Chapter 2, I provide the literature search strategy used for the literature review and elaborate further on the conceptual framework. In the literature review, I synthesize, combine, and draw conclusions from existing literature relating to virtual team managers and knowledge sharing with diverse individuals across different time zones to identify

how the literature addresses the research question. I also identify the related gap in the literature that supports the need for this study and discuss current literature on reciprocal exchange and social exchange.

Chapter 2: Literature Review

Introduction

How virtual managers facilitate knowledge sharing between individuals within diverse virtual teams across different time zones is not well understood (Endres & Chowdhury, 2019; Kim, 2018). But the success of virtual teams hinge on the ability of the team leader and individuals to share knowledge among themselves and subsequently synthesize it in a meaningful way (Schecter & Contactor, 2019). Diversity, behaviors, and social relationships act as barriers inhibiting tacit knowledge sharing in virtual work environments, yet there is a lack of literature focusing on how intra-organizational relationships influence an individual's willingness to share in these complex environments (Kim, 2018; Schaubroeck & Yu, 2017). Despite increasing research of virtual teams, there is a gap in integrating specific challenges of virtual team leaders and respective solutions to issues such as effective knowledge-sharing across academic literature and industry practices (Eisenberg & Krishnan, 2018). The purpose of this qualitative, narrative inquiry study was to explore the daily online experiences of virtual team managers in the United States with knowledge sharing between individual team members with varied cultural perspectives working in different time zones.

Chapter 2 consists of a review of the literature search strategy, a description of the conceptual framework of this study, and a thorough review of literature relating to the phenomenon of virtual teams and knowledge sharing in diverse workspaces. I explain the literature search strategy as well as the rationale for the conceptual framework. In this chapter, I also provide a synthesis of the topics related to the problem and the purpose of

the study, including the unique challenges of virtual team managers and knowledge

sharing across different time zones. Finally, I offer a critical analysis of the literature in

which this research was grounded.

Literature Search Strategy

During the process of searching for relevant resources for the literature review, I

utilized several databases from the Walden University Library: ABI/INFORM Collection,

Business Source Complete, Emerald Insight, IEEE Xplore Digital Library, ProQuest

Central, PsychINFO, SAGE Journals, ScienceDirect, Taylor and Francis Online, and

Thoreau Multi-Database. I considered these databases when using a variety of search

terms as each of the databases used for the literature search applies to the central theme of

the research topic. The search was limited to peer-reviewed scholarly journals and text

using search terms *virtual teams* or *remote teams* or *geographically dispersed teams*

(9,057 results); *virtual teams* and *knowledge sharing* (332 results), *virtual teams* and

diversity (401 results), *virtual team leadership* (329 results), *virtual teams* and *time zones*

(150 results), *social exchange theory* (12, 893 results), and *reciprocal exchange* (2,920).

Next, I narrowed the search to articles published since 2015 using the same search

terms *virtual teams* or *remote teams* or *geographically dispersed teams* (2,174 results);

virtual teams and *knowledge sharing* (88 results), *virtual teams* and *diversity* (115

results), *virtual team leadership* (90 results), *virtual teams* and *time zones* (47 results),

social exchange theory (4,195 results), and *reciprocal exchange* (867 results). Then,

additional keywords were added to the search terms to further narrow in on relevant

scholarly sources: *challenges, cultural diversity, diverse teams, functional diversity,*

geographic diversity, hierarchical diversity, information sharing, intracultural, intercultural, knowledge exchange, leadership approaches, monocultural, multicultural, organizational diversity, organizational relationships, organizational relationship development, spatial, team diversity, team dynamics, tacit knowledge sharing, and *temporal.*

Google Scholar was an alternative search engine used to search for relevant literature. During the search in Google Scholar, I applied the same key terms as used during the search in the university library. Once the initial searches were completed for each section of the literature review, I conducted a weekly search to identify any new sources. The following key terms were applied to the weekly search conducted in Google Scholar: *diversity, diverse virtual teams, knowledge sharing, organizational relationships, tacit knowledge sharing, time zones, virtual leadership,* and *virtual teams*.

The inclusion criteria for literature were as follows: (a) organizational-related articles, (b) relevance to virtual team across various industries, and (c) written in English. Concerning the conceptual framework, I utilized several books relating to social exchange theory and relevant research. Additionally, the reference list of select articles led to seminal works from as far back as 1964 on social exchange theory related literature.

Conceptual Framework

This study was framed through Cropanzano et al.'s (2017) concepts of reciprocal exchange and social exchange. This helped address the purpose of exploring virtual team managers' experiences with knowledge sharing between individuals with varied cultural

perspectives working in different time zones. The findings of this empirical examination

are aimed at advancing scholarship and contributing an enriched understanding of how

intra-organizational relationships influence an individual's willingness to share

knowledge in virtual workspaces and the interaction exhibited in knowledge sharing as a

social exchange. As shown in Figure 1, several factors influence an exchange

relationship.
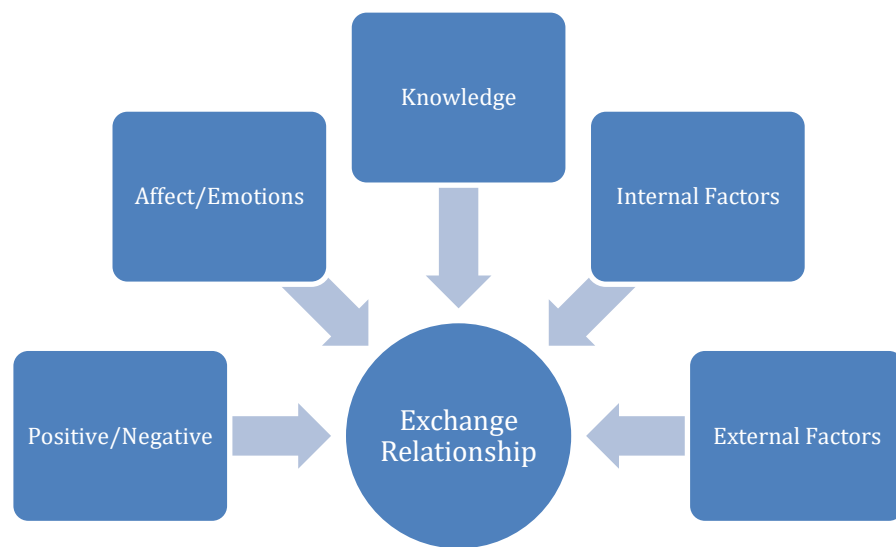
Figure 1. Conceptual framework

The conceptual framework of reciprocal exchange and social exchange relates to

the phenomenon of the study through the conceptions developed by Cropanzano et al.

(2017) and Blau (1964). Cropanzano et al. developed their concepts of reciprocal

exchange and social exchange on the foundation of social exchange theory (Blau, 1964),

which explained that every individual is trying to maximize their wins. Blau stated that

once this concept is understood, it is possible to observe social exchanges everywhere,

not only in market relations but also in other social relations such as with friendship.

Reciprocal exchange is the sequential, nonnegotiated, unilateral rewards that are provided

without an explicit expectation of reciprocity (Lawler, 2001; Lawler et al., 2008; Serenko

& Bontis, 2016a) and social exchange is the exchange of various resources of value,

including goods, services, and knowledge from one individual or group to another

(Lawler et al., 2008; Serenko & Bontis, 2016a). The concepts of reciprocal exchange and

social exchange exhibited common features to explain social phenomena in management

and organizations (Cropanzano et al., 2017). Cropanzano et al. postulated that a series of

successful reciprocal exchanges might influence the development of a high-quality social

exchange relationship providing numerous benefits to employees and organizations,

whereas a series of negative exchanges are presumed to have the opposite effect.

Similarly, positive initiating actions are assumed to elicit positive feelings, and negative

initiating actions are assumed to elicit negative feelings (Cropanzano et al., 2017).

Additionally, Lawler's (2001) affect theory of social exchange incorporates

emotions produced by social exchange as influencers of the strength or weakness of

relationship ties among individuals, groups, and networks. Further, when viewing

networks and teams as micro-social orders, patterns of interactions and exchanges also

emerge from such units (Lawler et al., 2008). Over time, patterns of interactions progress

into a state of cohesion as relationships develop. Identifying the nuances that occur in

intra-organizational relationship development is beneficial in determining an individual's

willingness to share knowledge and the types of knowledge they decide to share.

Likewise, everyday feelings from repeated interactions may produce positive or negative

sentiments about the social unit or individual, thus influencing decisions made about

whether to share knowledge, with whom, and under what terms (Lawler, 2001; Lawler et al., 2008).

Considering that knowledge is an essential component of an organization's functionality and growth, it is essential to understand the dynamic nature of knowledge and how it exists and transfers through an organization with regards to virtual contexts. In this study, knowledge sharing is referred to as the activities that individuals engage in, which involves sending or receiving knowledge from others, and both the sender and receiver are equally entitled to the ownership of the knowledge during this process (Li et al., 2015). The knowledge exchanged in an organization in most cases falls within two categories: explicit and tacit. Explicit knowledge is regarded as searchable information such as with books, manuals, and various types of publications that can be written, taped, or made into a tangible form and easily transferred from one individual to another (Chumg et al., 2015; Razak et al., 2016). Conversely, tacit knowledge is considered highly personalized and difficult to verbalize, capture, and transfer to others, as with first-hand knowledge and experiences over time (Asrar-ul-Haq & Anwar, 2016; Razak et al., 2016).

The exchange of knowledge that transpires in virtual teams is also a dynamic and layered activity. Along a continuum, knowledge can take on different forms, meaning that on a continuum, there is a level of explicitness or tacitness to the knowledge depending on the circumstance (Nonaka & von Krogh, 2009). Further, the alteration of knowledge occurs in four processes: socialization, externalization, combination, and internalization (Nonaka & von Krogh, 2009). In a virtual workspace, managers and

employees rely on their existing knowledge, documented knowledge, and the knowledge of others to perform tasks and achieve goals. Through a process known as knowledge conversion, the knowledge needed to perform tasks and achieve goals could take on varying degrees of explicitness or tacitness depending on where the knowledge originates, the additional knowledge needed, and from there interactively shaping the knowledge to how it will be applied (Nonaka & von Krogh, 2009). The alteration of knowledge based on where it situates on the continuum is influential in exchange relationships through internal and external factors.

Exploring knowledge sharing as a social interaction in intra-organizational relationships may further advance the theory of social exchange, as knowledge is an asset to organizations in terms of competitive advantage and long-term sustainability (Ipe, 2003). External factors such as the individual's perceptions and behaviors, culture, and context dictate the value of knowledge, types of relationships, and rewards that are encouraged or hindered through knowledge sharing (Ipe, 2003; Killingsworth et al., 2016; Peng, 2013). Further, internal factors such as the nature of knowledge, motivations to share, and opportunities to share interconnect while influencing each other on a nonlinear basis (Choudhary & Sarikwal, 2017; Ipe, 2003; Jinyang, 2015). Although each factor does not exert the same amount of influence on knowledge sharing, each of these factors is influenced by elements of an organization such as objectives, structure, practices and policies, and culture (Ipe, 2003). Organizations evolve based on variations with internal and external factors constructed from societal change, creating a cycle that influences knowledge exchange in organizations (Cropanzano et al., 2017).

Researchers have applied reciprocal exchange and social exchange in a broad array of studies to gain an in-depth understanding of diverse social processes. Reciprocal exchange has been considered and applied in several studies relating to knowledge sharing; however, few studies have applied reciprocal exchange to examine knowledge sharing in a virtual team setting (Lin & Lo, 2015; Serenko & Bontis, 2016a). Likewise, the application of social exchange has frequently occurred with both knowledge sharing and virtual teams research; but, there is an absence in the literature incorporating the influence of different time zones into studies (Alsharo et al., 2017; Endres & Chowdhury, 2019; Killingsworth et al., 2016). It is pertinent to develop a comprehensive understanding of modern organizational relationships and the knowledge sharing that occurs in diverse virtual environments across different times zones, considering the environmental and social differences in modern organizations. Conducting this study through the lens of the concepts of reciprocal exchange and social exchange may contribute a deeper understanding of the influence intra-organizational relationships have on an individual's willingness to share varying degrees of explicit and tacit knowledge in diverse virtual team environments and knowledge sharing as a social interaction.

Literature Review

In the past several decades, organizations have dramatically changed how they operate. Modern technology provides organizations with numerous opportunities to collaborate anytime, anywhere, and with whomever they choose. In recent years, organizations have begun utilizing virtual teams to help reduce costs and expand their reach to other locations. This shift in organizational structure has both positive and

negative implications on the organization and its members as they interact and share knowledge across distances to achieve shared objectives. As organizations take on new ways of collaborating and performing duties, it is necessary to understand the changes that are occurring and the effects this has on organization members concerning their ability to share knowledge effectively across temporal distances in diverse virtual workspaces. The following literature review provides an in-depth look at aspects of virtual teams, knowledge sharing, diversity, and leadership, thus identifying the gap in the literature.

Virtual Teams

Virtual teams have become an organizational norm in terms of structure, conducting business, and collaborating across distance, time, and space. Organizations across a wide range of industries utilize various forms of virtual teaming for work productivity and process efficiency. Technological advances and a changing society are top influencers to the rising presence of virtual teams in organizations as they incorporate virtual methods to communicate and accomplish tasks contributing to shared goals and objectives (Gilson et al., 2015). Virtual teams differ from traditional face-to-face teams in that they are comprised of individuals who come together over geographic and temporal distances to accomplish organizational objectives (Romeike et al., 2016). Further, virtual teams exist in various contexts such as global, temporary or project-based, local or regional, permanent, and hybrid (Eisenberg & Mattarelli, 2017; Ford et al., 2017; Kramer, Shuffler, & Feitosa, 2017; Panteli, Yalabik, & Rapti, 2019). The development and composition of virtual teams in organizations are based on numerous factors that are

significant to each organization. For instance, some organizations develop virtual teams to minimize their environmental footprint, expand boundaries and gain access to diverse groups of people, maximize efficiency, or as a means to save time and the economic costs of travel and facility maintenance (Ford et al., 2017; Olaisen & Revang, 2017). As organizations have developed an alternate means for collaboration and productivity, this type of work has taken on various titles such as virtual teams, remote workers, geographically dispersed teams, and teleworking (Eisenberg & Krishnan, 2018; Hill et al., 2014).

Current themes in literature. The interest around virtual teams has grown significantly over the past two decades as scholars investigate the various aspects, challenges, and inner workings of virtual teams. Current literature identifies several themes in virtual team research. From a broad perspective, scholars have examined the shift in types of work pursued, geographic dispersion, levels of virtuality, technological approach, team processes, and how to effectively manage dispersed teams (Blair, 2015; Chen & McDonald, 2015; Dulebohn & Hoch, 2017; Gilson et al., 2015). Additionally, an examination of the progress of virtual teams over a 15-year period highlighted research design, team inputs, team virtuality, and globalization among the top prevalent streams of research scholarship (Gilson et al., 2015). Of these topics, globalization and virtuality, in particular, have appeared in numerous works as researchers investigate the effects dispersion has on team productivity and outcomes (Costa, Fulmer, & Anderson, 2018; Gibbs & Boyraz, 2015; Hacker et al., 2019; Jimenez et al., 2017).

Upon further examination of the literature, there is a noticeable progression of interest in research topics. From the broader discussions of virtual teams, researchers investigate more complex and intertwined matters such as leadership approaches and various forms of diversity (Gibbs, Kim, & Boyraz, 2017; Gibbs, Sivunen, & Boyraz, 2017; Hoch & Dulebohn, 2017; Krawczyk-Brytka, 2017). Trust, team composition, relationships, and organizational engagement surface as critical subtopics in research literature (Costa et al., 2018; Fachrunnisa, Tjahjono, & Palupi, 2018; Gibbs, Kim, et al., 2017; Haakonsson, Obel, Eskildsen, & Burton, 2016). Concerning globalization, cultural diversity has become a meaningful inquiry in research in that differences in national culture and language barriers influence the complex dynamics in teams (Gilson et al., 2015; Han & Beyerlein, 2016). Further, subgroups and faultlines, power and status differences, and communication processes appear in current research are scholars investigate complex human relations (Gibbs, Kim, et al., 2017). Examinations of team performance surface in research from the perspective of transactive memory systems in virtual teams, whereas, the quality of knowledge in virtual team collaboration appears in literature through investigations of knowledge exchange in virtual contexts (Ariff, Sharma, & Arshad, 2015; Hung et al., 2017).

Many theories and concepts were seen across virtual team literature, as researchers observed through different lenses, the various antecedents, influences, and effects. Theories such as social capital, social networking, social exchange, and social identity have been used to examine virtual team dynamics (Ambos et al., 2016; Kim, 2018; Serenko & Bontis, 2016a; Vahtera, Buckley, Aliyev, et al., 2017). Concepts such

as methods of communication, the nature and characteristics of challenges and barriers in virtual teams, differences across industries, and leadership were applied to investigate distinct features of virtual team mechanics (Gupta & Pathak, 2018; Marlow et al., 2017; Nordbäck & Espinosa, 2019; Zuofa & Ochieng, 2017). Whereas, other researchers have explored team types, knowledge sharing, cultural dimensions, and motivational factors (Endres & Chowdhury, 2019; Kramer et al., 2017; Lauring & Jonasson, 2018; Prasad, DeRosa, & Beyerlein, 2017).

Virtual team challenges. The advantages and disadvantages of virtual teams are significantly different from that of traditional face-to-face teams. Scholarly literature argued communication, modern technology, and the incorporation of diversity as ways that virtual teams contribute to an organization's ability to leverage knowledge to maintain a competitive edge (Bhat, Pande, & Ahuja, 2017; Pathak, 2015). Although these factors greatly benefit organizations, they also present distinct challenges inhibiting team and organizational success. Knowledge sharing, collaboration, and team cohesion are among the top adversities influencing effective work performance in virtual team environments (Dulebohn & Hoch, 2017; Hill et al., 2014; Paul et al., 2016).

Barriers in an environment often develop as a result of the challenges experienced with human relations, further impacting acts of communication, decision making, and knowledge sharing. Virtual team employees are challenged with geographically dispersed workspaces, the absence of physical contact, various forms of diversity, and interacting across time and space (Gilson et al., 2015; Haas & Cummings, 2015; Oparaocha, 2016). Many of these challenges become intertwined as virtual teams are often comprised of

multicultural and multi-team members (Foster, Abbey, Callow, Zu, & Wilbon, 2015; Gibbs & Boyraz, 2015). Due to the multifaceted nature of virtual workspaces, effective approaches to leadership, and suitable organizational and reporting structures add to the difficulties experienced by organizations and team members (Zuofa & Ochieng, 2017). It is important to note that no two virtual teams are alike, thus as teams and their members encounter obstacles they must regulate their performance and behavior based on unique situations that arise (Hill & Bartol, 2016).

Communication is dependent upon the interaction that occurs between team members; therefore, in virtual team contexts, despite unique challenges developing adequate social ties is essential. The spatial and temporal distance between virtual team members, coupled with technology, significantly impacts the team's ability to communicate and exchange knowledge effectively. Effective communication in a virtual environment is reliant on an individual's communication skills and comfort with using and communicating over technology. Communication and knowledge sharing in virtual workspaces become increasingly complicated when factoring in differences in time zones, network latency, types of technology, and asynchronous interaction (Ariff et al., 2015; Panteli et al., 2019; Sivunen, Nurmi, & Koroma, 2016). Team members are further challenged by relying on limited personal knowledge of team members and social cues to decipher interactions (Ford et al., 2017; Schaubroeck & Yu, 2017). Developing a shared understanding and cohesion between team members to effectively communicate is conditional to the frequency and quality of the interactions (Ariff et al., 2015; Marlow et al., 2017). Cropanzano et al. (2017) noted that the quality of the exchange relationship is

situated in-between the actor and their target; thus, the actor's behavior initiates the quality of the exchange that is to be reciprocated by the target.

Diversity in modern organizations is nearly unavoidable. However, when experienced in conjunction with the unique challenges in virtual team settings, the implications can be especially unfavorable. Scholars noted both the positive and negative effects on the dynamics, perceptions, and outcomes through their examinations of diversity in virtual team environments (Batarseh, Usher, & Daspit, 2017b; Endres & Chowdhury, 2019; Siebdrat, Hoegl, & Ernst, 2014). Notably, in Kim's (2018) cross-sectional investigation of teams from a geographical, hierarchical, and functional perspective, an emphasis was placed on the considerable level of diversity that exists in each of these contexts and the impact it has on knowledge sharing among organizational members. Kim addressed diversity across various levels in organizations, however, the interplay of other environmental factors was not considered. Further, the need for qualitative research is stressed to better examine the influences of diversity across the broad range of contextual factors and communicative interactions (Kim, 2018). As various forms and levels of diversity in virtual workspaces place tensions on team communication and relationship development, at times, these tensions result in the formation of subgroups and social categorization (Gibbs & Boyraz, 2015).

When conflict arises from the formation of in-and out-groups, a noticeable strain occurs with cohesion and relationship development, which in turn affects team dynamics, productivity, and outcomes. In- and out-groups in virtual team environments have been known to breed conflict and biased information sharing as team members find

commonalities in language, culture, mentality, knowledge level, location, and assigned tasks (Gibbs & Boyraz, 2015; Vahtera, Buckley, Aliyev, et al., 2017; Yilmaz & Pena, 2015). A regression analysis of structural dispersion in virtual teams highlighted the balance of membership in teams and isolation of team members as additional factors contributing to the development of subgroups (Prasad et al., 2017). Although the study includes members' spatial and temporal distances as a data component, it does not address the distance at which virtual team members are affected (Prasad et al., 2017). With that said, research on temporal dimensions of dispersed teams is called upon to better understand faultlines and subgroups as temporal distances present challenges to collaboration and perceptions (Chiu & Staples, 2013).

The context of virtual teams. One of the main attractions of virtual teams is the ability to bring individuals together in a team environment to collaborate over virtual means. The flexibility of utilizing virtual team configurations allows members to interact using a variety of technological applications as well as occasionally in-person collaboration depending on the circumstance. Dynamic, adaptive, and complex systems are some of the terms used to describe virtual teams (Krawczyk-Brytka, 2017). Virtual teams exist on a variety of levels ranging from low virtuality to high virtuality. Teams with less distance between them typically constitute low virtuality, whereas teams with greater distance represent high virtuality (Foster et al., 2015). Utilizing a hybrid of virtuality is common, as some teams with high virtuality experience significant issues with team performance and collaboration. For instance, several researchers emphasized the impact of spatial and temporal distances in virtual teams, noting that both conditions

influence work performance and team collaboration (De Paoli & Ropo, 2015; Espinosa,

Nan, & Carmel, 2015; Prasad et al., 2017).

When comparing the differences between virtual teams and traditional teams, the

distinctions are clear; however, hybrid teams add a new layer of complexity, as there is

room for significant variations to configuration and level of virtuality. Developing a

shared understanding is expressed as an essential component with team development and

performance in hybrid teams as employees associate lower performance with high

virtuality (Hosseini, Bosch-Sijtsema, Arashpour, Chileshe, & Merschbrock, 2018).

Further, the importance of incorporating face-to-face meetings at any level of virtuality

was noted from participants in a qualitative study, as "face-to-face meeting" was

referenced 243 times during data collection (Hosseini et al., 2018). Analysis of a separate

investigation also revealed culture and time as significant factors of trust development in

hybrid teams in a longitudinal case study grounded on the concepts of trust (Cheng, Fu,

& Druckenmiller, 2016). In today's fast paced society, there are many internal and

external factors that team members must balance to effectively collaborate, therefore time

is necessary to develop natural cohesion among members. Likewise, different forms of

culture add to the values, norms, and practices that take shape in organizations (Ipe,

2003).

The facilitation of effective collaboration and knowledge sharing among diverse

team members in virtual environments can truly be a challenge for organizations. Several

scholars agree that the use of technology, cultural differences, and geographic and

temporal dispersion are influential features of a virtual team's ability to come together

and be successful (Foster et al., 2015; Purvanova & Kenda, 2018; Schulze & Krumm, 2017). Likewise, time spent communicating, frequency of communication, and media richness are also identified as primary measures of virtuality in teams (Krawczyk-Brytka, 2017). Researchers have made connections between these features and measures and the various challenges virtual teams experience. For instance, the effects of technology were linked to important knowledge, skills, abilities, and other characteristics (KSAOs) necessary for virtual teamwork (Schulze & Krumm, 2017). Whereas, cultural differences were associated with faultlines, differences in values and norms, and language barriers, all of which have the potential to stir up conflict in an already fragile environment (Gibbs, Sivunen, et al., 2017; Purvanova & Kenda, 2018). Intra-group conflict is proposed as a long-term detriment to team performance in a cross-cultural analysis centered around the concepts of team empowerment and performance (Jiang, Flores, Leelawong, & Manz, 2016). Lastly, geographic and temporal dispersion are linked throughout virtual team literature to the challenges of team configuration, coordination, developing a shared understanding, and social isolation (Gibbs, Kim, et al., 2017; Purvanova & Kenda, 2018; Schulze & Krumm, 2017).

Organizational relationships in virtual team workspaces. Relationships in organizations are an essential requirement for effective knowledge sharing, team performance, and overall success of the organization. Bringing diverse people together across distance, time, and space presents a significant challenge as organizations and leaders strive and at times struggle, to work through the barriers of communication, diversity, and relationship development to further enhance team collaboration and

productivity. Researchers postulated that the lack of social presence could impede the development of organizational relationships (Panteli et al., 2019). Likewise, trust and the quality of communication in virtual teams are highlighted as antecedents to collaboration, a key component for interpersonal, organizational relationships (Kauffmann & Carmi, 2019). Further, the type of virtual team is also a factor in the development of organizational relationships. In a mixed-methods study, temporary and ongoing teams and team processes in e-environments were examined, revealing that although both types of teams had shown higher levels of cognitive-based trust, ongoing teams had higher levels of affective-based trust (Kauffmann & Carmi, 2019). This finding is significant as it alludes to the progression of relationship development over time in ongoing virtual teams. Additionally, through the concepts of social exchange theory, team trust was identified as a facilitator to the exchange and integration of information in virtual teams in investigations of team feedback and trust (Peñarroja et al., 2015).

Inconsistencies are found across the literature relating to the effects of behavior and linguistics among team members in virtual workspaces. Topics such as team behaviors, in-group subtleties, and intergroup contact have provided valuable insight on relationship dynamics in virtual teams as researchers delve deeper into the mechanics of interpersonal relationships in virtual teams (Alvídrez, Piñeiro-Naval, Marcos-Ramos, & Rojas-Solís, 2015; Plotnick, Hiltz, & Privman, 2016; Yilmaz, 2016; Yilmaz & Pena, 2015). In one instance, when group members used negative communication, this action transferred to other group members (Yilmaz & Pena, 2015). Conversely, in a separate occasion, negative communication behaviors were found to trigger higher group

performance (Yilmaz, 2016). Technological incompatibilities and imbalanced communication channels were identified as contributors to in-group dynamics, which ultimately influence the development and quality of relationships within groups and subgroups (Plotnick et al., 2016). But, when in a supervised online setting, stereotyped perceptions were not influenced by disconfirming behavior as found in a quantitative study investigating the impact of online intergroup contact on negative perceptions towards out-groups (Alvídrez et al., 2015).

Knowledge sharing is a vital component of achieving positive team performance and outcomes. However, the act of knowledge sharing is determined by the willingness of the individual to share or exchange information. Research shows that the quality of organizational relationships is a contributing factor in effective knowledge sharing (Ahlf, Horak, Klein, & Yoon, 2019; Torro & Pirkkalainen, 2017). A significant increase was found in the level of relationship commitment through intense and continuous communication processes when studying the demographic homophily in business relationships (Ahlf et al., 2019). Additionally, both asynchronous and synchronous communication proved to be essential in facilitating social ties, which further contributes to effective relationship development and knowledge sharing while using information and communication technology to strengthen social ties (Torro & Pirkkalainen, 2017). Alternatively, numerous research efforts show a clear link to difficulty in transferring tacit knowledge in a virtual team environment (Chumg, Seaton, Cooke, & Ding, 2016; Schaubroeck & Yu, 2017; Vahtera, Buckley, & Aliyev, 2017). However, it is unclear based on scholarly literature, how virtual managers facilitate knowledge sharing between

individuals within diverse virtual teams across dimensions such as different time zones

(Endres & Chowdhury, 2019; Kim, 2018).

Knowledge Sharing in Virtual Workspaces

The digital era provides organizations with an abundance of knowledge; however,

the benefits are conditional to how the information is applied in respective organizations.

Advancements in modern technology provide organizations with the ability to share

knowledge with virtually anyone regardless of distance, time, and space. As a result,

organizations can set up and function anywhere while employing diverse individuals in

alternate locations using technology as their primary means of communication.

Researchers agreed that knowledge is a vital asset to most organizations as it is leveraged

to achieve and maintain competitive advantage (Curtis & Taylor, 2018; Endres &

Chowdhury, 2019; Navimipour & Charband, 2016). Specifically, online knowledge

sharing allows organizations to collect, process, and utilize various types of information

for competitive gains (Charband & Navimipour, 2016). Organizations rely on two

primary types of knowledge, explicit and tacit knowledge, to effectively leverage

information over their competitors (Serenko & Bontis, 2016a). Explicit knowledge refers

to searchable information such as with books, manuals, and various types of publications

that can be written, taped, or made into a tangible form and easily transferred from one

individual to another (Chumg et al., 2015; Razak et al., 2016). Whereas, tacit knowledge

is considered highly personalized and difficult to verbalize, capture, and transfer to

others, as with first-hand knowledge and experiences over time (Asrar-ul-Haq & Anwar,

2016; Razak et al., 2016).

As each organization generally has a unique system in which they rely upon, there are a number of challenges and barriers that inhibit effective sharing and transferring of knowledge. Many organizations, especially those that deal with large amounts of data and information, typically use a knowledge management system (KMS) to capture knowledge and share it across the organization (Aljuwaiber, 2016). KMSs are used to manage various types of information, whether it is in the form of raw or compiled data or exchanged between individuals (Massingham & Al Holaibi, 2017). Knowledge sharing in an organization is a crucial component of KMSs as it is a collective effort among individuals, teams, and departments across the organization (Navimipour & Charband, 2016).

Exchanging information in an organization is a vital link that brings dynamic components together. The act of knowledge sharing is referred to as the activities individuals engage in to send or receive information from one another (Li et al., 2015). This exchange of information is multidimensional in its flow as it can occur between employees in the same office and across multiple levels in an organization where employees send or receive knowledge to different sections, departments, or within their hierarchical chain. Organizations benefit from knowledge sharing as it promotes innovation and creativity and is relied upon for competing across industries (Chae, Seo, & Lee, 2015; Li et al., 2015; Oparaocha, 2016). Knowledge sharing is shown to support and encourage healthy collaboration and interpersonal relationships among employees (Alsharo et al., 2017; Jiang & Hu, 2016). As organizations and employees experience many positive aspects as a result of knowledge sharing, research shows that factors such

as technology, affective commitment, reward systems, and employee well-being influence how information is exchanged and the types of knowledge that is shared (Chumg et al., 2015; Lin & Lo, 2015; Martin-Perez & Martin-Cruz, 2015; Schaubroeck & Yu, 2017).

Current themes in literature. Effective knowledge sharing in modern organizations is a clear necessity. Organizations and scholars acknowledge the value and importance of knowledge sharing in virtual teams as a vital contributor to team and organizational success (Alsharo et al., 2017; Charband & Navimipour, 2016; Hao, Yang, & Shi, 2019; Killingsworth et al., 2016). Scholarly literature identified several themes in research relating to knowledge sharing. With regard to organizational performance, the literature showed a research interest on several knowledge management practices that are human-, organization-, technology- and management process-oriented, as well as knowledge-based human resource management (Charband & Navimipour, 2016; Ghobadi, 2015; Inkinen, 2016). Research on project teams and knowledge sharing in virtual capacities has a strong presence as researchers examined the mechanisms, characteristics, and challenges that are unique to virtual collaboration (Akgün, Keskin, Ayar, & Okunakol, 2017; Navimipour & Charband, 2016; Olaisen & Revang, 2017; Zuofa & Ochieng, 2017). Whereas other research efforts investigated the growing presence of communities of practice (CoPs) and their role in facilitating knowledge sharing among organization members (Aljuwaiber, 2016; Bourdon, Kimble, & Tessier, 2015; Hughes, Tsinopoulos, & Raphael, 2017).

Knowledge sharing can be a challenge for modern organizations as various aspects of culture and diversity add to the dynamics of human interaction and effective communication. Discussions of organizational structure, geographic dispersion, and temporal factors are present in knowledge sharing literature as researchers examine underlying factors of virtual leadership, organizational commitment, and knowledge hiding (Coun et al., 2018; Curtis & Taylor, 2018; Serenko & Bontis, 2016b). As researchers investigated deeper into the mechanisms of virtual teams and knowledge sharing, communication and the interaction among organization members is present in the literature with examinations of individual behaviors of willingness and motivation, cultural differences, and affective commitment (Chumg et al., 2015; Eisenberg & Mattarelli, 2017; Killingsworth et al., 2016; Pee & Lee, 2015; Wehrung, 2017). Team membership and trust add value to the scholarship that surrounds knowledge sharing in virtual teams through the exploration of how one identifies themselves with a team along with the development of interpersonal relationships and trust to facilitate the exchange of high-quality knowledge (Breuer, Huffmeier, & Hertel, 2016; Choi & Cho, 2019; Vahtera, Buckley, Aliyev, et al., 2017).

Technology is an essential component to knowledge exchange in virtual teams. Scholars examine the types of knowledge shared and the technologies used in the process across various industries (De Paoli & Ropo, 2015; Olaisen & Revang, 2017; Qureshi & Evans, 2015). Knowledge management systems and various practices in collecting and processing knowledge were discussed among researchers as well as team members' abilities to effectively use technology (Asrar-ul-Haq & Anwar, 2016; Centobelli,

Cerchione, & Esposito, 2017; Wright, 2015). From a social capital and psychological well-being perspective, positive and negative effects of online knowledge sharing were explored (Charband & Navimipour, 2016; Hsu, 2015; Ma & Chan, 2015). Lastly, researchers investigated enterprise social media, examining the various forms of social media and the effects they have on knowledge sharing (Anders, 2016; Ellison, Gibbs, & Weber, 2015).

      The challenges of knowledge sharing in virtual teams. Technology has dramatically transformed the way organizations collaborate and operate. Virtuality provides a wealth of opportunities to organizations as they expand their boundaries, reduce costs, and gain access to diverse individuals. Organizations have the capability to use technology to leverage knowledge in their respective industries, yet effective knowledge sharing continues to be a challenge, especially in virtual team environments, often hindering team performance and organizational success (Kauffmann & Carmi, 2019; Killingsworth et al., 2016). Factors such as geographic dispersion, diversity, temporal distances, organizational structure, and team configuration are noted across scholarly literature as significant challenges when it comes to sharing knowledge in virtual team environments (Alsharo et al., 2017; Eisenberg & Krishnan, 2018; Hacker et al., 2019). Moreover, the effective transfer and management of various types of knowledge internally and externally to the organization often challenge organizations' ability to remain competitive through the influences of rapid advancements in technology and organizational change (Asrar-ul-Haq & Anwar, 2016; Guedda, 2018; Kim, 2018).

Culture challenges adequate knowledge exchange in organizations through barriers of miscommunication, language diversity, and the lack of shared understanding. Researchers specifically highlighted language, interpretation, differences in cultural meaning, and communication abilities as hindrances in knowledge flow in virtual and multinational corporations (Cavaliere & Lombardi, 2015; Haas & Cummings, 2015; Han & Beyerlein, 2016). Miscommunications often occur as a result of differences in cultural behavior, interaction, perspectives, or communication style, often obstructing the transfer of knowledge among organization members (Connelly & Turel, 2016; Han & Beyerlein, 2016; Schaubroeck & Yu, 2017). The use of various technology platforms is emphasized to assist with virtual collaboration while easing the effects of barriers relating to communication and language differences (Anders, 2016; Leung & Wang, 2015). Concepts of team communication platforms (TCP), social collaborations, and team communication from a systems perspective, were used to examine the implications of enterprise social media to help bridge the gap of distance and time in teams. Applying a mixed methods approach to these concepts revealed that TCP supports positive changes in how communication transpires in virtual settings (Anders, 2016). However, it is interesting to note that alternate concepts of computer-mediated communication were applied qualitatively to develop a better understanding of negotiating meanings during the interactions of native and non-native speakers of English through video calling and instant chat-messaging revealing potentially more loss of face issues with nonnative speakers when using video calling (van der Zwaard & Bannink, 2014).

Ultimately the willingness to share knowledge resides with the individual member. Many organization members are willing to share based on their commitment and investment with the organization, still other motivations include incentives or factors leading to job progression within the organization (Martin-Perez & Martin-Cruz, 2015; Zhang & Jiang, 2015). Researchers confirmed that some organization members resist sharing their knowledge despite the level of regard knowledge is held at in modern organizations and the obvious benefits that result from knowledge sharing (Connelly & Zweig, 2015; Qureshi & Evans, 2015; Serenko & Bontis, 2016b). In some instances where employees feel threatened or vulnerable, behavioral displays of knowledge hostility, hiding, hoarding, or withholding knowledge can surface in organizations (Connelly & Zweig, 2015; Qureshi & Evans, 2015; Serenko & Bontis, 2016b). Additionally, feelings of fear can arise as a significant barrier to knowledge exchange due to insufficient legal frameworks, frequent change, and ineffective enforcement of legal infrastructure when organizations expand their borders (Charband & Navimipour, 2016). Interestingly, knowledge hoarding was noted in an action research study as a significant issue when using staff as knowledge brokers (Massingham & Al Holaibi, 2017). It was revealed in the analysis, grounded in the concepts of knowledge and knowledge management, that increased power to the "knowledge broker" actually became a barrier or blockage to knowledge flow rather than a facilitator (Massingham & Al Holaibi, 2017).

Organizations are looking for new or improved ways of enhancing knowledge sharing. The incorporation of community of practices (CoPs), knowledge forums, and

knowing communities are some approaches used to assist with the collaboration among colleagues (Chrisentary & Barrett, 2015; Harvey, Cohendet, Simon, & Borzillo, 2015; Hwang, Singh, & Argote, 2015). CoPs, knowledge forums, and knowing communities are beneficial to organizational groups as they help facilitate knowledge sharing to aid in the exchange of various types of knowledge, problem solving, and member participation (Aljuwaiber, 2016). Qualitative and quantitative approaches were applied to research efforts to develop a better understanding of said knowledge communities across a variety of industries to extract data such as with the medical field, fortune 500 companies, and even gaming industries (Chrisentary & Barrett, 2015; Harvey et al., 2015; Hwang et al., 2015). Interestingly, researchers have observed knowledge sharing in gaming industries and their knowledge communities as team collaboration, forums, and social media are used to meet goals and objectives with others across time and space and often without direct communication or developed relationships (Harvey et al., 2015; Zheng, Zeng, & Zhang, 2016). Although such interactions are intended to assist with sharing and spreading knowledge throughout a community, they too experience challenges and barriers. For instance, power and active engagement are known issues that surface in such communities hindering the effectiveness of knowledge sharing (Aljuwaiber, 2016; Bourdon et al., 2015). Many CoPs and knowledge forums rely on technology to connect with community members. With that said, factors such as the absence of new or additional knowledge, lack of time, lack of knowledge in general, technology, competing priority, and unfamiliarity with the subject were also identified as barriers impeding knowledge sharing in online platforms (Charband & Navimipour, 2016).

Communicating across distances. Modern technology certainly affords perks and limitations to virtual teams as they collaborate across distances. A variety of applications have been developed to assist with task management, virtual communication, and information sharing. Meher and Mahanjan (2018) listed over 20 methods in which knowledge sharing occurs in virtual teams with many of these methods relying on various technology applications such as wikis, chats, social media, and blogs. Additionally, social networking platforms, instant messaging, and specialized information and communication technology were highlighted as important functions of social collaboration across virtual spaces (Anders, 2016). With that said, barriers reside with team members regarding their effective use of said technologies and the willingness and level of communication they offer to their colleagues (Hacker et al., 2019; Schaubroeck & Yu, 2017). From a leadership perspective, virtual team managers often hinder effective facilitation of knowledge sharing among team members (Killingsworth et al., 2016; Ng & Tung, 2018). Researchers suggested team members should develop significant ties between each other to maximize high-quality knowledge sharing in a virtual environment (Olaisen & Revang, 2017). Similarly, an experimental study drawing on the theories of social exchange and social capital confirmed that social capital factors such as trust and pro-sharing norms, as well as team identification, play a critical role in the quality of knowledge sharing (Hung et al., 2017). With that said, some researchers felt that current technical solutions are adequately developed to replace physical interaction in global projects (Olaisen & Revang, 2017).

Trust is identified in the literature as particularly challenging to establish in virtual workspaces as the lack of face-to-face interaction and asynchronous communication influence the development of organizational relationships. Virtual teams rely heavily on technology as their main source of communication, which impacts how, when, and over which platforms team members choose to communicate. From the perspective of a team environment, trust should enhance social exchange and cooperation due to the behaviors exhibited in general reciprocity expectations (Blau, 1964). However, virtual team environments display vastly different dynamics to that of traditional teams. An examination of trust in virtual teams revealed team trust positively related to commitment, effort intentions, and perceived cohesion, among other factors (Breuer et al., 2016). Not surprisingly, participants of a qualitative study on geographical concepts and telework showed a genuine concern of being left out of possible decision making and the allocation of meaningful work (Sewell & Taskin, 2015) Conversely, in a separate investigation trust did not have a significant impact to the relationships between collaboration and team effectiveness despite the significant influence knowledge sharing had on trust and collaboration (Alsharo et al., 2017). Further, it was acknowledged that while there may not be a direct impact, team effectiveness is an indirect result of team collaboration (Alsharo et al., 2017). The research on trust in virtual teams examined a variety of antecedents, challenges, and factors relating to a host of topics currently affecting organizations. However, several avenues, such as research design, contextual factors, and the consolidation of conceptualizations of trust, are expressed as future directions of research (Costa et al., 2018).

Tacit knowledge sharing in virtual teams. In virtual teams, the dynamics

involved in knowledge sharing are a double-edged sword. Modern technology provides

organizations with creative solutions to share knowledge, yet relationship dynamics,

cultural diversity, and communication barriers often impede successful knowledge

sharing (Alsharo et al., 2017; Han & Beyerlein, 2016; Serenko & Bontis, 2016a). Team

environment factors, including trust and affiliation, and extrinsic and intrinsic motivation

factors are shown to significantly influence knowledge sharing attitudes in global virtual

teams (GVTs) (Killingsworth et al., 2016). Further, knowledge sharing is thought to be a

contributor to establishing social capital and social exchange among virtual team

members (Alsharo et al., 2017). Additionally, network density and connection strength of

social networks, willingness, and the capacity of individual and team attributes positively

relates to effective knowledge collaboration (Gao, Guo, Chen, & Li, 2016).

Organizations rely on various types of knowledge for their day-to-day operations.

Specifically, explicit and tacit knowledge are two primary categories of knowledge

organizations use to operate and meet organizational objectives. In past years, researchers

have focused a significant amount of attention on explicit knowledge (Olaniran, 2017).

As of recent, tacit knowledge sharing, in particular, has surfaced as an interest in that the

successful transfer of tacit knowledge stems from the development of organizational

relationships (Appel-Meulenbroek, Weggeman, & Torkkeli, 2018; Hu & Randel, 2014).

Differing opinions exist regarding how tacit knowledge is acquired and shared. For

instance, some scholars suggested that situations drive knowledge; what works in one

may not work in another (Kucharska & Kowalczyk, 2016). Whereas, others suggested

that individuals drive knowledge sharing through their willingness to share (Olaniran, 2017). Individual personality traits play a significant role in the motivation to share tacit knowledge. Extraversion, agreeableness, emotional stability, openness, motivation, self-efficacy, and mutual trust were found to significantly contribute to one's decision to share tacit knowledge (Rahman, Mannan, Hossain, Zaman, & Hassan, 2018). Researchers proposed that motivational, organizational, and interpersonal factors, as well as individual characteristics and knowledge values, are all impacting to tacit knowledge sharing in organizations (Kharabsheh, Bittel, Einsour, Bettoni, & Berhard, 2016). Similarities are seen in Ipe's (2003) model of conceptual knowledge sharing with the internal and external factors influencing knowledge sharing across an organization. From a social exchange and reciprocal exchange perspective, researchers have explored knowledge sharing in virtual teams relating to topics such as collaborative norms, and individual and team interactions. However, little attention has been paid specifically to tacit knowledge sharing in virtual teams through the lens of social and reciprocal exchange (Endres & Chowdhury, 2019; Hung et al., 2017).

Diversity in Virtual Teams

Modern organizations without question are significantly more diverse in comparison to organizations of past decades. Diversity is commonly defined as the group characteristics that refer to demographic differences such as gender, race, ethnicity, or nationality, all of which potentially contribute to a cultural identity that stems from membership in socioculturally distinct demographic groups (Hajro et al., 2017). Diversity from an organizational perspective refers to how members are categorized by the

functional areas of work, geographical dispersion of employees, and by hierarchical

levels (Kim, 2018). Considering the many ways diversity is present in organizations, it is

often exhibited in layers involving individual members, formal and informal groups and

subgroups, departments, and collectively at the organizational level. Today's virtual team

leaders are faced with the challenging task of harnessing the unique traits, skills, and

knowledge of diverse team members to effectively come together to meet team goals and

objectives (Eisenberg, Gibbs, & Erhardt, 2016; Gheni et al., 2015).

     As modern organizations continue to embrace diversity and cultural differences in

virtual team environments, it is essential to understand the impact team members

experience concerning relationship development, communication and interaction, and

knowledge sharing behavior. Culture, from the perspective of Hofstede (1980), is

recognized as the collective programming of the human mind, distinguishing members of

one human group from another. Culture exists within many different environments in

society from a personal level up to an organizational level. When examining diversity

from a national cultural perspective in scholarly literature, researchers have formulated

two layers of diversity: surface-level attributes and deep-level attributes (Marlow et al.,

2017). Surface-level attributes refer to age, gender, race, and physical disabilities,

whereas deep-level attributes signify cognitive ability, personality traits, values, beliefs,

and attitudes (Han & Beyerlein, 2016; Tenzer, Pudelko, & Harzing, 2014). With that

said, researchers suggested an additional level of diversity that significantly impacts

organizations. Functional diversity is less about one's culture and more about their

knowledge, skills, information, and expertise (Batarseh, Usher, & Daspit, 2017a). Each of

these categories of attributes plays a prominent role in how organization members come together to achieve shared goals.

Current themes in literature. Collaborating across time and space in recent years has significantly impacted the level of diversity in organizations. Several themes were identified in current literature regarding diversity in virtual team research. From a broad perspective, scholars have examined topics of diversity on a global and multicultural level, such as with GVTs and multinational enterprises (Batarseh et al., 2017b; Eisenberg & Mattarelli, 2017; Kramer et al., 2017; Leung & Wang, 2015). Advancing technology has played a prominent role in supporting the collaboration of diverse virtual teams. Examinations of cross-cultural information systems among various levels of users from the national level to the individual level, as well corporate level users to end users, are present in the literature (Chu, Luo, & Chen, 2019). Also found in this topic of research, were the discussions of the various lenses researchers used to explore and analyze cultural dimensions that differ from that of Hofstede's cultural dimensions such as with Baskerville, Fang, and McSweeney (Baskerville, 2003; Chu et al., 2019; Fang, 2003; Hofstede, 1980; McSweeney, 2002). Of these topics, demographic differences, language diversity, and communication, in particular, have appeared in numerous works as researchers investigated the influences of diversity and cultural effects on team collaboration (Ahlf et al., 2019; Chang, Hsieh, & Hung, 2014; Lauring & Jonasson, 2018).

Upon further examination of the literature, there was a noticeable progression of interest in research topics. From the broader discussions of diversity in virtual teams,

researchers investigated more complex and intertwined matters such as leadership

approaches and functional diversity (Cheung, Gong, Wang, Zhou, & Shi, 2016; Dziatzko,

Struve, & Stehr, 2017; J. Hoch, 2014). Trust, intercultural competencies, human factors,

and affective responses were revealed as critical subtopics in research efforts (Collins,

Chou, Warner, & Rowley, 2017; Nguyen & Fussell, 2015; Tenzer et al., 2014; Zwerg-

Villegas & Martínez-Díaz, 2016). Further, technology, mindset, and communication have

become meaningful interests in research concerning globalization in that differences in

national culture and communication barriers influence the complex dynamics in teams

(Kadar, Moise, & Colomba, 2014; Moeller, Maley, & Harvey, 2016; Walker, Cardon, &

Aritz, 2018). In a study applying an ethnographic fieldwork approach, researchers

explored language differences, media choice, and social categorization in multinational

corporations (Schneider, Klitmøller, & Jonsen, 2015). Whereas, an examination of

university students led to a deeper understanding of social media and international

differences in a virtual team setting (Luck, Swartz, Barbosa, & Crawford, 2019).

Many theories and concepts were seen across the literature concerning diversity

and virtual teams, as researchers observed the various influences and effects. Theories

such as media choice motivated information processing in groups, organizational

network, and social identity were applied to examine the interactions of diverse virtual

teams (Cheung et al., 2016; Tenzer & Pudelko, 2016; Vahtera, Buckley, Aliyev, et al.,

2017). Whereas, concepts such as socio-technical framework, social network approach,

integrated collaborative processes, and Hofstede's cultural dimensions were considered

during investigating processes when considering the various aspects of diversity in virtual

teams (Bashir & Usuro, 2017; Batarseh et al., 2017a; Kim, 2018; Leung & Wang, 2015).

Still, other researchers have explored improving performance, productivity, intercultural

conflict, and perceived diversity (Dube & Marnewick, 2016; Hamersly & Land, 2015; He

et al., 2017; Medina, 2016).

The challenges of diversity in virtual teams. Diversity in virtual team

environments offers organizations a plethora of opportunities for team innovation,

diverse knowledge, performance, and outcomes; however, researchers emphasize the

management of diversity is significantly challenging in modern organizational structures

(Lu, Chen, Huang, & Chien, 2015). Scholarly literature acknowledged the hindering

effects organizational diversity can have on social integration, collaboration, and

knowledge sharing in team environments (Han & Beyerlein, 2016; Kim, 2018; Liao,

2017). Specifically noted were the difficulties that reside with culture, technical, and

experiential differences along with developing a shared understanding and trust (Batarseh

et al., 2017a). Eisenberg and Krishnan (2018) added that addressing diversity in a virtual

setting can be especially challenging as team members must effectively use technology to

overcome barriers. Thus, if team members do not possess adequate communication and

technology skills, it can add to the number of problems they experience.

To effectively work as a team on shared goals and objectives, teams must develop

a level of team cohesion. Team cohesion is, at times, exacerbated in virtual workspaces

by the influences of cultural differences and the formation of subgroups (Paul et al.,

2016). Trust, in particular, has been noted throughout scholarly literature as a challenge

to attain in virtual environments (Hacker et al., 2019). Researchers confirmed that team

trust in virtual teams overall positively correlates to team effectiveness criteria such as team-related attitudes, information processing in teams, and team performance (Breuer et al., 2016). Further, the study also showed that team trust significantly relates to knowledge sharing and team learning (Breuer et al., 2016). Although the results could not speak for other moderating factors such as demographic and geographic diversity, it is reasonable to assume that the challenges of diversity, in general, could influence trust development in virtual teams (Breuer et al., 2016). From a different perspective, geographic, functional, and hierarchical diversity also play a role in team collaboration, specifically with the level of knowledge sharing occurrences (Kim, 2018). Findings revealed that geographic diversity was negatively associated with knowledge transfer, while functional and hierarchical diversity did not exhibit significant effects, though functional diversity displayed a negative relationship with awareness of expertise (Kim, 2018). These findings are noteworthy as they conflict with other studies examining collaborative knowledge sharing and functional diversity (Cheung et al., 2016; Yoo, 2015).

Many of the themes in scholarly literature concerning diversity and virtual teams are often entangled with multiple concepts and elements as researchers continue to explore the various types of diversity in virtual contexts. The negative effects of diversity often surface in the quality of decision making, intra-team conflict, poor performance, and hindered relationship development (Batarseh et al., 2017a; Eisenberg & Krishnan, 2018). Miscommunication, differences between high- and low context cultures, and the lack of understanding of differing cultural values contribute to the complications of

cultural diversity in organizations (Ambos et al., 2016; Han & Beyerlein, 2016; Marlow et al., 2017). As a result, workspaces often suffer from low employee morale, difficulty in developing close interpersonal ties, poor job performance, and increased conflict (Guillaume, Dawson, Otaye-Ebede, Woods, & West, 2017; Jimenez et al., 2017).

Alternatively, some researchers felt that a virtual environment supported by effective technology applications negates some of the negative aspects associated with diversity in a virtual team context. Results of an ethnographic study showed that when members correspond through written media, less social categorization was experienced (Schneider et al., 2015). With that said, social media and chat applications are thought to benefit virtual environments in that they bring dynamic interaction to asynchronous communication at a level that is comfortable among diverse populations (Lahti, 2015; McFarland & Ployhart, 2015; van der Zwaard & Bannink, 2014). From the perspective of generational differences, the use of technology in formative years suggests a shift in how society communicates; this is significant considering the vast changes occurring in how organizations collaborate across distances with diverse populations (Eisenberg & Krishnan, 2018; Liao, 2017).

Communicating across cultures. Multiculturalism in virtual teams adds a complex layer of dynamics to organizations through linguistic differences and variances in cultural norms. Multinational teams and GVTs were highlighted in the literature when focusing on issues of culture in virtual teams (Klitmøller & Lauring, 2013; Lauring & Jonasson, 2018; Paul et al., 2016; Tenzer et al., 2014). However, it is reasonable to assume that complex cultural dynamics can have just as much of an impact on domestic

virtual teams when considering the migration of diverse people across the globe. Researchers have investigated language barriers in virtual context to determine influences on trust, media choice with knowledge sharing, and inclusive group attitudes (Klitmøller & Lauring, 2013; Lauring & Jonasson, 2018; Tenzer et al., 2014). Whereas, in literature relating to the topic of leadership and culture in virtual teams, scholars explored team building in international virtual teams, enhancing the sense of purpose in GVTs, and leadership competencies, (Barnwell, Nedrick, Rudolph, Sesay, & Wellen, 2014; Derven, 2016; Maduka, Edwards, Greenwood, Osborne, & Babatunde, 2018).

Traditional face-to-face teams have the upper hand when it comes to communicating across cultures as team members have access to nonverbal social cues during interactions. With that said, culture influences one's perceptions, communication style, and how they process their environmental surroundings (Davis & Scaffidi-Clarke, 2016). The absence of physical interaction in virtual team settings feeds into vulnerabilities of the team as members try to decipher differences in language and contextual meaning, and communication styles and preferences. As such, language diversity impacts one's emotional state generating feelings of restriction, apprehension, and anxiousness, which further influences the development of trust and knowledge sharing within the team (Tenzer et al., 2014). A qualitative comparison study on monolingual and multilingual virtual teams revealed that language barriers were highly disruptive when exchanging knowledge, further noting language accents and low proficiency in working language as hindrances (Tenzer & Pudelko, 2016). Additionally, language barriers were identified as a theme in trust development among different groups

in a longitudinal case study grounded in the concepts of culture and trust, involving

multicultural and unicultural semi-virtual teams (Cheng et al., 2016).

Conflict is bound to happen in a team environment regardless of the various

cultural influences present in the team. Conflict in an organization can have both positive

and negative effects, depending on how it is managed and mitigated (Feitosa, Grossman,

& Salazar, 2018). Though national culture is seen as beneficial to stimulating innovation

and creativity, it can also adversely affect team processes through increased conflict

resulting in reduced team cohesion (Paul, He, & Dennis, 2018). Researchers suggested

language barriers, communication styles, and cultural styles of negotiation as possible

explanations for intercultural conflict among team members (He et al., 2017). Not

surprisingly, a positive correlation was found between diversity in team composition and

relationship conflict, further affecting team performance in a study of project teams in Sri

Lanka (Wickramasinghe & Nandula, 2015). Additionally, it was noted that team

leadership was a moderator between conflict and performance; thus, team leader support

may reduce negative relationship conflict in a team (Wickramasinghe & Nandula, 2015).

In a discussion of understanding culture as a virtual team leader, high- and low-context

were emphasized in differences among communication styles, noting that the

understanding of various types of culture is beneficial to virtual team leaders (Davis &

Scaffidi-Clarke, 2016).

Intercultural competencies are necessary for members of culturally diverse virtual

teams to effectively work together, whether it is through effective communication,

developing a shared understanding, efficient team performance, or quality decision-

making. Through a lens of constructivism and technology-based education, language related difficulties, stereotypes, and prejudices were identified as primary differences between a controlled and experimental group examining intercultural and virtual competencies (Zwerg-Villegas & Martínez-Díaz, 2016). As predicted, students of the digital generation in the study were able to navigate and communicate effectively over virtual means (Zwerg-Villegas & Martínez-Díaz, 2016). Interestingly, as discussed in virtual team literature, emergent patterns of switching behavior among high- and low context cultures confirmed the influence of culture on intercultural communication styles and cultural values despite the context of a virtual workspace (Zakaria, 2017). A study on mono- and multicultural teams resulted in homogenous teams communicating more effectively while generating many solutions to a proposed problem, whereas the heterogeneous team showed a high level of communication; that being said, there was a lack of effective solutions to the proposed problem (Kimberley & Flak, 2018). It is noteworthy to mention that in this particular study, the homogenous team preferred to communicate face-to-face and did not utilize management tools to achieve high output results (Kimberley & Flak, 2018). Although modern technology can mask some cultural differences during various types of technology-based communication, it is apparent that an individual's communication preference still dictates how they choose to integrate technology into their communication style (Han & Beyerlein, 2016).

Virtual Team Leadership

Leadership is often the topic of discussion when examining success and failure in an organization. Scholars across various disciplines have emphasized the importance

team leaders hold in virtual collaboration to generate high performance across dispersed

team members (Hill & Bartol, 2016; Maduka et al., 2018; Scott, Jiang, Wildman, &

Griffith, 2018). From a broad and conceptual perspective, leadership is described as a

process of exerting intentional influence by one person over another person or group to

achieve a specific outcome in a group or organization (Reichenpfader, Carlford, &

Nilsen, 2015). Though leadership has rapidly evolved over the past several decades, it is

still seen as the heart and soul of organizations in an ever-changing society (Singh, Singh,

& Singh, 2018). Globalization and modern technology play a prominent role in the

transformation of organizational leadership (Eisenberg & Krishnan, 2018; Gilson et al.,

2015; Lim, 2018). With that said, as borders expand and diversity increases in

organizations, cultural context becomes an important variable in leadership approach and

how it is viewed across the world (Singh et al., 2018).

  As organizations have evolved, the structure of leadership has also shifted. In the

past, organizations traditionally applied leadership using a top-down hierarchical

structure, whereas contemporary organizations are incorporating lateral structures to

accommodate dynamic team structures across various contexts (Lee & Edmondson,

2017). Non-hierarchical structures such as shared leadership, distributed leadership, and

collective leadership follow a network paradigm where leadership is dependent on the

relationships that exist within the system (Scott et al., 2018). Leadership as a network

refers to an emergent relational process of mutual influence among team members

(Carter, DeChurch, Braun, & Contractor, 2015; Scott et al., 2018). Virtuality and social

aspects such as identity and behavior are among the topics in the literature examining

influences in network environments (Ambos et al., 2016; Wilson, Crisp, & Mortensen, 2013; Yilmaz & Pena, 2015). Although hierarchical leadership is still applied in face-to-face and virtual team environments, there are mixed reviews on the effectiveness of hierarchical versus non-hierarchical leadership (Eisenberg et al., 2016; Robert, 2013).

Leadership in modern society comes in all shapes and sizes, adapting to a variety of organizational structures and contexts in which organizations operate. As leadership spans across micro, meso, and macro levels in organizations, the focus and application of leadership is conditional to the level and environment at which it occurs. Agile leadership and hybrid skills are relied upon to navigate the ever-changing digital environment of contemporary organizations (Li, Liu, Belitski, Ghobadian, & O'Regan, 2016). The incorporation of virtual teams is one approach organizations use to adapt to modern influences of globalization and technology. Effective leadership in high performance teams is an essential factor as leaders navigate unpredictable and ever-changing obstacles across industries (Scott et al., 2018). As virtual team leadership functions at both the individual and team level, leaders must balance and facilitate task and socioemotional processes and behaviors throughout the team (Liao, 2017).

Current themes in literature. As globalization continues to influence modern organizations, considerable attention is paid to the global aspect of virtual team leadership in scholarly literature. Researchers also examined the application of various leadership approaches in a virtual context and the dynamics that occur among team leaders and members in those settings (Charlier, Stewart, Greco, & Reeves, 2016; Liao, 2017; Liu et al., 2018; Nordbäck & Espinosa, 2019). A variety of topics were present in

scholarly literature regarding leadership in virtual teams. Current themes in the literature included different types and styles of leadership displayed in virtual teams such as self-directed leadership, shared leadership, emergent leadership, and transformational leadership (Coun et al., 2018; Hoch & Dulebohn, 2017; Lim, 2018). Whereas, other research efforts included investigations of leadership traits and behaviors and leadership from a multilevel perspective (Gilson et al., 2015; Liao, 2017). As the composition of organizations becomes more diverse, there is a focus on how leaders effectively interact and collaborate with employees to build trust, monitor productivity, and enhance visibility in- and outside the organization (Eisenberg & Krishnan, 2018).

E-leadership is an interesting vein in leadership literature as it discusses the leadership of the digital era. Topics concerning trust building, training and development, e-leader's skills and guidelines, culture, and e-leadership outcomes were the primary themes found in a recent literature review focusing on e-leadership studies (Oh & Chua, 2018). Current studies on e-leadership explored virtual leadership at a fundamental and operational level, layered leadership concepts and styles, enterprise environments, and challenges faced by e-leaders (Gheni et al., 2015; Li et al., 2016; Liu et al., 2018; Van Wart, Roman, Wang, & Liu, 2019). The topics discussed in this vein of research clearly show the importance leadership holds in a virtual team environment as scholars and the field collaborate and investigate how to adapt the leadership role to meet the needs of virtual team environments (Gilson et al., 2015). Incidentally, a call for more studies on e-leadership was highlighted as researchers noted the scarcity of studies, in particular, studies using qualitative methods (Liu et al., 2018; Oh & Chua, 2018).

Virtual leadership challenges. Leaders in virtual environments provide numerous benefits to organizations as they strive for high performance operations across distance, time, and space. The leaders of today have access to a wealth of technology and knowledge to streamline processes, diverse groups of people in which to collaborate, and flexible environments to accomplish objectives (Hill & Bartol, 2016). Yet, virtual teams are not known for their success. The absence of effective leadership, lack of social presence or engagement, and stagnant leadership styles are identified as reasons a virtual team might fail (Iorio & Taylor, 2015; Maduka et al., 2018; Purvanova & Kenda, 2018).

Leadership has taken some dramatic shifts over the past several decades to accommodate for an evolving society. Researchers highlighted that leadership does not come in a one-size fit all application, yet this is the expectation of many dynamics virtual teams (Eisenberg et al., 2016; Gupta & Pathak, 2018). Due to the nature and versatility of virtual and dispersed environments, leadership is presented with unique challenges concerning collaboration over technology, motivation, communication, and productivity (Eisenberg & Krishnan, 2018; Iorio & Taylor, 2015; Liao, 2017). Dimensions of virtual team structure such as location, virtuality, and national diversity at times interfere with essential team dynamics (Eisenberg et al., 2016). As a result, virtual team leaders often obstruct critical exchanges in knowledge due to the lack of understanding of their diverse team members (Killingsworth et al., 2016; T. W. H. Ng, 2017).

Communication plays a critical role in virtual team collaboration that primarily takes place in virtual and asynchronous environments. Yet, research showed that virtual teams often lack sufficient communicative interaction and abilities to meet the demands

of virtual workspaces (Alsharo et al., 2017; Schaubroeck & Yu, 2017). Researchers have examined communication from various types of leadership perspectives such as emergent, transformation, and e-leadership (Charlier et al., 2016; Darics, 2017; Eisenberg, Post, & DiTomaso, 2019). Adaptive structuration theory was used to examine communication constructs on emergent leaders, revealing a relationship between communication apprehension, text-based communication ability, and leadership emergence (Charlier et al., 2016). Whereas, grounded practical theory was applied to the exploration of nonverbal communication in virtual leadership (Darics, 2017). Both studies confirmed digital communication as a valuable resource for leadership interaction that leads to a higher quality of communication among members (Charlier et al., 2016; Darics, 2017).

Considering the amount of communication that takes place over technology in virtual environments and the lack of physical interaction, a degree of trust is required to build effective collaborative relationships. Of the leadership challenges examined in virtual workspaces, researchers agreed that trust plays an integral role in virtual team success based on its influences on numerous virtual team dynamics (De Paoli & Ropo, 2015; Eisenberg et al., 2019; Ford et al., 2017). From a leadership perspective, trust has been examined across various fields through concepts of emotional intelligence, social intelligence, team effectiveness, and empowerment (Breuer et al., 2016; Jiménez, 2018; Rahim, Civelek, & Liang, 2018; Wu & Lee, 2017). With regards to virtual teams, researchers have examined trust relating to aspects of leadership influences, relationship development and quality, collaboration, and effectiveness (Breuer et al., 2016; De Paoli

& Ropo, 2015; Eisenberg & Krishnan, 2018; Liao, 2017; Wong & Berntzen, 2019). Liao (2017) proposed that virtual leaders influence effectiveness in virtual teams through trust. Further, a meta-analysis on trust and effectiveness in virtual teams confirmed that overall team trust positively relates to aspects of team effectiveness (Breuer et al., 2016).

Approaches to virtual leadership. E-leadership is a form of leadership that occurs in virtual platforms. With that said, many other leadership approaches exist in virtual workspaces such as shared, transformational, emergent, and other styles based on the organization's leadership preference (Eisenberg et al., 2016; Liao, 2017). Presently, e-leadership is defined as the social influence process embedded in both proximal and distal contexts mediated by advanced information technology that can produce changes in attitudes, feelings, thinking, behavior, and performance (Avolio, Sosik, Kahai, & Baker, 2014). Despite increasing research of virtual teams, there is a gap in integrating specific challenges of virtual team leaders and respective solutions to issues such as effective knowledge-sharing across academic literature and industry practices (Eisenberg & Krishnan, 2018). Several leadership approaches utilized in a virtual team context are examined in this section, noting their strengths and weaknesses to team performance and effective knowledge sharing.

E-leadership offers organizations across an array of industries, large and small, significant opportunities and capabilities to operate, collaborate, and expand over technological platforms. However, scholars emphasized that e-leaders require a skill set that is beyond traditional management, operations, and strategy (Li et al., 2016; Oh & Chua, 2018). Agile leadership and hybrid skills were deemed as essential constructs in a

study on small- and medium-sized organizations in Europe, to support agile culture and the implementation of new technology (Li et al., 2016). Similarly, facilitating conditions such as training and technical support are positively associated with select traits and skills and e-leadership adoption (Liu et al., 2018). Select traits and skills were identified as enthusiasm, energy, assuming responsibility, flexibility, strong analytic and technical skills, and informed on the latest technological advancements (Liu et al., 2018). The research for both of these studies were conducted in different regions of the world; however, each identified specific leadership needs for leading organization members across the digital age. Moreover, researchers postulated that special approaches are necessary, questioning the validity of previous theories developed around traditional face-to-face teams when considering the application of leadership and virtual collaboration (Eisenberg et al., 2016).

The integration of virtual teams in organizations has undoubtedly influenced the ways organizations operate, creating complex and diverse environments in which groups of people collaborate towards a common goal or objective. Research on shared and emergent leadership has increased as researchers examine the various influences and effects they have in virtual environments (Charlier et al., 2016; Han, Chae, Macko, Park, & Beyerlein, 2017; Hoch & Dulebohn, 2017; Nordbäck & Espinosa, 2019). Still, other scholars have explored empowering and transformational leadership as ways of overcoming the challenges and obstacles of leading in such complex workspaces (Avolio et al., 2014; Coun et al., 2018; Hill & Bartol, 2016).

As organizational structure evolves to accommodate for virtual teams, approaches such as shared leadership offer organizations alternative approaches to managing dispersed team members. Shared leadership refers to the collective process involving multiple members that lead or take part in team leadership functions (Hoch & Dulebohn, 2017). This approach to leadership in a virtual team setting presents many opportunities for teams to self-manage and self-lead as they collaborate on tasks and decision making (Hoch & Dulebohn, 2017). Researchers speculate that collaborative behavior in a shared leadership environment contributes to high team performance through increased trust and knowledge sharing, further resulting in positive team and organizational outcomes (Hoch & Dulebohn, 2017). However, an emphasis is placed on the power of willingness in shared leadership roles between the team leader and the team member (Hoegl & Muethel, 2016). Interestingly, researchers have investigated shared leadership through a social exchange perspective in conjunction with other leadership approaches such as transformational leadership, noting that two approaches together stimulated knowledge sharing (Coun et al., 2018).

Research on shared leadership showed mixed findings regarding the effect it has in a team environment. In regards to shared leadership and team performance in diverse teams, team performance and information sharing positively correlated with this approach to leadership (Hoch, 2014). With that said, notable differences in the association between high team diversity and low team diversity were exhibited (Hoch, 2014). Displays of negative and positive effects at both the individual and team levels were apparent when examining shared leadership in diverse virtual teams (Robert, 2013).

Several reasons factor into the differences in findings; though, diversity and the team environment, in particular, stand out in these two studies. That being said, it was proposed that perhaps, a combination of both vertical and shared leadership is necessary as team and task structure greatly influence virtual team dynamics (Eisenberg et al., 2016).

The dispersion of employees, coupled with independent task requirements at times, requires less guidance and leadership. In many cases, virtual teams exist without a defined leadership position, relying on self-management to monitor and guide work performance while making individual decisions about an individual's work to meet shared objectives (Hoch & Dulebohn, 2017). Although this approach allows freedom in the decision making processes and flexibility to guide work, the lack of leadership influence often creates failure within the team and their performance outcomes (Hoch & Dulebohn, 2017). In the assessment of necessary KSAOs of virtual team members, self-management was identified as an essential skill for many reasons that include planning, scheduling, and strategizing (Schulze & Krumm, 2017). From an organizational aspect, self-management brings decision-making down to the operations level cutting out unnecessary red tape, which can be time consuming and delay critical problem solving efforts (Srivastava & Jain, 2017).

From an alternate perspective, emergent leadership has surfaced in virtual self-managed teams, presenting an opportunity for higher performance of team outcomes through the influences of emergent leaders. Emergent leadership takes place at the individual level where a leader emerges in the team and holds a significant influence over

the group even though authority may not be assigned to them (Charlier et al., 2016; Gibbs, Sivunen, et al., 2017; Hoch & Dulebohn, 2017). Current studies on emergent leadership in virtual contexts are less prominent than other leadership approaches. However, two notable studies examined emergent leadership along with aspects of dispersed teams and self-management (Carter & Becker, 2017; Charlier et al., 2016). Through an investigation of team configuration grounded in adaptive structuration theory, the physical disbursement of team members showed a significant effect on the perceptions of emergent leadership, specifically with the different use and interpretation of communication that occurs in virtual teams (Charlier et al., 2016). Task and culture were also found to influence leadership behaviors of emergent leadership in self-managed teams (Carter & Becker, 2017). The use of university students in both studies is noteworthy when considering a conceptual examination of emergent leadership and "strong" leadership. The examination proposed that emergent leadership will likely be more effective in student samples of virtual teams whereas "strong" leadership is likely to be more effective in organizational virtual teams (Gibbs, Sivunen, et al., 2017).

Of the various approaches to leadership in virtual teams, empowering leadership surfaced in the literature, though limited in recent studies. As scholars highlighted the benefits of distributed leadership in virtual team environments, empowering leadership was emphasized as an approach that is well suited for meeting the demands experienced in dispersed team environments (Hill & Bartol, 2016). Empowering leadership, originating from different types of traditional leadership theories, is described as sharing power with subordinates while engaging in actions that elevate intrinsic motivation (Wu

& Lee, 2017). Positive and significant association of empowering leadership was found in virtual collaboration during an exploration of empowering leadership and the effect of collaboration in geographically dispersed teams (Hill & Bartol, 2016). Similarly, a phenomenological approach taken with leadership in virtual CoPs revealed empowerment as an emergent theme (Chrisentary & Barrett, 2015). Several studies examined empowering leadership, noting a connection to transformational leadership and the influence it has on knowledge sharing; however, virtuality was not included in the criteria of the research (Wu & Lee, 2017; Xiao, Zhang, & Ordóñez de Pablos, 2017).

Of the various leadership approaches that have been studied, transformational leadership has a powerful presence in organizations through its charismatic and positive attributes. Transformational leaders are known to enhance motivation and the wellbeing of their subordinates, resulting in higher levels of organizational commitment (Xiao et al., 2017). In literature, transformational leadership is often associated with success in motivating and influencing team environments; however, the landscape of virtual teams offers unique challenges and barriers that impact how transformational leaders are perceived in diverse and dispersed virtual settings (Eisenberg et al., 2019; Wong & Berntzen, 2019). Transformational leadership in a highly dispersed environment was shown to be less effective decreasing team communication and team performance (Eisenberg et al., 2019). Similarly, when examined through the lens of leader–member exchange, transformational leadership in geographically dispersed settings showed that electronic dependence had a negative influence on leader–member exchange quality (Wong & Berntzen, 2019). This examination considerably relates to reported findings

showing that the electronic dependence in a geographically dispersed team influences the depth of the relationship that develops between the leader and its members, further influencing the potential impact the leader has on its team (Eisenberg et al., 2019). On the contrary, the adverse effects of language diversity in global virtual teams were weakened by healthy levels of inspirational motivation in leadership, which happens to be an element of transformational leadership (Lauring & Jonasson, 2018). Further, transformational leaders were identified as an essential consideration when selecting virtual team leaders based on their reputation for achieving high-performance teams (Maduka et al., 2018).

   Leading virtual teams across time zones. Leading virtual teams across time zones present invaluable benefits to organizations, as they can collaborate across distance, time, and space with diverse individuals while reducing costs of travel and infrastructure. With that said, such benefits come with a price. Challenges and barriers not typical of traditional face-to-face teams and practices have a significant effect on virtual team collaboration, outcomes, and overall success. As organizations continue to step away from traditional practices, leadership must evolve with the conditions of modern organizations to better facilitate and support employee engagement and productivity. Organizations are expanding their operations to span beyond regional and national boundaries. In many cases, virtual teams are separated by numerous time zones as they coordinate and collaborate on projects and tasks. The importance of virtual team leader competencies is emphasized, namely trust, to increase the effectiveness and performance of virtual teams, noting that many of the components that contribute to

virtual team success revolves around the foundations of trust to support relationship development (Maduka et al., 2018). Early research on virtual teams focused on surface-level differences to that of traditional face-to-face teams uncovering vast and complex issues that are not only multi-dimensional but also multi-layered in how they are perceived and interpreted (Gibbs, Kim, et al., 2017). Nevertheless, scholars recognized that the more that is discovered about virtual team collaboration, functionality, and differences in dispersion and composition; it only skims the surface of what is yet to be uncovered regarding virtual teams as they continue to evolve with society and technology (Gibbs, Kim, et al., 2017).

Recent research on leading across time zones is scant. However, factors such as spatial dispersion across hemispheres in similar time zones, variances of work hours, perception of objectives are all telling of the complexities that exist within virtual team dynamics and functionality (Gibbs, Kim, et al., 2017; Sivunen et al., 2016). Time tension is identified as one of three factors in the geographic dispersion paradox directly affecting coordination and extended work cycles (Purvanova & Kenda, 2018). An examination of virtual team collaboration highlighted the challenges of leading virtual teams across a multitude of layered dimensions, one being time zones as leaders are faced with navigating a virtual workspace that consists of lean communication, limited social presence, and context cues (Eisenberg et al., 2016). Moreover, a qualitative study revealed that not only does the difference in time play a significant role in successful collaboration, but also the direction of the time difference is an important factor in the visibility of temporal boundaries (Sivunen et al., 2016).

Identifying Gaps in the Literature

Virtual teams have significantly influenced organizations over the past two decades as a result of advancing technology and the spread of globalization. Trends show that more and more organizations are incorporating virtuality into their structures as remote work across the nation continues to rise (Gallup, 2016). As people across the world migrate to other areas, the influence of cultural diversity in organizations also increases. Virtual teams clearly offer numerous benefits regarding how members come together to achieve goals and objectives. Nevertheless, there are just as many disadvantages. Knowledge sharing, collaboration, and team cohesion are known adversities in virtual team environments (Dulebohn & Hoch, 2017; Hill et al., 2014; Paul et al., 2016). The specific management problem is that how virtual managers facilitate knowledge sharing between individuals within diverse virtual teams across different time zones is not well understood (Endres & Chowdhury, 2019; Kim, 2018). Geographic and temporal dispersion are two primary factors that influence the challenges experienced in virtual workspaces. Although time zones are acknowledged throughout virtual team literature as a factor of virtual environments, lesser attention is placed on the specific challenges and barriers experienced by virtual team managers. Several researchers have identified time zones as a condition of virtual team context as they examine subjective distance and virtuality (Foster et al., 2015; Haas & Cummings, 2015; Siebdrat et al., 2014). Whereas, other scholars give time zones a brief mention in virtual team research efforts concerning human resource management roles, media choices, leadership, and

experiences in emerging economies (Davis & Scaffidi-Clarke, 2016; Gibbs & Boyraz, 2015; Gupta & Pathak, 2018; Tenzer & Pudelko, 2016).

Of the studies that have examined time zones and temporal distance in virtual teams, the primary focus was placed on additional factors of communication patterns, configuration and performance, and temporal boundaries of global virtual work (Espinosa et al., 2015; Prasad et al., 2017; Sivunen et al., 2016). From the perspective of knowledge sharing, researchers have focused on various aspects of knowledge sharing that occurs in virtual team environments, still, there is an absence of studying the implications time zones have specifically with exchanging information in virtual team settings (Alsharo et al., 2017; Killingsworth et al., 2016; Olaniran, 2017). The influence of culture has been addressed in virtual context however, the daily online experiences of U.S. virtual team managers with knowledge sharing between individuals with varied cultural perspectives working across time zones is absent across research (Chang et al., 2014; Eisenberg & Mattarelli, 2017; Kramer et al., 2017). The application of social exchange and reciprocal exchange is frequent among categories of literature concerning virtual teams as with leadership, diversity, and knowledge sharing. Though, there is a lack in applying social exchange and reciprocal exchange to topics that overlap such as with virtual team managers and experiences of knowledge sharing among varied cultural perspectives (Coun et al., 2018; Endres & Chowdhury, 2019; Hung et al., 2017; Romeike et al., 2016). Finally, despite increasing research of virtual teams, there is a gap in integrating specific challenges of virtual team leaders and respective solutions to issues such as effective

knowledge-sharing across academic literature and industry practices (Eisenberg &

Krishnan, 2018).

Summary and Conclusions

In this chapter, a review and critical analysis were conducted of the literature

surrounding virtual teams and the implications of knowledge sharing, diversity, and

leadership in virtual workspaces. There is a gap in the literature, which needs to be

addressed concerning virtual team managers and their experiences with knowledge

sharing among individuals with varied cultural perspectives working across different time

zones. Research indicates that time zones in virtual workspaces influence the dynamics

and types of knowledge sharing that occur between team members; however, there is an

absence in the literature documenting virtual team managers' social and daily

experiences. The narrative literature review embodies a conceptual framework on topics

of virtual team managers' daily experiences with knowledge sharing between individuals

with varied cultural perspectives and the implications of these experiences across

different time zones. This conceptual framework recognizes the concepts of reciprocal

exchange and social exchange. Based on the current literature, this qualitative, narrative

inquiry study was designed to develop a more comprehensive understanding of the daily

online experiences of virtual team managers in the United States with regards to

knowledge sharing between individual team members with varied cultural perspectives

working in different time zones. Reciprocal exchange and social exchange are the

foundation for the perception of knowledge sharing between virtual team managers and

individuals with varied cultural perspectives. A critical review of these issues was

conducted in this chapter and supported by extant literature.

In Chapter 3, I will present the research methodology for this qualitative narrative

inquiry. A discussion of the specific procedures will include the sample population for

the study, recruitment, participation, and data collection. Finally, the data analysis plan

will be addressed, along with issues regarding the trustworthiness of the study.

Chapter 3: Research Method

Introduction

The purpose of this qualitative, narrative inquiry study was to explore the daily online experiences of virtual team managers in the United States with knowledge sharing between individual team members with varied cultural perspectives working in different time zones (Endres & Chowdhury, 2019; Kim, 2018). A narrative inquiry approach helped gather the experiences of virtual team managers in the United States through in-depth interviews across categories of diversity. The holistic sensemaking that results from a narrative approach provides a reflexive inward, outward, backward, and forward perspective of participants' daily experiences (Clandinin & Connelly, 2000; Webster & Mertova, 2007).

This chapter consists of detailed information regarding the research design, rationale for the study, and the role of the researcher. The chapter continues with an in-depth description of the methodology covering topics such as participant selection, instrumentation, various procedures regarding participant recruitment, participation and data collection, and the data analysis plan. Finally, the rigor of the study is addressed with a discussion on the issues of trustworthiness.

Research Design and Rationale

The nature of this study is a qualitative, narrative inquiry approach. Qualitative research uses a reflexive and recursive process to better understand individuals, groups, and phenomena through an inquiry of the meaning of their experiences (Ravitch & Carl, 2016). The primary goal of this study was to address the research question: How do

virtual team managers in the United States describe their daily online experiences with knowledge sharing between individuals with varied cultural perspectives working in different time zones? The central phenomenon of this study is the knowledge sharing that occurs among diverse individuals in virtual team environments across time zones (Endres & Chowdhury, 2019; Kim, 2018). The concepts of reciprocal exchange and social exchange provided a lens to view the phenomenon. Reciprocal exchange is the sequential, nonnegotiated, unilateral rewards that are provided without an explicit expectation of reciprocity (Lawler, 2001; Lawler et al., 2008; Serenko & Bontis, 2016a). Social exchange is the exchange of various resources of value, including goods, services, and knowledge from one individual or group to another (Lawler et al., 2008; Serenko & Bontis, 2016a). It is through these conceptions that the daily online experiences of virtual team managers were explored.

Researchers use narrative inquiry to explore the rich and complex experiences of others, as narratives express the way people make sense of their experiences (Webster & Mertova, 2007). A narrative approach helped with understanding human experiences, social structures, and how participants made sense of the world through their stories and narratives (Merriam & Tisdell, 2016). Additionally, narrative inquiry is a way of knowing the world to identify common themes and patterns (Pinnegar & Daynes, 2007). In understanding the frameworks of meaning for others, it is important to imagine an environment and see the differences that exist (Andrews, 2007), as the intent of a narrative inquirer is to view participants' experiences in relation to personal experiences (Clandinin, 2016). To interpret the daily online experiences of virtual team managers and

the knowledge sharing that occurs between individuals with varied cultural perspectives working in different time zones, the narratives of participants were gathered with in-depth interviews. The narrative inquiry design allowed for the telling and retelling of individual experiences, revealing valuable insights (Clandinin & Connelly, 2000; Ravitch & Carl, 2016).

Other research methodologies and designs were considered for this study such as quantitative measures, a case study approach, and phenomenology. Applying a quantitative method to this research effort was not a suitable approach because the purpose did not call for elements such as operationalization of variables, manipulation of parameters, or predicting and testing of relationships (see Harkiolakis, 2017). Likewise, although a case study offers a wide range of data sources and flexibility within the design, this approach would have limited the study to a unit of analysis within a bounded system (Yin, 2017). Additionally, I considered using a phenomenological approach; however, phenomenology is used to understand the essence of the phenomenon through a prereflective approach, whereas narrative inquiry is holistic in its reflection of the past, present, and future (see Clandinin & Connelly, 2000; Moustakas, 1994).

Role of the Researcher

The researcher's role in this study was an interviewer to the participants as well as the relational observer to the shared experiences. Consistent with qualitative research, the researcher observes, collects, and interprets the data to better understand how participants interpret and create meaning from their experiences (Ravitch & Carl, 2016). For narrative inquirers, it is necessary to acknowledge how they fit into the stories of participants and

how the participants fit into their own experiences (Clandinin, 2016). Moreover, it is

essential for the researcher to have an awareness of the influence of his or her

experiences on philosophical beliefs and perceptions of the study (Merriam & Tisdell,

2016).

Another part of my role involved addressing potential relationships with

participants as well as potential biases. The sample for this study included virtual team

managers in the United States. The participants did not have a personal relationship with

me, and I did not possess any form of power or control over the participants. With that

said, narrative inquirers are not objective, as they bring biases to the phenomenon under

study (Clandinin, 2016). These biases were managed by identifying them and monitoring

them through reflective journaling, considerations in the conceptual framework,

reflections of personal experiences, the data that were generated, and the analytical

interpretation of the data (Merriam & Tisdell, 2016; Ravitch & Carl, 2016). Further,

collaboration with the participants and my committee through dialogic engagement

assisted with challenging biases and interpretations (see Ravitch & Carl, 2016).

As a researcher, it is also essential to adhere to the ethical responsibility of the

direct and indirect implications the research could have on participants (Ravitch & Carl,

2016). Considering the topic and approach of the study, it was essential to develop trust

with the participants as a conversational partner to encourage the sharing of experiences

while also being mindful of the moral and ethical obligation to protect shared experiences

(see Rubin & Rubin, 2012). While the process of coordinating and conducting the

interviews required collaboration with the participants, incentives, or bribes were not

used to gain participation. Further, the participants were allowed to exit from the study at their discretion regardless of the impact it would have on data collection.

Methodology

In this section, I provide information regarding the approach that was used in the study. As a researcher, transparency of the process is essential because each research plan is unique based on the criteria and requirements applied to address the research inquiry. Further, transparency allows study participants and the general audience to develop a logical understanding of the steps taken and the conclusion that is arrived upon in which to form their interpretation.

Participant Selection Logic

Population. The intention of this qualitative, narrative inquiry study was to develop a deeper understanding of the daily online experiences of virtual team managers in the United States with knowledge sharing between individual team members with varied cultural perspectives working in different time zones. The population for this study included managers employed in a virtual team capacity in the United States across functional, geographical, and hierarchical categories in their organizations. Choosing this sample population was based on my review of the literature. Field research in the United States concerning the experiences of virtual team managers and virtual teams, in general, is less prominent, as most studies involve university students and/or simulated work environments (Carter & Becker, 2017; Charlier et al., 2016; Cheng et al., 2016; Paul et al., 2016). However, differences in experiences and environmental context might offer variations in findings (Cheng et al., 2016; Gibbs, Sivunen, et al., 2017). Additionally,

there have been limits in utilizing populations with real-world complexity and capturing cultural dynamics (Gelfand, Aycan, Erez, & Leung, 2017; Spoelma & Ellis, 2017). Further, there is a need to examine and observe different types of diversity and environmental characteristics (Kim, 2018).

     Criterion and sampling. The unit of analysis for this study was virtual team managers based in the United States. The inclusion criteria set for the sample were managers based in the United States who have worked in a virtual team capacity for a minimum of 2 years and had virtual interaction with coworkers in diverse functional, geographical, and hierarchical positions across different time zones. Further, the managers needed to be in an environment where they shared knowledge with their coworkers over virtual technology to perform functions of their position. A minimum of 2 years in the position of a manager in a virtual team was chosen to allow for a reasonable adjustment into the respective position and role (see Merriam & Tisdell, 2016). Purposeful sampling enabled me to gain insight from a sample that fits the criteria of the study and addresses the research question (see Ravitch & Carl, 2016). To ensure the potential participants met the inclusion criteria, they were screened based on the inclusion criteria for the study along with their ability to willingly articulate their experiences as a virtual team manager and recall their interactions with team members.

     The participants were recruited from social media networks like Facebook and LinkedIn. Participants were identified based on their ability to meet the inclusion criteria set for the study. A scripted e-mail was used to contact participants through a formal invitation to participate in the interviews for the study. Saturation sampling was used as

the purposeful sampling strategy for this study (see Ravitch & Carl, 2016). This process

of sampling enabled me to analyze patterns and continue to add to the sample until

nothing new was revealed without putting limitations or constraints on resources (see

Marshall, Cardon, Poddar, & Fontenot, 2013; Ravitch & Carl, 2016). The sample size

was large enough to obtain sufficient data to describe the phenomenon of interest and

address the research question while reaching saturation. Purposeful sampling was used to

collect rich and descriptive data of eight participants at which point saturation was

reached (see Saunders et al., 2018). There are many different arguments regarding

saturation and how it is met (Fusch & Ness, 2015; Saunders et al., 2018). Saturation in

this study was achieved when no new themes in the data were found, and the same

responses and experiences were shared from participants (see Merriam & Tisdell, 2016;

Ravitch & Carl, 2016).

Instrumentation

In qualitative research, the researcher is instrumental in the data collection

process. In narrative inquiry, personal stories and reflections are how researchers engage

with themselves and participants to achieve a holistic view of the phenomenon

(Clandinin, 2016). The primary data collection instrument for this study was in-depth,

video-telephonic interviews to capture the essence of participants' experiences. In-depth

qualitative interviews help collect detailed information while the flexibility and open-

ended structure of the questions allows for detailed responses and adaptation to

participants' specific experiences (Rubin & Rubin, 2012). Skype and various other types

of video telephone and conferencing platforms offer modern researchers an opportunity

to connect with participants across distance, time, and space. In research, video-telephonic interviews have shown to enhance the interview experience when researchers and participants are challenged with distance barriers (Janghorban et al., 2014; Lo Iacono, Symonds, & Brown, 2016; Nehls, Smith, & Schneider, 2014). The technology platforms used to conduct the interviews varied depending on the participant's preference and access to the platform. Skype, WhatsApp, Zoom, FaceTime, or other video chat applications were the primary tools considered when conducting the interviews. The interviews were recorded using the voice memo application on an Apple iPad. Additionally, when available, videos of the interviews were recorded through the software used to conduct the interviews, such as the recording function on Skype, Zoom, and FaceTime.

An interview guide aided in the delivery of the interviews. Interview guides outline the structure of the interview, containing various types of interview questions (main interview questions, follow-up questions, and probing questions) and serving as a checklist to ensure each aspect is covered during the interview such as reconfirming informed consent, gathering demographic information, and debriefing the participant (Rubin & Rubin, 2012). As shown in the appendix, an interview script guided the interview. The semistructured interviews contained open-ended questions that were developed and phrased in a way to allow participants to share their stories and experiences as virtual team managers (Webster & Mertova, 2007). Semistructured interviews in qualitative research offer the flexibility to ask follow-up or probing questions to gain clarity and additional insight on a topic (Merriam & Tisdell, 2016).

The questions asked during the interview were developed based on the existing literature, the concepts in the conceptual framework, and personal experiences regarding working in a virtual team environment. Knowledge sharing is essential to an organization's success. Organizations leverage knowledge to maintain a competitive edge over their competitors (Xiao et al., 2017). Interpersonal relationships in organizations have been identified as a primary factor in facilitating the knowledge sharing process (Wang, Yen, & Tseng, 2015). Virtual organizations complicate the process of knowledge sharing in that organization members, in many cases, do not have in-person, face-to-face contact to help facilitate the development of intra-organizational relationships. Further, barriers such as locations, time zones, culture, and language hinder active relationship development, which influences knowledge sharing (Vahtera, Buckley, & Aliyev, 2017). Concepts of social exchange have been applied to research to explain social phenomena in management and organizations (Cropanzano et al., 2017). Additionally, social exchange and reciprocal exchange have been used to understand the psychological processes of individuals through theory veins of cost-benefit consideration and global emotions in the exchange process (Lawler, 2001; Lawler et al., 2008; Xiao et al., 2017).

Personal experiences were considered during the development of the interview questions to account for the relational aspect of narrative inquiry. Although narrative inquiry is the study of a person's experiences through story-telling and narratives, the researcher must come to an understanding of those experiences through a relational process (Clandinin, 2016). Interactions with colleagues, task flow, and relationship development were considered during the drafting of the interview questions.

Additionally, I reflected on the narrative inquiry research design and what the interview questions might reveal in relation to the research question.

The validity of the researcher-developed instruments is essential to the rigor of the study. As the interviews were conducted, the significance of the narratives were reflected upon to ensure the accuracy of interpretations, thus contributing to the validity of the study (see Hoyt, Warbasse, & Chu, 2006). The narrative inquiry paradigm played a significant role during data collection and analysis to ensure the essence of the paradigm was reflected in the participants' experiences and through my interpretation (see Clandinin, 2016). Further, the authenticity of the participants' narratives and separation of personal reflections were managed during the analysis process (see Riessman, 2005; Webster & Mertova, 2007).

Procedures for Recruitment, Participation, and Data Collection

This narrative inquiry study was supported by the selection of eight virtual team managers based in the United States. Participants in this study were recruited from the social media networks Facebook and LinkedIn. Semistructured interviews were conducted through video telephone platforms to collect the data for the study. The data were recorded using the video memo application on an Apple Ipad and when available through the record function of the video-telephonic software. Brief notes were taken during the interview to record any meaningful information that arose. Taking at minimum occasional notes during the interview helps reinforce main points while providing a backup for technology failures (Rubin & Rubin, 2012).

The amount of time that was allocated for the interviews was approximately 60 minutes per interview. Follow-up interviews were scheduled as needed at the convenience of the participants. Email was used after the interview as necessary to clarify any specific details that might have been missed or left unclear. After each interview, journaling was conducted to document reflections, significant meanings, and validation of discussions during the interview. The interviews were manually transcribed using the audio recording from the voice memo application or the video recording from the interview platform as available. The transcriptions, journal entries, and any additional emails containing relevant information were used as data for analysis. It was essential not to force interpretation of the data during analysis, therefore, utilizing all of the resources used during data collection allowed for a broader spectrum in which to observe patterns and themes (see Ravitch & Carl, 2016).

Once the interview segments were completed, I debriefed each participant by asking them if they had any questions or concerns upon completion of the session. Additionally, I provided contact information to the participant should they need to address any concerns or provide additional information after the interview. Debriefing is an important ethical part of the interview process as it provides closure to the session and allows participants to address any concerns or issues of deception as well as an opportunity to withdraw from the interview should they deem necessary (McNallie, 2018). Once the debriefing was complete, I manually transcribed the interview within 96 hours. A copy of the transcript was sent to each participant to allow for member checking. The participants had 48 hours to make any corrections or to add clarification to

any interpretation that was misrepresented. Member checking adds to the credibility and trustworthiness of the study as it allows the participant to provide feedback on how their experiences were interpreted during the interview (Merriam & Tisdell, 2016).

Data Analysis Plan

Clandinin (2016) discussed using a three-dimensional space consisting of temporality, sociality, and place during the inquiry process to "unpack" lived experiences. Considering the complexity that exists in intra-organizational relationships in virtual team environments, critical event analysis and thematic analysis were employed during the analysis process to reinforce the validity and trustworthiness of data in this study (see Riessman, 2008; Webster & Mertova, 2007). Thematic analysis in narrative inquiry is used to uncover and categorize participants' experiences through language (Riessman, 2008). Whereas, critical event analysis in narrative inquiry reveals a change in understanding from the storyteller that impacts an individual's performance in a professional or work-related role (Webster & Mertova, 2007).

Data analysis was conducted in two phases, which allowed for the surfacing of significant expressions of how the experiences were communicated through language as well as the actual lived experiences themselves (see Clandinin, 2016; Riessman, 2008). Once the member checks were completed, the first phase of the process included manual thematic coding of the data in an excel spreadsheet. As information was entered and organized, significant remarks and expressions noted during the interviews were incorporated into the data analysis (see Saldaña, 2016). The second phase of the analysis consisted of using the thematic codes to categorize and associate the meanings and

experiences revealed (see Clandinin, 2016). The data analysis for this study was conducted manually.

Critical events that result from participant's lived-experiences reflect the most memorable and impressionable experiences (Webster & Mertova, 2007). Participants' narratives were categorized into critical, like, or other events during analysis as a way of confirming and broadening situations that arose from the described events. This approach reinforced the backward, forward, inward, and outward perspective of the holistic space in which to analyze participants' narratives (see Clandinin & Connelly, 2000). Further, analytic memos were used throughout to support the reflexivity in the process.

As the data was coded, extraneous answers given during the interview that did not relate to the research question were filtered out during the first and second cycle of coding. Although there is a potential hazard that details removed from analysis might have an impact on the final evaluation, the researcher learns through experience what matters and what does not during the analysis process (Saldaña, 2016). As I manually coded and analyzed the data for this study, I maintained a close connection to the data during this phase of the study. The closeness to the data minimized the potential hazard of excluding potentially meaningful experiences while still allowing for the removal of any unnecessary discrepancies in data.

Issues of Trustworthiness

Credibility

Internal validity in a qualitative research study is referred to as the ability to draw meaningful inferences from the instruments used in the study while taking into account

all of the complexities that occur during data collection and analysis (Ravitch & Carl, 2016). In qualitative research, credibility is established through a variety of methods that are applicable to the study, such as through prolonged engagement, persistent observation, triangulation, peer debriefing, negative case analysis, and member checking (Lincoln & Guba, 1986). This study implemented several strategies appropriate for narrative inquiry research to ensure that trustworthiness and credibility were reflected in the data used for analysis. I administered credibility in this study by being aware of and noting any researcher bias, incorporating member checking of the collected data, and obtaining saturation. Narrative research focuses on the holistic nature of experiences. To ensure neutrality was applied in the study, research bias was managed through the assessment of participant perspectives and review of the data (see Loh, 2013). The trustworthiness of the notes and transcripts, which are the cornerstone of validity and reliability of the study, was addressed through the use of audio and video recordings, journal entries, and member checking the transcripts for accuracy of content and clarity of meaning (see Webster & Mertova, 2007). Finally, the research was complete once saturation of participants' experiences were reached (see Saunders et al., 2018).

Transferability

External validity is defined as the extent to which the findings of a study can be applied to other situations (Merriam & Tisdell, 2016). Transferability in qualitative research refers to the development of descriptive statements that can be related to broader contexts (Ravitch & Carl, 2016). The use of critical, like, and other events to categorize the described contexts shared through the narratives of participants provides a richness of

detail to the audience in such a way that can be transferred and made applicable to other circumstances (Webster & Mertova, 2007). This qualitative research aimed to uncover rich and descriptive details regarding the daily online experiences of virtual team managers and the knowledge sharing that occurs between individuals with varied cultural perspectives working across different times zones.

Dependability

Reliability of the study is referred to as the ability to replicate research findings (Merriam & Tisdell, 2016). In qualitative research, the focus is on whether there is consistency of the research findings and how the data is collected (Merriam & Tisdell, 2016). Dependability in this research study was exhibited through the incorporation of an audit trail consisting of comprehensive notes showing how data collection was achieved, how categories were derived, and the rationale in decision-making that occurred during the process (see Houghton, Casey, Shaw, & Murphy, 2013; Merriam & Tisdell, 2016). Further, all recordings, transcripts, and journal entries included details of how the process occurred at each phase of the research study to provide maximum transparency.

Confirmability

Confirmability, in a study, closely links to dependability through the requirement of neutrality and data accuracy (Houghton et al., 2013). Nevertheless, a focus must be explicitly placed on confirmability as it is imperative in qualitative research to be able to confirm the data and findings that are representative of the participants (Ravitch & Carl, 2016). Confirmability is accomplished through an acknowledgment and exploration of biases and prejudices interwoven into one's interpretation of the data (Ravitch & Carl,

2016). The research process and decision-making were tracked through an audit trail to confirm each step of the research development and findings. Further, reflexivity was incorporated into the various stages of this research study. Reflexive journaling was used to ensure questions of confirmability were addressed, such as an individual's agenda concerning the data, the interpretation of the data by others, and at what point the incorporation of thought partners might benefit the study relating to subjectivity and positionality (see Amankwaa, 2016; Ravitch & Carl, 2016).

Ethical Procedures

This research effort explored the experiences of human interaction in an online virtual context. Additionally, the interviews took place over virtual technology. Although this research effort did not include participants of a vulnerable nature or sensitive topics, adherence to proper ethical procedures were necessary. The validity and reliability of a rigorous research study are primarily dependent on the ethics of the researcher conducting the study (Merriam & Tisdell, 2016). All research studies are subject to ethical concerns. In research concerning human participants, it is the researcher's responsibility to protect the participants from harm, respect their rights to privacy, obtain informed consent prior to data collection, while ensuring there are no issues of deception (Merriam & Tisdell, 2016). Walden University's policy concerning the participation of humans in a research study requires researchers to apply for and obtain documented permission from the Walden University Institutional Review Board (IRB). The primary purpose of the IRB is to protect participants that fall under approved protocols (Denzin & Giardina, 2015).

Conducting research without obtaining proper approval goes strictly against Walden's policy on research ethics and compliance (Walden University, n.d.). Further, research conducted without prior approval is considered invalid. With that said, obtaining proper approval to conduct research also contributes considerably to the rigor of the research study (Ravitch & Carl, 2016). The completion of the IRB application, along with an approval number, was used to solicit participants for this study from social media networking sites, Facebook and LinkedIn. With that being said, I did not conduct solicitation, collect data, or begin other research procedures pertaining to the study until formal approval was received from the IRB. After approval was granted from the IRB along with an approval number, I ensured appropriate ethical considerations were taken during the solicitation, interviewing, and storing of data. Participants were solicited for the study via email, explaining the basis of the study, and requesting their consideration. Once potential participants expressed interest in volunteering for the study, I followed the protocol for obtaining informed consent, while fully disclosing the intent of the study and communicating their rights to withdraw at any time. Upon receiving consent, I coordinated and scheduled a time and date to conduct the interviews. This study was completely voluntary thus the option for participants to withdraw anytime during the study was available and respected.

The data for this research is confidential. A primary ethical concern in this study concerns the confidentiality of participants and the data collected from the interviews. Considering the method in which the interviews took place, there was an increased risk of the data being compromised through the use of computer-mediated communication tools

which could result in the compromising of a participant's confidentiality (see Saldaña, 2016). Maintaining confidentiality in a research study is essential as it protects the participants involved in the study. Further, it also aids in building trust with participants to allow for open dialogue during interviews (Rubin & Rubin, 2012). The confidentiality of participants was addressed by safeguarding all documents, interview files, and transcripts as well as assigning a pseudonym to each participant. Other than the researcher, no one has access to the raw data. The data and all associated files are stored electronically on a secured personal drive to avoid the potential risk of compromising information. Once the study was completed, the data and all associated files were electronically archived on a secured personal drive not connected to the internet or other networks, and access is safeguarded from others.

Other ethical issues were not foreseen at the time of the study as there were no apparent conflicts of interest. The study did not take place in my work environment, and no were incentives used during the recruiting process of participants. Though it is unrealistic to predict all ethical issues that might occur during the process, I maintained vigilance for issues that could potentially arise during different stages of the research. Had an ethical concern arose, the matter would have been handled accordingly and timely through the consultation of the IRB and my chair committee.

Summary

This chapter consisted of detailed information regarding the research design, rationale for the study, and the role of the researcher. Topics concerning the methodology were covered such as participant selection, instrumentation, various procedures regarding

participant recruitment, participation, and data collection, and the data analysis plan.

Finally, the rigor of the study was described with a discussion on the issues of

trustworthiness. In chapter 4, the implementation of the research plan is presented, along

with an outline of the research results and recommendations for continued research.

Chapter 4: Results

Introduction

The purpose of this qualitative, narrative inquiry study was to explore the daily online experiences of virtual team managers in the United States with knowledge sharing between individual team members with varied cultural perspectives working in different time zones (Endres & Chowdhury, 2019; Kim, 2018). The central research question was "How do virtual team managers in the United States describe their daily online experiences with knowledge sharing between individuals with varied cultural perspectives working in different time zones?" I designed this research question to address a gap in the literature regarding integrating specific challenges of virtual team leaders and respective solutions to issues such as effective knowledge-sharing across academic literature and industry practices (see Eisenberg & Krishnan, 2018). A narrative inquiry research design was used to gather data from the personal narratives of participants through semistructured interviews. Thematic analysis and critical event analysis were used during the analysis process to reinforce the validity and trustworthiness of the data in this study (see Riessman, 2005; Webster & Mertova, 2007).

The study results presented in this chapter illustrate the personal and professional experiences of virtual team managers in the United States with knowledge sharing between individual team members with varied cultural perspectives working in different time zones (see Endres & Chowdhury, 2019; Kim, 2018). Further, in this chapter, I also provide a detailed discussion of the research setting, data collection and data analysis procedures, evidence of trustworthiness of the qualitative data, as well as a conclusion.

Research Setting

The initial request for participant solicitation was sent out through Facebook and LinkedIn. The request for participation included the inclusion criteria, along with the purpose of the study. From the initial requests, eight participants responded, stating their interest in participating. Once interest to participate was indicated, I requested each participant's e-mail address in which I sent the IRB informed consent letter. Once I received the reply e-mail acknowledging the participant's intent to participate with the words "I consent," mutually agreed upon appointments were scheduled to conduct the interviews.

Saturation sampling was used as the sampling strategy for this study (see Ravitch & Carl, 2016). A total of eight participants were recruited to participate in the study. Six participants were recruited from Facebook, and two participants were recruited from LinkedIn. I recruited and interviewed participants until saturation was achieved in the collected data. To gather data, I conducted semistructured interviews with eight virtual team managers residing in the United States. The following platforms were used to conduct the interviews: Zoom (3 participants), Facebook Messenger (3 participants), FaceTime (1 participant), and Skype (1 participant).

Demographics

Eight virtual team managers participated in this study. The participants resided in the United States and worked for U.S.-based organizations. Each participant met the inclusion criteria, as they had several years of experience working in a virtual team environment and were knowledgeable in their respective areas providing unique and in-

depth experiences of working virtually in their industries. None of the participants knew each other personally. The participants' experiences as virtual team managers ranged from 2 years to over 15 years. An equal number of men and women represented the study. Most of the participants functioned as mid-level managers in their organizations, except for two participants holding upper-level management positions. Finally, a diverse range of industries was found across the total sample size, which offered a unique perspective of working in a virtual team capacity.

I collected the following categories of demographic data: participant's gender, age, position title, industry, experience, and team size. An alphanumerical code was assigned to each participant as a pseudonym, using the format Participant 1 as an example, where P represents participant and the numeral is an identifier assigned to each participant. The complete demographic details of each participant are shown in Table 1.

Table 1

Participants' Demographics and Characteristics

Participant	Gender	Age Range	Position Title	Industry	Experience (Years)	Team Size
P1	Male	36 - 45	VP, Sales	Alcohol Beverage	8	20
P2	Male	36 - 45	Team Manger	Tech/Healthcare	2+	5
P3	Female	56 and Up	Program Manager	Nonprofit	5+	3
P4	Female	26 - 35	Software Developer	Software Development	3	5-10
P5	Female	36 - 45	Manager	Healthcare	15	19
P6	Female	36 - 45	Manager	Insurance	5	7
P7	Male	36 - 45	CIO	Software Healthcare	10+	7
P8	Male	46 - 55	IT Dev. Manager	IT	15+	12

Data Collection

Once I received IRB approval, I began the process of recruiting participants and collecting data. This process continued until saturation was achieved, which happened when no new themes in the data were found, and the same responses and experiences were shared from participants (see Merriam & Tisdell, 2016; Ravitch & Carl, 2016). The semistructured interviews were designed to ask the same questions to each participant. This allowed for alignment across each interview while ensuring the interviews stayed within the scope of the research topic. Concise communication was used during the interview process, and saturation was achieved at eight participants. Each interview was recorded for transcription purposes. Once each interview was completed, I manually transcribed the interview and forwarded the transcript to the participant.

Themes that emerged within the interviews, such as the participant's ability to adapt to different ways of sharing knowledge and utilizing various types of technology to share knowledge, further supported evidence of saturation. These themes surfaced as participants reflected on their experiences of knowledge sharing in virtual workspaces between diverse team members across different time zones. In these narratives of virtual team manages in the United States, experiences were shared not only of the challenges and barriers faced when sharing knowledge in diverse virtual teams across different time zones but also their resilience to a complex, dynamic environment. The Study Results section will further elaborate on the saturation process and what was revealed during participants' interviews.

I set aside time daily each week for 10 consecutive weeks to recruit participants, conduct participant interviews, manually transcribe interviews, review transcriptions for accuracy, and member check the transcriptions and interview summaries. All participants concurred with their respective transcript and interview summary. Adjustments were made accordingly based on the participants' feedback. The data collection process consisted of eight interviews. Each interview was recorded using the platform's record option or QuickTime Player. A backup recording was captured using the IPad voice memo application. E-mail was used to gather additional information through follow-up correspondence. The interviews were conducted over an 8-week period beginning on August 16, 2019 and ending on October 10, 2019. All participants were willing to conduct the interviews and have their experiences recorded as each participant was assured their interview would be confidential, and data would be safeguarded.

Field notes were taken throughout the interviews. In the field notes, I captured information such as my thoughts, interpretations, and reflections on the data being communicated during each participant interview. During each interview, participants described their experiences as virtual team managers in the United States and knowledge sharing with diverse team members across different time zones. The questions explored their experiences regarding sharing knowledge with individual team members, challenges, barriers, benefits experienced in their respective environments, the types of knowledge shared, the technology used, and support or resources the organization could incorporate to better support knowledge sharing in their respective teams.

Initial Contact

Participant recruitment was done by publishing requests and messaging on Facebook and LinkedIn. Recruitment criteria were as follows: adults over the age of 18 residing in the United States; employed as a virtual team manager for a minimum of 2 years; and participates in daily interaction with a diverse virtual team. The request for participation included the research inclusion criteria and purpose of the study; this information was also e-mailed to participants with the IRB consent form.

Interviews

Once interest was established in response to the Facebook or LinkedIn invitation, I requested the participant's e-mail address. The IRB consent form was sent to each potential participant to which they replied, acknowledging their consent to participate in the study. Once the acknowledged consent was received, I coordinated and scheduled a time and date with the participant that was mutually agreed upon. During this process, the participants also expressed which of the available platforms they preferred to use for the interview.

All the interviews were collected over video chat technology. During each interview, except for one, both the participant and I were at our respective residence. The environment of each residence was quiet and tranquil. During one interview, I was at my residence while the participant was traveling in an automobile. A decision was made to go forward with the interview, as this was a last-minute occurrence in the schedule, and there was a 15-hour time difference in which we would have to coordinate and reschedule. This decision to move forward with the interview despite the participant's

location during the time of the interview did not interfere with the participant's

participation.

I began each interview with a printed copy of the interview protocol and a

notepad to record any relevant information. The questions were asked in the order, as

shown in the interview protocol (see Appendix). During some of the interview sessions,

follow-up questions were necessary to clarify their responses; however, this did not

present any issues during the interview. The technology and platforms used to conduct

the interviews performed as expected during most of the interviews. However,

connectivity issues occurred during two interviews, which was resolved in one interview

but in another required me to speak slower as I asked each question to prevent an echo.

The participant agreed to move forward with the interview as there was a 16-hour time

difference that we would have to coordinate and reschedule around. The issue of the echo

did not present significant concerns during the remained of the interview.

Reflective Field Notes and Journaling

Reflective journaling and recording of all pertinent information, observations, and

situations were used to validate the information from each interview while ensuring

trustworthiness and reducing any potential researcher bias (see Merriam & Tisdell, 2016;

Ravitch & Carl, 2016). Further, the consistency of reflective journaling and recording

relevant details during and after each interview addresses the reliability of the research by

providing consistency and stability in how the interviews are conducted and how the data

are captured (see Webster & Mertova, 2007). My journal entries and the notes I took

throughout each interview contained the immediate reactions and thoughts I had as

participants shared their experiences and responses to the questions asked during the interviews. To further immerse myself in the participants' shared experiences, after transcription, I listened to each recorded interview an additional time, recording reflective notes of participants' experiences. This additional reflection allowed me to further reflect on the participants' experiences while capturing any additional meaning and reflections.

Member Checking

Member checking was used to manage research bias and ensure the data collected were relevant and interpretive of the participants' stories and experiences as they conveyed them (see Merriam & Tisdell, 2016). Each participant was presented with the opportunity to review his or her interview transcript and interview summary to strengthen the credibility of the data collected based on the participants' feedback (see Riessman, 2008). This information was e-mailed to them within 96 hours after the conclusion of their interview, providing them the opportunity to address any changes or additions to their initial responses. Minimal changes were made based on feedback from participants. Further, participants appreciated the steps taken to ensure their experiences were recorded accurately.

<div align="center">

Data Analysis

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Considering the complexity in intra-organizational relationships in virtual team environments, critical event analysis and thematic analysis were utilized during the analysis process to reinforce the validity and trustworthiness of data in this study (Webster & Mertova, 2007). Thematic analysis in this study allowed for the uncovering and categorization of participants' experiences through language (see Riessman, 2008).

Critical events analysis complemented the thematic analysis by revealing changes in understanding from the storyteller that impacted their performance in professional and work-related roles (see Webster & Mertova, 2007). During this two-phase analysis, I was able to pick up on unique expressions communicated through the participants' language as well as their actual lived experiences (see Clandinin, 2016; Riessman, 2008).

The research method and design in this study was a qualitative, narrative inquiry. Primary data were collected from eight participants through the sharing of their experiences as a virtual team manager regarding knowledge sharing between diverse individual team members across different time zones. Semistructured interviews were used to gather narrative data from participants. After the data collection process was complete, I organized the data of each participant in an Excel workbook. Once the data were organized, I conducted an initial coding to prepare for the thematic analysis, assigning descriptive codes to segments of narrative data. As I assigned descriptive codes to each participant's data, I annotated my reflections of noteworthy remarks and expressions (see Saldaña, 2016).

Once initial coding for each participant was complete, I organized the data and descriptive codes by interview question to begin the process of second cycle coding for patterns. During pattern coding, I used an inductive approach in that the pattern codes were data-driving without the use of a pre-existing coding frame (see Braun & Clarke, 2006). Pattern coding is used in qualitative research to identify themes in the date through the assignment of explanatory or inferential codes, bringing more meaning to the units of analysis (see Saldaña, 2016).

Upon completion of second cycle coding, I conducted a manual thematic analysis. A thematic approach to analysis was an appropriate selection in this study as this approach is flexible in nature and is often used by novice researchers working with narrative data for the first time (see Braun & Clarke, 2006; Riessman, 2008). Semantic themes were applied to the coded data to allow for theorizing of significant patterns and their broader meaning (see Braun & Clarke, 2006). Thematic analysis revealed patterns that were combined into five conceptual categories that addressed the central research question. The five conceptual categories were grounded in the conceptual framework, whereas the reformulating themes forming the foundation of interpretation addressed the central research question. The conceptual themes included:

- Conceptual Category: Positive and Negative Factors Experienced in Virtual Knowledge Sharing
  - Themes: (a) Time zones as a challenge (b) Culture as a challenge and as a benefit (c) Collaboration and communication as a benefit (d) Interpretation and perception as a challenge (e) Technology as a benefit and as a challenge
- Conceptual Category: Affect and Emotional Connection Experienced in a Virtual Workspace
  - Themes: (a) Adapting knowledge sharing behavior (b) Socialization among team members (c) Showing concern for others (d) Relationship aspects and knowledge sharing
- Conceptual Category: Types of Knowledge Shared in Virtual Workspaces

- Themes: (a) Uses a combination of tacit and explicit knowledge (b) Tacit or explicit knowledge as the primary type of knowledge shared (c) Tacit knowledge used as a supplement to explicit knowledge

- Conceptual Category: Internal Factors of Sharing Knowledge in Virtual Workspaces

  - Themes: (a) Shares knowledge based on situation, need, or task (b) Shares knowledge based on person or position (c) Sharing knowledge in a variety of ways

- Conceptual Category: External Factors of Sharing Knowledge in Virtual Workspaces

  - Themes: (a) Knowledge sharing across time zones (b) Knowledge sharing across hierarchy levels, work centers, and cultures (c) Relationship with recipient

During the second phase of the data analysis, I used a critical event narrative analysis to model events in narratives and categorize these events as critical, like, or other as critical events in participants' experiences highlight the most important occurrences of the event (Webster & Mertova, 2007). As critical events are almost always a change experience, they are only ever identified after the event has occurred (Webster & Mertova, 2007). A *critical* event is defined as an event selected due to its unique, illustrative and confirmatory nature, while a *like* event denotes the same sequence level yet further illustrating or confirming and repeating the experience (see Webster & Mertova, 2007). Further, events not related to critical or like events yet occurring around

the same time are categorized as *other* events. Once I reflected on and categorized each participant's events, I combined each participants' categorized experiences to further the iterative process of reflection on participants' experiences. Similarities were revealed, not in the personal experiences themselves but in the themes surrounding the experiences. Although each participant's experience was different and the context surrounding the experience varied, there was a similarity in the theme of what was being discussed.

The narrative dialogue and categorizing of events provided a deeper understanding and added meaning to each participant's experiences beyond semantic themes. I used a hermeneutic narrative approach to explicate meaning within stories, even when these stories were not sequential or when the data could not be considered as singular pieces of information in their own right (see Polkinghorne, 1988, 1995). The hermeneutic circle of moving between parts helped with crafting the narratives to provide a deeper understanding of the subject world of the participants (see Freeman, 2016; Webster & Mertova, 2007).

Table 2, shown below, elaborates on the themes and conceptual categories that developed in this study, demonstrating how the themes that shared similar characteristics were realigned into single categories. The process of verifying the themes and interpretations was iterative throughout data collection. The conceptual categories were determined based on Cropanzano, Anthony, Daniels, and Hall's (2017) concepts of reciprocal exchange and social exchange. The critical event approach used in this study satisfied the validity and reliability of the data and in turn the trustworthiness through openness and transparency in the process of collecting the data and retelling the

participants' experiences (Clandinin, 2016; Webster & Mertova, 2007). Moreover, this

approach reinforced the backward, forward, inward, and outward perspective of the

holistic space in which to analyze participants' narratives (Clandinin & Connelly, 2000).

Table 2 displays the data analysis in coding and themes taken from the reformulated

themes collected from the thematic analysis and categorized by the conceptual categories

to address the study's central research question. Narratives from participants' interviews

are used to support the reformulated themes. Though triangulation is used in qualitative

research to further satisfy validity, it is not recommended in narrative inquiry-based

research as it is nearly impossible to achieve (Webster & Mertova, 2007).

Table 2

Coding and Theme Examples

Participant	Interview excerpt from participant narratives	Conceptual Category	Reformulated Themes
Participant 1	"I think cultural differences can be difficult sometimes, because the way that an English-speaking country and the way that a Spanish speaking country may read or experience something, that may be very first nature for them may be a world of difference for the other. So how one deals with personalities, how one deals with common, how one deals with sort of common terminologies, that may vary greatly from a Spanish speaking market to an English-speaking market and then you throw in a French market or a Dutch market or Creole market into that or a Portuguese market into that. I think that is one of the bigger challenges and one that doesn't really get understood very well or there's not enough attention paid to it sometimes. So, that's one that we have to slow down and really think through that and understand – wait just because I understood that, does that mean that they understood that?'	Positive and negative factors experienced in virtual knowledge sharing	a) Cultural differences as a challenge b) Challenges with interpretation (c) Managing multiple cultural differences
Participant 2	"Yeah, so all of that actually. We all work from home for the most part, none of us have ever met in person with the exception that I had met two of the three founders that remained with the company so we had the two founders, I guess if you had to describe their titles they would be like Co-CEO's of the company and so they would be ones that I would communicate with and the other people that I communicated with were call center representatives I guess you would say would be their titles." "All of our people were on a different time zone just about. We had two people on the east, then I was on central for a bit and then on east. Then the company founders were on central but one of the founders was actually from Israel and he commuted back and forth so he would sometimes work from Israel as well and then another lady lived in California so we would share our knowledge through those different time zones and we were all pretty understanding of different time zones and we would work around each other for the most part unless there was some extremely immediate situation that needed to be taken care of. And then all of our workers were from different areas as far as parts of the country so while not a culture it was a culture subset, I guess you would say."	External factors of sharing knowledge in virtual workspaces	a) Time zone factors b) Knowledge sharing across hierarchy levels, work centers, and cultures c) Relationship with recipient
Participant 3	"So, I am the world's worst at reply all, when my supervisor or our mission vice president sends out something, she almost always sends it out to everybody, and I generally don't do reply all because it's not anybody's business but hers. And sometimes I will think oh yeah I think I [should reply all], but if it's something that's between me, just with my program and it's something I can handle in house it doesn't usually go up to my boss or my vice president but if it's something that I might have, that they ought to be aware of then I will generally cc my supervisor who is over in Pensacola."	Internal factors of sharing knowledge in virtual workspaces	a) Shares knowledge based on person or position b) Shares knowledge based on need to know c) Shares knowledge based on situation

(table continues)

Participant	Interview excerpt from participant narratives	Conceptual Category	Reformulated Themes
Participant 4	"I would say both and maybe because it is a smaller place, that I think that allows a little bit more intimacy and knowing people a little bit better and needing to depend on each other for things. So, it's both, it's always wanting to do a good job but at the same time wanting to be able to explain something enough that if there is a problem that maybe I point out where the potential issue is." "Occasionally. I mean, we try to be careful of each other's time but unfortunately, like I can't go to staff meetings so I feel a little bit out of the loop sometimes about things going on because I can't be there. That would be like an 11 o'clock or 12 o'clock at night meeting, probably not a good idea so there is that. And then occasionally we can connect in the mornings, well my mornings, but in the afternoon if I run into a blocker I'm just going to have to wait and be patient until tomorrow."	Affect and emotional connection experienced in a virtual workspace	a) Relationship aspects b) Feeling disconnected c) Socialization among team members
Participant 5	"I think with certain team members, I chose, for instance, I got certain individuals that I pick up the phone and call them versus sending them an instant message just because I know that I will get a million questions and it's just easier to have that rapport over the phone versus you know, or I will setup a, if I got like 5 different people with 5 different backgrounds and I know that it's going to be a difficult conversation and we need multiple input I will do a WebEx versus an email. There are instances that you just, you know are going to be easier to get everybody either on the phone or on a WebEx. Maybe in WebEx you need to screen share to show something to make it a little bit easier to kind of show the process."	External factors of sharing knowledge in virtual workspaces	a) Work centers and environment b) Relationship with recipient c) Technology factors
Participant 6	"I have in the past have, and currently I have different individuals from different cultures, different even countries I had before. So really, you just have to get to know that individual, overall I have my general style I guess, my general management styles but as I get to know each employee I adjust slightly how I communicate, how I work with them based upon their personality and their style. So I have to be very respectful [to them], to be just in general, I mean obviously you have to be 100% respectful to everybody you work with whether it's my employee or someone else but I have to be just cognizant of their different cultures. You know holidays, all of those things, just be aware, and kind of just change my style slightly to kind of meet them in the middle."	Affect and emotional connection experienced in a virtual workspace	a) Adapts knowledge sharing behavior b) Socialization among team members c) Showing concern for others with cultural awareness d) Relationship aspects
Participant 7	"I think it's a combination of both. In a leadership role you become a storyteller, regardless of what you do. So, you're not only sharing factual information, your sharing your experiences. At the end of the day people remember stories, they don't necessarily remember facts. Humans are driven by storytelling so it's definitely a combination of both. So explicit, I would be sharing information about a particular client and we might be going into a performance issue and so at that point we're going to look at specific knowledge and that specific explicit knowledge would be how are the CPUs within their cloud environment performing, how many users are logged in. These are all factual based metrics that we can pull and share. The second form of that I could be sharing experiences where perhaps I've seen those issues before or how I believe or perceive their CIO may take that or the issues we're having if not corrected. I'm trying to explain a situation based on my previous experiences based on how I think he or she may react that's not drawn from easily referenceable data."	Types of knowledge shared in virtual workspaces	a) Combination of explicit and tacit knowledge b) Type of knowledge shared is conditional to situation or task c) Tacit knowledge used a supplement to explicit knowledge

(table continues)

Participant	Interview excerpt from participant narratives	Conceptual Category	Reformulated Themes
Participant 8	"Me personally, I'm one to say need to know basis and the reason why is because you can give too much information it will confuse the matter because I don't like to confuse the matter on a lot of different things so I give the person as much information as they need to complete their job. If it requires more information that may span say another person where their deliverable, whatever the project or feature they're working on at that time is dependent on someone else, then I will bring those two in together and then share it between the two. But, I really like to keep the knowledge and the information as compartmentalized as possible because it's a fast, most of the times we're fast moving and I've found that you just give what they need, it just seems to be more effective for me, at least in my experience." "Just really based on the project, basically aligning their role with their responsibilities. So, it's going to be based on their responsibilities in the role. Really their responsible for whether it is a deliverable or project management, QA whatever their responsible for that is how I determine and what I share. Oh, and also, I share it based off of questions too. I get peppered with questions all the time, so I share it that way too."	Internal factors of sharing knowledge in virtual workspaces	a) Shares knowledge based on situation, need, or task b) Shares knowledge based on person, position, or role c) Shares more knowledge as needed

Evidence of Trustworthiness

Credibility

A variety of strategies can be applied to build and establish credibility in a qualitative research study. In this research study, strategies such as member checking and maintaining neutrality in the study ensured accuracy of interpretation while minimizing researcher bias (see Lincoln & Guba, 1986; Loh, 2013). Each participant interview was conducted over a videotelephonic platform chosen by the participant. The interviews ranged from 30 to 60 minutes in length. The interviews were free from obstruction, and only minor distractions were experienced during the interview as a result of technical difficulties. Several measures were applied to add validity to the study, such as audio and video recording participant responses and using journal notes to document additional observations. Once the interviews were completed, they were manually transcribed and distributed to participants to conduct member checking. Critical event narratives shared during this study strengthened the trustworthiness and reliability of this research by ensuring clarity of meaning (see Webster & Mertova, 2007). Moreover, saturation was achieved by using a holistic view of the participants' experiences, further supporting the credibility of the study (see Saunders et al., 2018). The research concluded when saturation of the participants' experiences was reached.

Transferability

Transferability in qualitative research refers to the development of descriptive statements that can be applied to broader contexts (Ravitch & Carl, 2016). In this study, the transferability was dependent on the analysis and synthesis of the data. To ensure the

highest level of transferability, the themes, patterns, and common understandings that developed from this study are described in the findings (see Saldaña, 2016). Further, the use of critical, like, and other events to categorize the described contexts shared through the narratives of the participants provided a richness of detail, adding to the transferability and applicability of the study (see Webster & Mertova, 2007). Lastly, the findings and recommendations from this study could be applied and utilized across other industries that employ virtual team managers to support knowledge sharing strategies and practices in diverse contexts across different time zones.

Dependability

The reliability of the study refers to the ability to replicate research findings (Merriam & Tisdell, 2016). In qualitative research, the focus is on whether there is consistency in the research findings and how the data is collected (Merriam & Tisdell, 2016). During data collection and analysis, I kept an in-depth audit trail detailing how data was collected, how categories were derived, and the rationale of decision-making that occurred during each segment of the study (Houghton et al., 2013; Merriam & Tisdell, 2016). Finally, all recordings, transcripts, and journal entries included details of how the process occurred at each phase of the research study, providing maximum transparency.

Confirmability

Confirmability, in a study, closely links to dependability through the requirement of neutrality and data accuracy (Houghton et al., 2013). A positive rapport was established during the selection process and at the start of each interview to obtain a

valuable exchange of information and responses from each participant. The rapport was established without bribery or monetary compensation, ensuring each participant was comfortable with sharing their experiences. Reflexivity was incorporated at various stages during the study. Reflexive journaling was used to ensure questions of confirmability were addressed, such as with the examination of the conceptual lens throughout the process, explicit and implicit assumptions, preconceptions, and the interpretation of the data by others (see Amankwaa, 2016; Ravitch & Carl, 2016). Finally, interview transcripts were made available to participants during the member check process in which participants responded verifying their responses and interpretations.

Study Results

This narrative inquiry study involved semi-structured interviews with eight virtual team managers. The research question for this study was designed to provide substantial data and reinforce theory through the use of a narrative inquiry design. In this section, I present the results of how virtual team managers in the United States described their daily online experiences with knowledge sharing between individuals with varied cultural perspectives working in different time zones. Each participant interview was manually transcribed for accuracy and served as the data used to construct themes across the participants' experiences.

A two-phase data analysis process was employed to ensure the trustworthiness of the data. Thematic analysis was applied in the first phase to uncover and categorize participants' experiences through language (see Riessman, 2008). While, the second

phase consisted of a critical event analysis, revealing a change in understanding from the participant that impacted their performance in a professional and work-related role (see Webster & Mertova, 2007). Analyzing the participants' critical, like, and other events added context and provided a more profound understanding of the themes revealed during the first phase of analysis. For example, the segments of narrative below of participants' experiences of working across time zones were categorized as critical events as they had an impact on people. The narrative dialogue and categorizing of events provided a more in-depth understanding while adding meaning to each participant's experiences beyond semantic themes such as time zones as a challenge. In this particular instance, the participants were sharing the challenges they experienced regarding time zones. Participant 1 stated,

> So, the day can start very early because we do, we're dealing with supplier partners out of Asia and Europe so it's a 24-hour cycle right… You're always being inundated with information from very early in the morning on our east coast timeframe to very late at night if something is coming from the west coast of the United States or even in Australia. So, yeah, it's a matter of managing expectations and timelines on responses, it can be very, very challenging.

Participant 3 stated,

> The different time zones has been a challenge sometimes when, if you're in Florida, people think that Florida has one time zone and we have two. It's happened at both ends, both at my end and [their] end. You think you're in the same time zone and you don't make adjustments for that and so you might miss

an appointment, you know an online appointment or something like that. That's been fun. Or if it's somebody who, their best time is when they get off work at 7:00 at night, that's 6:00 at night for me, generally in the eastern time zone, I will stay around at work and wait and wait and wait and wait and then I will call them.

Participant 5 stated,

I have a daily huddle with my team every day. That's at 10:30 central standard time so if something's really important that I need to get out to them I really can't have a meeting any earlier because [of] my west coast folks so 10:30 is kind of that time frame when I get everybody so that is usually the earliest that I can get everybody on.

Participant 8 stated,

Time zones, that's one, that can be a challenge because I believe in work-life balance and so for the most part, I only have maybe two or three hours in the morning to meet up with people 'cause I don't really like people staying up at like 11 o'clock at night working. Plus, in my experience you don't get as, your mind is not as fresh, so your work doesn't have as much quality.

In the remaining sections of this chapter, conceptualized themes from the narrative data are presented, supported by critical insights from the semi-structured in-depth interviews along with participants' own narrative voices in response to the central research question.

Time Zones as a Challenge

Narratives from research participants revealed that virtual team managers in the United States experienced challenges with sharing knowledge with diverse individual team members across time zones in virtual workspaces from both an internal sharing perspective with close networks as well as when collaborating with extended networks. Participants shared experiences of time zones impacting work performance and time availability for communication and knowledge sharing as well as communication channels. For example, Participant 6 stated,

The biggest challenge right now is we have started working with global teams in India and we have a very limited window in the morning where it's very early for us and very late for them and so we have about a 3-hour window where we have to put in a lot of our joint conversations. It's not as challenging for my employees on the east coast, you know eastern time zone, even central. But, I have an employee on the pacific so you know she has to get up sometimes at 5 in the morning, 4 in the morning, so we have to really talk about it and [say] "Hey is this something you can even do?" For the most part I avoid having calls with her that require her to come in earlier than her normal time.

According to Participant 8,

My biggest experience is just really managing the deliverables in light of the time differences because so many of the different countries are ahead in time, you have to make sure that whatever… one of the things I'm always looking at, case in point, this week we're preparing for a launch for next Monday and we had a lot of

critical path issues that had to get resolved this week so [I] had to make sure that the day before I had all questions, any questions answered, clear paths set so that that next day, for them comes way before [my] day and by the time our day starts their day is almost ending. So just making sure that we don't lose a day because of that time difference. That's the really the main thing. So, in this experience we lost a couple days this week because of some miscommunications and, but that's something I'm always trying to remain cognizant of.

While Participant 3 stated,

[soft laugh] The different time zones has been a challenge sometimes. If you're in Florida, people think that Florida has one time zone and we have two. So, and it's happened at both ends, both at my end and [their] end. You think you're in the same time zone and you don't make adjustments for that and so you might miss an appointment, you know an online appointment or something like that. That's been fun. Or, if it's somebody who, their best time is when they get off work at 7:00 at night, that's 6:00 at night for me, generally in the eastern time zone, I will stay around at work and wait and wait and wait and wait and then I will call them. Not so much trouble with [name], I think because they are a [larger] organization, they are aware of the different time zones. But when dealing with some of the smaller agencies, it's been interesting.

Culture as a Challenge and as a Benefit

Narratives illustrated by research participants revealed that culture was both a challenge and a benefit to virtual team managers as they engaged in knowledge sharing

with diverse individual team members. The experiences shared concerning cultural

differences related to perspectives, variations of cultural norms, aspects of

communication, and expectations. As Participant 1 stated,

> I think cultural differences can be difficult sometimes, because the way that an
>
> English-speaking country and the way that a Spanish speaking country may read
>
> or experience something that may be very first nature for them, may be a world of
>
> difference for the other. So how one deals with personalities, how one deals with
>
> common terminologies, that may vary greatly from a Spanish speaking market to
>
> an English-speaking market. Then you throw in a French market or a Dutch
>
> market or Creole market into that or a Portuguese market into that. It can be very;
>
> I think that is one of the bigger challenges and one that doesn't really get
>
> understood very well or there's not enough attention paid to it sometimes. So,
>
> that's one that we have to slow down and really think through that and understand
>
> – wait just because I understood that, does that mean that they understood that?

With that said, when asked of the benefits of sharing different types of knowledge with

diverse team members, Participant 1 also stated,

> Well I think the biggest thing, probably, so the biggest risks is culture but also one
>
> of the greatest features might be cultural differences as well because different
>
> people's perceptions, different people's takes on the same information, again may
>
> mean something very different so you may gain something out of that. You may
>
> take on a different perspective, you may find new opportunities that arise just

because someone views it through a different set of eyes, a different set of cultural norms that can be the benefit of that.

Participant 3 stated,

I've gotten some families and some providers who are from Nigeria and so there is a little bit of an accent challenge. They were speaking English but it was very hard to understand over the phone and one of them would just not reply to an email but she would call me, she would say what she said, and I would have to think about it for a little while before I thought I knew what she was talking about. And part of that was also a little bit of a challenge with the way they grew up, their expectations of the program weren't typical and that was a little bit of a challenge.

While Participant 7 stated,

Tacit information builds advocates. You're never gonna build friends with facts you know. You build friends with sharing information about yourself, you build friends and advocates by sharing stories. The shared experience of life is what connects us together and so being able to share your experiences regardless of culture again you know in culture you wouldn't get deep within personal information like religion or politics or sexual preferences or anything like but the idea is as you share your experiences others connect to it. You become the hero of your own story so to speak. The idea is, storytelling elicits empathy and so when we are watching a movie there is someone in that movie we're identifying with, whether it be hero or villain, and that's the same thing we are trying to do when

we elicit our own stories and so this tactile type storytelling allows us to build

advocates regardless of time zones, regardless of culture.

Collaboration and Communication as a Benefit

Research participants revealed in their narratives the benefits they experienced in

their virtual teams as a result of collaborating and communicating with diverse individual

team members. The benefits participants experienced related to process improvements,

best practices, and consistency of knowledge across the team. For example, Participant 5

stated,

We see process improvement ideas. I think when you're open to, and that's what I

love about my team, I built a team that has different background and different

strengths. It's amazing what they can communicate and share their backgrounds

and create process improvement ideas.

Participant 1 stated,

I think we have found a lot of new best practices just by stating something one

way, it being perceived another way, and then us looking back on it and saying

"Oh yeah that would be a really cool way of looking at it as well", and

implementing something as a result.

While Participant 6 stated,

Sharing the information across my team, it really helps with consistency and it

helps to where I could, I give the same message but even your teammates could

help you out later because it's a very consistent message, it's consistent

information, it's consistent training. If I'm out of the office for a day and

somebody has a question then they can go to their teammate and they've all

received the same type information as much as possible to their role, if they have

a similar role where they can help each other out.

Interpretation and Perception as a Challenge

Narratives illustrated by research participants revealed the challenges endured by

differences in interpretation and perception with knowledge sharing between individual

team members with varied cultural perspectives. Participants shared experiences of

variations in interpretation and perception with written knowledge sharing and

differences in the understanding of knowledge regardless of what was being

communicated as challenges in virtual workspaces. Participant 5 shared,

I think that when your documentation isn't very clear, when it leaves a lot of room

for interpretation, certain individuals interpret things very differently. So, I think

that when you've got a very diverse team that it's kind of interesting when you

don't see that in a document but somebody else will read it a particular way. I

think that's a very challenging thing. You can't capture everything and every

situation in a document, interpretation, especially in the contract side of the house,

which is what we do, it happens daily.

Participant 6 stated,

Probably the biggest challenge is that even when I say the exact same wording,

the exact same way, certain people hear it differently because of their experience

or background. Whenever sharing things, yeah it could make 100% sense to me,

what I'm saying and how I'm saying it but then someone on my team might

interpret it a different way or have certain follow up questions or think ooh I

meant one thing when I truly meant another. So there is always that risk and that's

probably the biggest challenge but knowing that up front and just always making

sure that I ask "Do you have any questions on this?" or "If you want to talk about

it further please come to me", "Save it for your one-on-one if you don't want to

say it in front of the group."

While Participant 1 stated,

This person that I mentioned earlier that lives in Costa Rica, born in Columbia,

grew up in St. Martin and then on the Dutch side, now lives back in Costa Rica…

So, she's had Spanish, Dutch along the way, now back to Spanish again. I think

that we probably took a lot of things for granted with this person, that she would

understand. She's not shy about stopping us and saying, "Hey, I don't understand

what you just said. Can you explain that to us?" And that's very helpful. That's

not common right, that people stop you and say, "Hey I didn't understand what

you just meant by that can you tell me that?" So, she's unique and special in that

way. We have to learn from that, that most people don't, and that a lot of people

may not understand what we take for granted and slow down and make sure that

we're not losing people in the communication process.

Technology as a Benefit and as a Challenge

Narratives illustrated by research participants revealed technology in their virtual

workspaces as both a benefit and a challenge. Participants shared experiences of how

technology assists them in effective sharing knowledge with individual team members;

however, they also expressed difficulties with adequate knowledge sharing relating to issues with technology performance across platforms and user capability. For example, Participant 7 stated,

> It's easier than ever before right. Used to, you'd be burdened by phone calls and email and now I can hop on a video chat and so I can see nonverbal communication right. So, if you were disinterested, I could detect that right, if you were frustrated, I might see that, you don't get that on email. It's never been easier, you know the fact is, I'm working from home today right, this is my home office. I walked downstairs, I left my laptop up here and somebody called me on Teams, well it rang my phone simultaneously. So, I pick it from my mobile and walked back up here to my desk, after I made myself a sandwich, so I was able to finish my communication from the kitchen.

Participant 2 stated,

> With Zoom and Join.me, when we used those two, the reason we left Join.me is because it was difficult for some people to get on to it, their computers wouldn't work with it very well then the only real barrier we ever had with Zoom was sometimes the audio wouldn't connect for the person if they were using their phone for audio and then using their computer for the video part. Cause if you use your computer for Zoom audio you have to have a webcam or a microphone, because if it doesn't, it won't pick it up. I felt like zoom was better just because there were no connection issues. We had problems with people, even like during training, I would say even if I had a two-hour block with them that day, I would

spend 15 minutes trying to get on to a Join.me [session] so that's 15 minutes of

lost time.

While Participant 3 stated,

People who don't have the skill, the knowledge to… most of our application

forms are fillable PDF's and they need to be either ink signed so then you got to

print them out or and scan them back to me or they can be digitally signed and I

have included all kinds of ways to get people to be able to do that and they don't

get it. Or, I've learned if somebody used document hub, they couldn't digitally

sign it, so I spent 15 minutes researching on Google and oh gosh you've got to

have an extension in document hub and then the PDF works just like a PDF is

supposed to. It's a free ad-on, I didn't know that, I didn't use document hub. But

now I can let other people know, "Hey if it didn't work, try this." Occasionally I

will run across something that I am not familiar with but mostly it's me trying to

let other people know how to use the technology that's out there.

Adapting Knowledge Sharing Behavior

Narratives illustrated by research participants revealed that research participants

adapted their knowledge sharing behavior to coincide with the recipient of the knowledge

being shared. Research participants adapted their behavior based on factors such as

personality types, communication styles, and preferences. Participant 1 shared,

Yeah, with the network so large, you have to have the ability to switch up your

frame of mind because again you could be talking to very different types of

personalities, very different types of audiences that need different types of

information, different types of delivery, and so you have to be able to switch that

up pretty quickly.

Participant 6 stated,

So really, you just have to get to know that individual, I overall, I have my

general style I guess my general management styles, but as I get to know each

employee I adjust slightly how I communicate, how I work with them based upon

their personality and their style.

While Participant 2 stated,

I kind of feel like we were managing people with everyone being different and

you treat them all different, you don't treat them all the same. So, depending on

the person I had and what the situation entailed would depend on how I would

treat them. Like, I had one person that was completely by the books, she was

100% structure, should do everything a certain way… so with her I was always

straight with her with how I follow things then other people wanted more of a

relaxed, they felt better when we were relaxed with them.

Socialization Among Team Members

Narratives illustrated by research participants revealed that socialization with

team members occurred over various types of technology and in various contexts. As the

participants shared their experiences, they noted that there was a blend of knowledge and

social interaction being shared during the knowledge exchange. Interestingly, one

participant noted during their experience that the socialization that occurred between

team members over a type of technology was seen as interrupting to the knowledge

sharing process in that the knowledge channel became inundated with social exchanges:

> So if I look at my development team. They are using Slack more than my internal
>
> IT team. My internal IT team is Teams, they prefer Teams. My client services
>
> group prefers Zoom, 'cause they are mostly client based. Teams is a lot more
>
> internal and so is Slack. The developers want to type and not talk so their
>
> definitely driven a little bit more by Slack. With Teams, the IT groups like to have
>
> a little bit more fun dropping animated jokes and have some video going back and
>
> forth and multimedia. It becomes subcultures of communication. I find, aside
>
> from me and one other executive… they don't like to use these but Zoom. I can't
>
> get on a Slack channel or Teams message with my CEO or my CFO. My head of
>
> customer success, she's is a little bit younger like me, so she uses it but the rest of
>
> them don't. (Participant 7)

Participant 4, stated

> But, where I worked previously, we would do that on a regular basis. It would be
>
> sharing knowledge but every now and then it would be also jokes and hav[ing]
>
> fun. It could start out with knowledge sharing. One of the senior developers that I
>
> used to work with, he would always come across like… new and better ways to
>
> do something so he would post something about a way to use a function better or
>
> something that would help us out so he would post that then it would make all of
>
> us look at it and it would be pretty immediate but also a great way to knowledge

share with the rest of the team. Then, sometimes it would just become fun or like I

don't know.

While Participant 1 stated,

I do think, frankly, that people abuse the platform sometimes and it becomes more

social than it needs to be. But that's not so much of these video conferencing

platforms but something like WhatsApp, our network becomes too friendly and

that's not a bad thing I don't want to sound like an old curmudgeon on that one

[chuckle] but people can become… Because this network of people, they become

friends, they are virtual friends and they start sharing vacation photos and happy

birthdays and happy anniversaries and things like that. And while you don't want

to squelch these things, that can become challenging in that it, when there's too

many messages going across these things, these platforms then you start to lose

people because they're not taking it seriously any longer because the implemation

that's on there may not be important enough to capture all the people that are

there. So, I think that that is something that we haven't really attacked yet, we

don't know how to without alienating the people who are. Because the people

who tend to use it like that are also the greatest contributors on the information

side of it. So again those same people are usually the greatest contributors to the

actual useful information so you don't want to kill their enthusiasm but I can see

for sure that there have been people who used to contribute that may not

contribute as much because they just, they can't, they don't have the time to filter

through all the minutia that may be on the platform as well.

Showing Concern for Others

Narratives illustrated by research participants revealed that they showed concern for their team members in various contexts. Participants shared experiences of connecting with team members on a personal level and touching base with team members frequently and offering support. For example,

Overall you do have to be flexible and you have to be respectful because it's not just that somebody may not want to get up at 4 am. Even me personally, I have childcare [and] I have to get them, I can't take them earlier than a certain time. You know, you have to be flexible and just talk about it. My employees know I am flexible and they can come to me about anything and [if] it's an issue like that "let's figure it out, either I will cover for the hour you need to take your kids" or you know, we have to talk through it up front just to make sure there is coverage if they absolutely can't be somewhere because of the time zone issue. (Participant 6)

Participant 7 stated,

Obviously what we do is heavily, factually driven but I find that people retain more knowledge when given a personal story attached to it, whether it be anecdotal, that may not be factual but being able to tie in situational awareness is important and that wouldn't be explicit. It might be helping them understand how they fit into the ecosystem of it all or the client's perspective or what I think the client may be feeling in order for them to more embrace and be empathetic of client needs. I think in IT especially when you just deal with data and facts you

forget that there's a human on the other side and so what we do are provide

healthcare services through software. As a technologist we often think about the

data of it all but at the other side of that data is a human and it's a human that

needs that data in order to get better treatment or care and it could be extremely

impactful to them. Specifically, it could be, we might be dealing with a diabetic

illness and left untreated it might lead to amputation and so it's important

sometimes that I reinforce that idea with my team because when your just so data

drive sometimes you forget that that data is actually supporting humans and in

this case it's a very, very personal form of support so I like to make [it] both.

While Participant 8 stated,

The only thing that I, I guess the biggest thing for me is that verbal conversation

is very important. I think when you work in a remote position, to just have those

verbal and then even some personal, you know where you ask about a person's

house or whatever type [of] thing, you know just expressing interest there because

one thing I did notice is that when you work in a remote position, if you're

entirely just chatting or emailing and there is very little vocal contact there, it can

be easy to forget that you're talking to a person which means that something

doesn't go right or go wrong a temper might trigger or something or you might

say crazy things or whatever, as long as you got that vocal going, that vocal

contact there, at least that minimally, because I also believe in in-person contact

too but when you got people spread a thousand miles away it's not necessarily

very practical, but the next best thing is to have that vocal conversation because it

reminds you that, hey your talking to another person and to remember to respect

that person because you know if you're just sitting there, you can become like a

troll, a person that just sits out there, sits on the internet all day and just talk all

kind of crazy stuff but the moment you take that person and you put them in front

of like a real person you'll be like "okay, this don't sound like the same person"

because when you have that vocal contact there it just reminds you of the respect

you need to have with each other.

Relationship Aspects and Knowledge Sharing

Narratives illustrated by research participants revealed that relationship aspects

influenced knowledge sharing through relationship building, time, frequent interaction

through various types of technology, the size of the organization, and the need to depend

on team members. Each participant shared their experience and context in which

relationships in the organization enabled knowledge sharing and working together. For

example, Participant 1 shared,

Now moving over to the tacit, that obviously only comes with experience and

how often. That comes through relationship building, time having worked in a

marketplace or with brands or how to manage people and expectations, those are

the sorts of things that maybe in a book but those aren't thing you… those are

things you have to experience and have to be experienced first-hand and coached

through.

Participant 8 stated,

So we just do kind of everything, heavy chat, or if I identify something project-

wise, I probably spend maybe 70% of my time using Skype chatting back and

forth with team members and group chats and then we'll spend, we have daily

scrum calls where we actually get on the phone call, voice call and we'll talk

about 10, no more than 15 minutes, just to kind of see, okay, how are we

progressing with the project. Are there any blocks, do you need help with

someone on the team or if someone on the team… okay I got a little bandwidth

here, I can do some other stuff if you need me to do anything. So, it's where most

of it comes.

While Participant 4 stated,

I would say both and maybe because it is a smaller place, that I think that allows a

little bit more intimacy and knowing people a little bit better and needing to

depend on each other for things. So, it's both, it's always wanting to do a good

job but at the same time wanting to be able to explain something enough that if

there is a problem that maybe I point out where the potential issue is.

Uses a Combination of Tacit and Explicit Knowledge

Narratives illustrated by research participants revealed that they share a

combination of tacit and explicit knowledge when sharing knowledge with diverse

individual team members. Participants shared experiences of how they share both tacit

and explicit knowledge in their virtual teams in various contexts. Participant 6 stated,

A combination. When somebody joins my team, [the] very first couple of weeks I

share as much of the explicit information as I can, that they can go and read on

their own via SharePoint. We have share drives, we have knowledge central

databases. We have an online training for our company. So, any of those items

they can go and read through and take up front, I give them that information. But

then, once they get into the job specific, then it's a lot of the tacit information

where they have to work on the job. So, I share information, as a team we share

best practices, things that we learn that really have worked, haven't worked, we

share with one another to retrain others to avoid making mistakes that any of us

have made on the team. So, it's very much a combination. I am one that I really,

really like documentation so as things are learned I try to task someone or myself

to put it into writing so that then it becomes a situation where it's available.

Anyone who joins my team after I am gone can go and they have more of that

documented information to read and refer back to. So, as much information we

can get on paper I try to do that because it only makes the team better in the long

run because I'm not going to be here forever. You know my boss isn't going to be

here forever. People have to know what to do after we're not here to tell people. I

don't like having information that certain people know. I don't like that; I like to

get it documented somewhere to prevent that as much as possible but it's never

going to happen 100% just based on the nature of our work.

Participant 5 stated,

A combination. Well, we've got SOPs which are step action charts, so we [have]

documentation that they can follow. So, I may have to reference that or some of it

maybe where, not pertaining to a particular process flow, it might be in regards to

how we have to handle a special situation. It might be situational. A meeting

scheduled with a certain person; it has to be. You communicate basically the same

realm, through email, through WebEx, or instant message and you know

sometimes its data driven with documentation that we have, sometimes it's just

situational.

While Participant 7 stated,

I think it's a combination of both. In a leadership role you become a storyteller,

regardless of what you do. So, you're not only sharing factual information, your

sharing your experiences. At the end of the day people remember stories, they

don't necessarily remember facts. Humans are driven by storytelling so it's

definitely a combination of both.

Tacit or Explicit Knowledge as the Primary Type of Knowledge Shared

Narratives illustrated by research participants revealed that one type of knowledge

was the primary source of knowledge in their organization. While most participants

shared experiences stating that they used a combination of knowledge types in their

organizations, several participants specified tacit knowledge or explicit knowledge to be

the primary source of knowledge in their virtual team:

The tacit knowledge, I would say that's where we spend the majority of our time

and the main reason I say that is because we have to, one of the biggest challenges

is being able to communicate requirements for our software that we're building

and it starts with the stakeholder but it's a single thread that goes through every

team that's involved in it. (Participant 8)

Participant 3 stated, "Probably primarily explicit but some tacit." While Participant 7

stated, "Explicit knowledge is shared more often because being in IT we are sharing a lot

of metrics and factual based data in order to make decisions."

Tacit Knowledge Used as a Supplement to Explicit Knowledge

Narratives illustrated by research participants revealed that tacit knowledge was

used as a supplement to explicit knowledge. Participants shared their experiences with

using tacit knowledge to supplement explicit knowledge shared in their team relating to

organization-specific knowledge and skills necessary to complete tasks. Participant 1

said,

Certainly, the studying of products, you know understanding a couple of things.

First, product knowledge is just the basic - histories of a product, chemistries of a

product, processes of making a product… that's the sort of thing that one can read

and pick up. It's easier for some than others so that is certainly something that we

try to teach and kind of… the language in our industry can be confusing and off

putting to newcomers to the industry so we try to break that down and not take it

for granted that everyone understands that so really kind of breaking down the

meanings of acronyms and esoteric language and making sure people understand

that piece of it. So, we can give them the words, we can give them the documents,

but we know we still need to explain that.

Participant 2 stated,

I would basically do PowerPoints for training and then I would also do it all on

the phone with them, so we would do it all over the phone or [on] Zoom, so that is

how we did all of our trainings and it would all be structured to be a certain way

but then I would also have to use personal situations to help them through with

the questions they would have, like how to get through patient situations that may

pop up when they were talking to patients on the phone.

While Participant 4 stated,

So, with programming there is a lot of Google, so with that it happens all the time,

research and just trying to understand. Our software is custom and there's a lot of

permissions with that and a lot of different plug-ins and things like that as well

and those are not googleable. So, I definitely have to ask my team lead or talk to

others more on the front end to try to understand what the purpose of this thing is

and how not to violate our permission issues.

Shares Knowledge Based on Situation, Need, or Task

Narratives illustrated by research participants revealed that knowledge is shared

based on a situation, need, or task. Participants shared experiences of their motivations to

share knowledge for specific reasons relating to situations encountered in a project or

within the team or organization, specific needs or requests, or based on tasks:

It depends on their primary job role. Each person on my team, they have a

specific role, what they were hired to do. And then even within those roles there's

kind of sub, I really don't want to say sub-roles but sub areas of expertise so that

then they each become experts in certain topics and then they can help others.

That's really what drives information sharing and also kind of the list of training

for a lack of better word and information they need to review in order to be

accountable for. It drives that too, the actual role that they were hired to do.

(Participant 6)

Participant 1 stated,

I think it's reading them and really understanding where they need the help. If some people simply want the fundamental basic information, they're just looking for one plus one equals two, then that's what you give them. But, if you see that someone either wants or really needs more information then of course you push them along a little further, you give them the ability, you give them the tools and then you help kind of color commentary some of those tools so that they can actually put those, put that information into action. So again, I can tell someone the chemistry of what makes up a certain wine and/or a certain whiskey or something like that but that may not mean anything, so I've got to bring out something else. I've gotta add some color commentary to that other consumer, to other people. So, somebody might just say that's all I need, okay but this other person over here may need something that may be completely lost to them so can I give them more of that tacit information. Something that's going to make it more emotional, something that's going to stick with them for forever and that they are going to be able to use again and again and again and then pass that information along to the next person who needs that same sort of attention or that same sort of type of information. So, it's really about reading whoever the audience is before you decide what type of information or how you're going to decide to decipher that information to them.

While Participant 8 stated,

> Me personally, I'm one to say need to know basis and the reason why is because
> you can give too much information it will confuse the matter because I don't like
> to confuse the matter on a lot of different things so I give the person as much
> information as they need to complete their job. If it requires more information that
> may span say another person where their deliverable, whatever the project or
> feature they're working on at that time is dependent on someone else, then I will
> bring those two in together and then share it between the two. But, I really like to
> keep the knowledge and the information as compartmentalized as possible
> because it's a fast, most of the times we're fast moving and I've found that you
> just give what they need, it just seems to be more effective for me, at least in my
> experience.

Shares Knowledge Based on Person or Position

Narratives illustrated by research participants revealed that knowledge is shared based on a person or position. Participants shared experiences of their motivations to share knowledge with certain people or people in certain positions when sharing knowledge within their team or organization. For example, Participant 6 stated,

> It ultimately, see I have project people and so it depends on the project that they
> are assigned. We have a kind of a general bank of information. Once a project
> gets assigned then I'd share even more information if I have it or I put them into
> contact with the individuals that will have the information that will help them
> with that project or that technology.

Participant 8 stated,

> Just really based on the project, really, basically aligning their role with their
> responsibilities. So, it's going to be based on their responsibilities in the role. So
> really their responsible for whether it is a deliverable or project management, QA
> whatever their responsible for that is how I determine and what I share.

While Participant 5 stated, "Again, I think it's just relevant to what their position is."

Shares Knowledge in a Variety of Ways

Narratives illustrated by research participants revealed that they shared knowledge in a variety of ways and using a variety of technology platforms. Participants shared experiences of sharing knowledge written and orally using various technologies such as email, phone, instant messenger, video conferencing, texting, as well as storing knowledge in databases for reference. Participant 5 shared,

> Yep…yep, instant messenger, WebEx, Outlook. We also have, in instant
> messenger you can screen share, WebEx you can do recordings. We have
> SharePoint where we do house data. We have databases that house data. So, we
> pretty much have a lot of different places that you can host things and share links,
> to ensure everybody gets the same knowledge.

Participant 7 stated,

> Email, Slack, Teams, texting sometimes, video. Surprisingly, voice is used a lot
> less these days. As I adapt to, as the business adapts to a younger workforce,
> people would much rather get information shared through a Teams or Slack
> channel vs. getting in a conference call or being in a meeting. The idea is this

asymmetrical type communication allows them to continue their work without disruption.

While Participant 2 stated,

Zoom was every week, uh a minimum of once a week. Then if we did trainings it was every day. So, it just depended on the situation. When it comes to the phone, we texted a lot, so we did a lot of texting and we did phone calls as well and that was pretty frequent. I'd say the texting, we probably texted each other at least 3 to 4 days a week, depending on what situations we were trying to take care of. The Join.me, we used to use it a good bit as well but we switched over to Zoom and then email we didn't use email as much as most companies did because we felt that it was slower, so we just used mostly texting and phone. Over email, we would share like successes or long drawn out [messages] by email mostly.

Knowledge Sharing Across Time Zones

Narratives illustrated by research participants revealed that knowledge sharing occurred daily over various time zones that span within the United States and abroad in overseas locations. Participants shared experiences of their daily knowledge sharing across different time zones and the continuous flow of knowledge that occurred between team members. Participant 1 expressed,

It's a challenge, it's a challenge but it's not one that you know, it's one that I think in the very beginning when you're talking with new people on the team if it is not something they are used to um, they quickly have to get on board with what the eastern time zone is because it kind of runs our whole world. Our whole

business. So, for instance, we have someone who lives in San Jose, Costa Rica,

and so she is always 2 hours behind us and so when we have a 9 o'clock Monday

morning phone call or even earlier sometimes that can be quite early for her of

course. And likewise, if we have people traveling in Europe and they need to

jump on to these mandatory calls as well it can be challenging but it comes with

the territory of a global business and so you, it's not something that you have to

deal with on a daily, weekly, or even monthly basis. They can often be a quarterly

sort of phenomenon but it is something that is not difficult to manage, the bigger

issue frankly is not time zones but connectivity opportunity because again, maybe

Wi-Fi is not as strong where you are or maybe some sort of cellular connectivity

issues.

Participant 5 stated,

Well I mean that's daily. With email they will get it as soon as they get in and

check their email. Like I said, WebEx is just a matter of setting up a meeting

when you know everyone is going to be available. So you have to specifically

pick and that's what is so hard, is just trying to find a time when everybody is

open for that particular time slot because you have a variety of people that are

coming and going throughout the day so it does make it a little difficult. You're

kind of stuck to just a few hours in the middle of the day you can really

communicate with everybody.

While Participant 7 stated,

Again, we do that every day. I've got teams throughout the United States as well as contractors that are in India and so everyday we're sharing information whether it be KPIs which are key performance indexes from tools that we're using or might be emails in the form of letting someone know about a problem we're experiencing or an article based on a new technology, or a trend or a security issue. That knowledge could be shared… we're very big into Microsoft Teams and Slack, so that information is shared instantaneously. We also share information via email, occasionally texting, but that information is shared constantly. As we speak, I'm watching messages on Slack channels as well as email popup where somebody's sharing information.

Knowledge Sharing Across Hierarchy Levels, Work Centers, and Cultures

Narratives illustrated by research participants revealed that they shared knowledge across different hierarchy levels, work centers, and cultures. Participant shared experiences of knowledge sharing that span across hierarchies and work centers. As they shared knowledge across these different levels and sections, they noted that the team members they shared knowledge with were of various cultures:

Sure, different hierarchical positions, cultures, it depends on how you define cultures. There's people of different socioeconomic backgrounds. There's people of different nationalities, countries of origin, sexual orientation, gender. So from a cultural standpoint each of those, we will call them identifiers, have some form of culture and so the only, I would think, underlining, core, denominator in all of them is the fact that we work for the same organization and the fact we all speak

English as a primary language. Or at least in our job as a primary [language]. I

have several people that English is not their first language. (Participant 7)

Participant 1 stated,

So multiple languages, multiple countries, multiple time zones, that make that up.

Throughout South America, more so in Central America, and certainly throughout

the Caribbean. So, again you're talking about multiple time zones. We have

people living in multiple locations. I mean just the, our employees alone, we have

multiple countries there and then when you talk about our customer network, we

have portfolio managers that live in certain markets and about 25 other markets

that are a part of those communication circles as well And so, there is a constant,

us pushing information or extracting information back out of those groups but

then also there is a constant exchange of ideas, best practices, and things like that

from the people within those markets and these WhatsApp groups as well that

have been extremely beneficial to the success of our business and within that,

sorry, there are, again multiple nationalities, multiple, you know you got people

who own businesses down to the new person on the street that are all sort of

contributing to these and so within that you got um, multiple ages, multiple

languages, multiple, you know… the commonality is that most people speak

English. Even if that's not their first language. They are still able to contribute to

these chat groups within in English. To my knowledge we don't have any chat

groups that use Spanish or Dutch or French or Portuguese. Although all of those

languages are readily spoken within our territories as well.

While Participant 8 stated,

> Like the business stakeholders that's more hierarchy where on the [inaudible] side the person that's sponsoring the project, you know basically the person that's paying for the project, keeping them updated with executive level status reports and then if they want more detail we will give them more, provide more detail. Definitely across more cultures, you have western and eastern cultures where probably, you've got U.S. and then there's Romania, Belarus, Philippines, India, Pakistan, Armenia, Turkey, let's see, German, Swiss. I think that about covers everybody. So yeah, it's a lot of different cultures from all over, it's interesting though to you learn a lot outside of your own culture so that's one of the things I can really appreciate. You also learn to schedule your projects a lot better, for example working on offshore in India there's a lot of festivals. They have a lot of festivals, there's a festival almost every month there and then you get into high festival season, so you have to plan your projects accordingly so as not to infringe on people. I don't like to infringe on people's culture and their religious beliefs or just, even if it's just a cultural holiday as opposed to a religious holiday, so those are things we keep abreast of.

Relationship with Recipient

Narratives illustrated by research participants revealed relationship influences with their recipients. Participants shared experiences of relationship influences such as trust and empowerment with team members, which relates to motivations of knowledge sharing. Participant 6 expressed,

I think from a virtual type environment, almost the most, the number one

probably important thing you have to have is trust so that's really one thing I

didn't really get across in any of my answers to you that I've been thinking about

is you know trust that my employees are doing what they are supposed to be

doing when their supposed to be doing it. I don't question that, I have a very good

team, I've never had to. But it's also based on trust, we had to get to know each

other pretty quickly, then immediately trust one another. They have to trust me as

their manager, I have to trust them as the employees. And I don't like to

micromanage, you can't really micromanage from a virtual perspective. But again

that even goes back to trust, that my employees, they know what they need to do,

they know what results they need to obtain and when they have to have it done

by… so I think that's really important, is building that trust and keeping and

maintaining that trust both ways as an employee, as a manager, because it makes

it a lot better of a working relationship.

Participant 5 stated,

What comes to mind with knowledge sharing…Well I just think it empowers

others. You know, I think that is one thing I try to instill in my team. If you know

something, say something. It might help another team member. They might be

struggling, maybe they're not aware, maybe they have a better way of doing it so

just communicate and get the word out there and possibly more information will

come your way.

While Participant 4 stated,

I guess, the one challenger sometimes is, it's hard, especially with as far away as I

am, to know when people get busy, and then if say I'm waiting on feedback for

something, it doesn't always come right away. And so, I have to be patient and

just trust that someone is busy and I'm not being ignored.

Summary

In this chapter, I presented the overall study and data analysis results with a total

of eight participants. The results of this qualitative study provided answers for the central

research questions:

How do virtual team managers in the United States describe their daily online

experiences with knowledge sharing between individuals with varied cultural

perspectives working in different time zones?

Based on the findings of this narrative inquiry study, a total of five conceptual

categories were developed and used for coding and grounding of the conceptual

framework. Further, a total of 18 reformulated themes gathered from the critical event

analysis were identified, leading to in-depth, rich narrative data used to answer the central

research question. The following conceptual categories were developed during analysis:

(a) positive and negative factors experienced in virtual knowledge sharing; (b) affect and

emotional connection experienced in a virtual workspace; (c) types of knowledge shared

in virtual workspaces; (d) internal factors of sharing knowledge in virtual workspaces; (e)

external factors of sharing knowledge in virtual workspaces. The 18 themes covered time

zones as a challenge; culture as a challenge and as a benefit; collaboration and

communication as a benefit; interpretation and perception as a challenge; technology as a

benefit and as a challenge; adapting knowledge sharing behavior; socialization among team members; showing concern for others; relationship aspects and knowledge sharing; uses a combination of tacit and explicit knowledge; tacit or explicit knowledge as the primary type of knowledge shared; tacit knowledge used as a supplement to explicit knowledge; shares knowledge based on situation, need, or task; shares knowledge based on person or position; sharing knowledge in a variety of ways; knowledge sharing across time zones; knowledge sharing across hierarchy levels, work centers, and cultures; and relationship with recipient.

Trustworthiness in narrative research is based on having access to reliable and trustworthy records of participants' narratives. I utilized the critical event approach for data analysis as its inherent characteristics of openness and transparency enabled me to thoroughly emphasize, highlight, capture, and describe events emerging from participants' narratives of daily experiences. The issue of trustworthiness in my qualitative study was examined through the criteria of credibility, transferability, dependability, and confirmability. In Chapter 5, I elaborate on the interpretation of the findings, limitations from this study, recommendations, and implications for social change, theory, and practice along with recommendations for practice.

Chapter 5: Discussion, Conclusion, and Recommendations

Introduction

The purpose of this qualitative, narrative inquiry study was to explore the daily online experiences of virtual team managers in the United States with knowledge sharing between individual team members with varied cultural perspectives working in different time zones. Researchers use qualitative methods to understand how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences (Merriam & Tisdell, 2016). As Riessman (2008) eloquently stated, narratives are an event-centered, human-depicted action, and they are experience-centered at various levels, for they do not merely describe what someone does in the world but what the world does to that someone. This narrative inquiry research documented the daily online experiences of virtual team managers in the United States with knowledge sharing between individuals with varied cultural perspectives working in different time zones. The narrative inquiry research method allowed for the collection of data from in-depth, semistructured interviews with eight participants regarding their work experiences and the complexity of human understanding (see Clandinin, 2016; Webster & Mertova, 2007). This study was framed by the concepts of Cropanzano et al.'s (2017) concepts of reciprocal exchange and social exchange. A critical event analysis of eight participants' narratives revealed the following 18 prominent themes: time zones as a challenge; culture as a challenge and as a benefit; collaboration and communication as a benefit; interpretation and perception as a challenge; technology as a benefit and as a challenge; adapting knowledge sharing behavior; socialization among team members; showing

concern for others; relationship aspects and knowledge sharing; uses a combination of tacit and explicit knowledge; tacit or explicit knowledge as the primary type of knowledge shared; tacit knowledge used as a supplement to explicit knowledge; shares knowledge based on situation, need, or task; shares knowledge based on person or position; sharing knowledge in a variety of ways; knowledge sharing across time zones; knowledge sharing across hierarchy levels, work centers, and cultures; and relationship with recipient. This chapter includes the interpretation of the findings, the limitations of the study, recommendations for future research, and a conclusion.

Interpretation of Findings

Most findings in this narrative inquiry study confirm or extend existing knowledge, with each narrative presenting experiences that confirm findings in the reviewed literature in Chapter 2. During the critical event data analysis process, I did not have any discrepant data contradicting the themes and theoretical suppositions presented within the conceptual framework or the literature. In this section, I present and review the findings by the five finalized conceptual categories from this study's results as emerging from the narrative inquiry data analysis. In each subsection, I compare my findings with the conceptual framework and the literature. Further, I provide evidence of how the study findings confirm and/or extend knowledge from within the field of virtual team studies. Extension studies such as my empirical exploration provide replication evidence and extend the results of previous studies in new theoretical directions (Bonett, 2012).

Positive and Negative Factors Experienced in Virtual Knowledge Sharing

Positive and negative factors experienced with virtual knowledge sharing were thoroughly explored through this study. This study confirmed the implications that communication, modern technology, and the incorporation of diversity enables a virtual team as they contribute to an organization's ability to leverage knowledge and maintain a competitive edge (Bhat et al., 2017; Pathak, 2015). Further, the narrative experiences of participants in this research confirmed the challenges and barriers identified by scholars relating to human relations in virtual workspaces regarding communication, decision making, and knowledge sharing as a result of geographic separation, lack of physical interaction and diversity across different time zones (Gilson et al., 2015; Haas & Cummings, 2015; Oparaocha, 2016). For example, challenges with sharing knowledge across time zones, challenges and benefits of cultural differences, the benefits of collaboration and communication, the challenges of interpretation and perception, and the challenges and benefits of technology. Thus, the findings support and extend prior research by indicating positive and negative factors experienced by virtual team managers in the United States regarding knowledge sharing, advancing understanding and contributing original qualitative data by the study's conceptual framework.

Narratives throughout this research illustrated interpretation and perception as a challenge when sharing knowledge with diverse individual team members, further impeding their ability to interpret the meaning of shared knowledge and ideas (see Ford et al., 2017; Schaubroeck & Yu, 2017). Studies have suggested that developing a shared understanding and cohesion between team members to communicate effectively is

conditional to the frequency and quality of the interactions (Ariff et al., 2015; Marlow et al., 2017). Further, the quality of the exchange relationship is situated between two members, with the individual's behavior initiating the quality of the exchange that is reciprocated by the other individual (Cropanzano et al., 2017). In some narratives, participants described that differences in one's perception and meaning affected the interpretation of shared knowledge, further impacting the quality and effectiveness of communication between team members.

Narratives of participants' experiences further illustrated technology as both a benefit and a challenge. Although the advancements of modern technology have created capabilities for organizations to employ virtual teams that span across distance, time, and space, issues of connectivity, consistency, performance, and asynchronous interaction impede adequate knowledge sharing in virtual workspaces (Ariff et al., 2015; Panteli et al., 2019; Sivunen et al., 2016). Studies have highlighted a variety of technologies over which knowledge is shared in virtual workspaces acknowledging that both platform performance and effective use of technology, the willingness to share, and the level of sharing as barriers of effective knowledge sharing (Anders, 2016; Hacker et al., 2019; Meher & Mahajan, 2018). In some narratives, participants described the ease, convenience, and versatility of sharing knowledge with individual team members over various forms of technology, while other participants expressed limitations to effective communication and platform performance. This research confirms that both technology performance and effective use of technology can interfere with sufficient knowledge sharing among virtual team members.

Affect and Emotional Connection Experienced in a Virtual Workspace

Virtual workspaces are dynamic and complex with numerous challenges based on the composition of the team, technology used to communicate, geographic dispersion, and time zones that influence interaction. This research presents some important themes illustrating adaptive behavior, socialization, a concern for others, and relationship aspects related to the knowledge sharing that occurs in virtual workspaces. For instance, my findings confirm the importance of developing interpersonal, organizational relationships in virtual workspaces (see Kauffmann & Carmi, 2019). Past research has also highlighted team behavior, in-group subtleties, and intergroup contact as providing valuable insight on relationships dynamics in virtual team workspaces (Alvídrez et al., 2015; Plotnick et al., 2016; Yilmaz, 2016; Yilmaz & Pena, 2015). Narratives of participants illustrated that adapting knowledge sharing behavior to that of the recipient to facilitate fruitful knowledge exchange. Further, the findings of this study illustrated the various levels of socialization of team members and the impact on knowledge sharing confirming research regarding the quality of organizational relationships as a contributing factor in effective knowledge sharing (see Ahlf et al., 2019; Torro & Pirkkalainen, 2017). Several narratives from the research participants confirmed this finding by emphasizing that as there was an increase in socialization there was an increase in knowledge sharing.

This research also further elaborated on how affect and emotional connection with team members was experienced in a variety of different virtual team environments. For example, Lawler's (2001) affect theory of social exchange incorporates emotions produced by social exchange as influencers to the strength or weakness of relationship

ties among individuals, groups, and networks. In the findings of this study, participants'

narratives revealed a show of concern for others with increased interaction and the

benefits that resulted with knowledge sharing which confirms scholars' notions regarding

the level of relationship commitment and communication concerning social ties and

knowledge sharing (Ahlf et al., 2019; Torro & Pirkkalainen, 2017). The narratives of

participants illustrated a genuine concern for their individual team members in wanting to

understand them, communicate with them, and be flexible to their needs to develop a

positive knowledge sharing relationship. Further, participants revealed other aspects to

relationship ties such as continuous interaction and developing a connection with the

recipient to facilitate sharing tacit knowledge.

Types of Knowledge Shared in Virtual Workspaces

Organizations rely on two primary types of knowledge, explicit and tacit

knowledge, to leverage information over their competitors. My findings confirmed the

role these types of knowledge play in the various levels and stages of organizational

success (Curtis & Taylor, 2018; Endres & Chowdhury, 2019; Navimipour & Charband,

2016; Serenko & Bontis, 2016a). Each of the eight participants shared experiences of

utilizing a combination of tacit and explicit knowledge in their daily knowledge sharing

with individual team members. Some participants identified either explicit or tacit

knowledge as the primary type of knowledge shared depending on the type of work and

tasks being fulfilled (see Nonaka & von Krogh, 2009; Olaniran, 2017).

The study results align with scholars' implications that tacit knowledge is

essential in contributing to an organization's competitive advantage as it is used to

supplement explicit knowledge in virtual workplaces (see Hu & Randel, 2014; Nonaka & von Krogh, 2009; Olaniran, 2017). In some narratives, participants expressed the need for tacit knowledge to help leverage explicit knowledge within the team and organization. This research confirms that the type of knowledge utilized in an organization is dependent on the organization's tasks, objectives, and goals and that tacit knowledge is utilized to complement organizations' explicit knowledge to achieve said tasks, objectives, and goals.

Internal Factors of Sharing Knowledge in Virtual Workspaces

Internal factors of sharing knowledge in virtual workspaces were confirmed through this research by narratives illustrating the nature of knowledge that was shared, motivations to share, and opportunities to share (see Choudhary & Sarikwal, 2017; Ipe, 2003; Jinyang, 2015). This analysis further aligns with virtual team managers' experiences of sharing knowledge based on influences of not only rapport but also the situations that arise, the expressed need for knowledge, or the task that is presented (Ipe, 2003). Additionally, in prior explorations, researchers conducted investigations of virtual teams and knowledge sharing examining individual behaviors of willingness and motivation, cultural differences, and affective commitment (Chumg et al., 2015; Eisenberg & Mattarelli, 2017; Killingsworth et al., 2016; Pee & Lee, 2015; Wehrung, 2017). This research confirms past investigations of individual willingness and motivation to share knowledge, as the narratives illustrate participants experiences of reciprocity with knowledge sharing to support situations, needs, and tasks in the virtual workspaces as well as positions within their organizations (see Endres & Chowdhury,

2019; Ipe, 2003; Pee & Lee, 2015). Further, in some narratives, virtual team managers'

motivation and willingness to share knowledge was based on a genuine determination to

facilitate the understanding of knowledge and future knowledge exchange.

Narratives in the data also illustrated the various ways knowledge is shared

between individual team members in their internal and external channels to accommodate

for the most effective way of sharing while taking into consideration personal preferences

and cultural aspects. For instance, research has supported platform communication, social

collaboration, and team communication from a systems perspective enhancing the

various ways knowledge is shared in virtual workspaces (Anders, 2016). As knowledge

sharing is shown to support and encourage healthy collaboration and interpersonal

relationships among employees, the data in this study support both the relationship aspect

of knowledge sharing as well as organizational benefits of innovation and creativity,

which is relied upon when competing within respective industries through the

motivations and opportunities to share as well as the methods of sharing (see Alsharo et

al., 2017; Chae et al., 2015; Z. Jiang & Hu, 2016; Oparaocha, 2016).

External Factors of Sharing Knowledge in Virtual Workspaces

In addition to internal factors of knowledge sharing in virtual workspaces,

external factors were confirmed and supported by narratives illustrating knowledge

sharing across time zones, knowledge sharing across hierarchical levels, work centers,

and cultures, and the relationship with the recipient. This analysis further aligns with

previous research by confirming the diverse influences that impact effective knowledge

sharing between individual team members (see Batarseh et al., 2017a; Ipe, 2003; Kim,

2018; Siebdrat et al., 2014). In some narratives, virtual team managers shared experiences of adapting to time zones differences as it has become a requirement for the job or positions. Other narratives of virtual team managers illustrated the difficulty with time management across varying time zones. This was especially the case with time zones outside the continental United States, leading to a narrow window of time available during standard work hours to communicate and collaborate with team members located in other areas.

The functional and deep-level diversity that exists in virtual team workspaces adds to the complexity of knowledge sharing over virtual means in that there is already a constraint on relationship development and knowledge of the individual team members. Team members are limited in their interactions, an essential factor for positive relationship development, and in the amount of information they can gather about their team members, which further influences relationship development aspects such as trust and the willingness to share (Ford et al., 2017; Schaubroeck & Yu, 2017). This research confirms that both positive and negative aspects result when sharing knowledge across hierarchies, work centers, and cultures in virtual workspaces (see Batarseh et al., 2017a; Gibbs & Boyraz, 2015; Kim, 2018). Some narratives in this research illustrated the complexity of communicating across various cultures from a national and international perspective, even noting the differences among subcultures within the United States. Other narratives also illustrated differences in knowledge sharing behavior across different work centers and hierarchies.

Finally, the relationship with the knowledge recipient influences the motivation to share knowledge. As Ipe (2003) emphasized, trust and the power status of the recipient are critical elements in dynamic virtual team relationships. Further, these critical elements are influential to the reciprocal response during knowledge sharing occurrences (Cropanzano et al., 2017). Narratives in this study illustrated the need for trust between individual team members and the acknowledgment that knowledge is power in the context of virtual teams confirming past research investigations on influences of trust and power in virtual teams (see Costa et al., 2018; Fachrunnisa et al., 2018; Gibbs, Kim, et al., 2017; Haakonsson et al., 2016). Virtual workspaces are a complex and dynamic environment to foster relationship development for effective knowledge sharing. Participants in this study repeatedly stressed that open communication as a way of facilitating the knowledge sharing process was necessary. Open communication not only aids in the fruitful exchange of knowledge, but it aids in developing and fostering relationship aspects such as trust, shared understanding, and inner connectedness between individual team members.

Limitations of the Study

Limitations in research are inevitable because there are numerous factors to consider for each individual study relating to methodology and potential bias (Romeike et al., 2016). One significant limitation of this study was the potential misrepresentation of events by participants. As with any interview-based study, as there is no systematic way to verify that the information provided by participants is genuine. To help participants recall experiences of knowledge sharing with individual team members and to improve

trustworthiness and credibility during the study, a convenient video chat interview platform was selected. This platform allowed participants to remain open and honest in their own environment, with the autonomy to share experiences as they deem appropriate while establishing a synchronous interaction during the interview (Seitz, 2016). Each participant was open to the interview platform and was able to communicate detailed accounts of their experiences during the interview process.

The second limitation of the study involved the technology used to conduct the interviews. Technical difficulties such as Internet connection and inaudible segments were concerns that were managed during the interviews (see Seitz, 2016). Further, interviews conducted over Internet technology are comparable to face-to-face interviews; however, there is still a degree of loss of intimacy as well as the inability to thoroughly read body language and nonverbal cues (Janghorban et al., 2014). As technical difficulties arose, I worked through difficulties as appropriate and communicated with the participant to ensure the issue was resolved, such as with lagging or choppy connections. Additionally, I asked participants for clarification during segments that were difficult to understand as a result of the connectivity or soft-spoken tone.

The third limitation of the study concerned the narrative inquiry research method. My objective in employing Clandinin's (2016) narrative inquiry approach was to interview eight virtual team managers residing in the United States and share their experiences with knowledge sharing. The limitation of this method was that the individual stories might not consistently represent narratives of virtual team manager's daily online experiences with knowledge sharing between individual team members

across different time zones. As a researcher, the ability to interpret the information communicated and follow along with each participant's narrative was a significant factor in the interpretation of the data. The experiences of the participants were an essential component of this study as they provided substance for an information-rich inquiry while following narrative guidelines to establish the credibility of the coded narrative data (Syed & Nelson, 2015). My responsibility as a researcher was to collect and interpret the narrative data while ensuring transferability and achieving saturation. Despite the described limitation, these efforts were performed and extended throughout the study to include analysis of the narrative data.

Recommendations

This research study has offered insight into how virtual team managers in the United States describe their daily online experiences with knowledge sharing between individuals with varied cultural perspectives working in different time zones. Findings from this research showed that virtual team managers in the United States face a variety of challenges as well as experience numerous benefits in their daily knowledge sharing with individual team members across different times zones. Future research should encourage further investigation of virtual team managers in order to better support communication and knowledge sharing across virtual team workspaces. This exploratory study and the findings it yielded provides an opportunity for further research utilizing both qualitative and quantitative measures.

Methodological Recommendation 1: Qualitative Replication

My research data was compiled from various participants located in different times zones across the United States. There is a need to reproduce this narrative inquiry study in other specific states and regions that have multiple time zones. Virtual team managers' experiences are likely to be different in locations that function across more than one time zone, allowing for different perspectives on knowledge sharing between individual team members in different time zones (see Sivunen et al., 2016). Knowledge sharing in a virtual team context is influenced by a variety of factors such as virtuality, geographic, and spatial dispersion, resulting in the need for further research on knowledge sharing in different times zones (Foster et al., 2015; Haas & Cummings, 2015). This recommendation is supported by participants' mentions of specific instances experienced as they shared knowledge with individual team members across different time zones.

Particular instances of specific knowledge sharing experiences led to the following three themes: (a) time zones as a challenge (Participant #3 mentioned how if you are in Florida, people think that Florida has one time zone, but they really have two and so it happens, you think you're in the same time zone, and you don't make adjustments for that so you might miss an appointment or something like that. The participant went on to also mention that they felt this issue was experienced more with smaller organizations.); (b) sharing knowledge in a variety of ways (each of the eight participants shared their experiences of knowledge sharing using a variety of technologies and methods as they shared knowledge across time zones; Participant #7

recalled that the phone has become less relevant as entire organizations have gone to mobile only, no phone, no desk. This participant also shared that work was no longer a place to them, it was a thing); and (c) knowledge sharing across time zones (Participant #5 explained that while there is email to communicate over, picking a time slot to arrange a video chat or real-time conversation with team members can be challenging in that people are often coming and going).

Supplementary investigations of narrative inquiry studies containing participants from states and regions with multiple time zones will likely enhance the existing knowledge on virtual team managers' experiences of knowledge sharing between individual team members across different time zones. Researchers might discover that virtual team managers in the United States could contribute to the known challenges and barriers of knowledge sharing in virtual contexts while fostering questions from an organizational perspective. These discoveries may assist in the understanding and enacting of practices to enable better knowledge sharing across different time zones. Further, these are real-time experiences that require first-hand knowledge to understand and improve knowledge exchange.

I believe it is vital for future research to explore generational differences and their willingness to share knowledge while utilizing different types of technology in virtual workspaces across different time zones (Gilson et al., 2015). Knowledge sharing in a virtual context needs to be extended to explore organizations that employ a variety of generations while using modern technology platforms (Han et al., 2017). Applying reciprocal exchange and social exchange theory (Cropanzano et al., 2017) to virtual

workspaces that employ team members from a variety of different generations provides a

theoretical understanding of how individuals of different generations share knowledge

across various technology platforms and their perceptions of effective knowledge sharing

(Sox, Kline, Crews, Strick, & Campbell, 2017). For example, Participant #3 stated, the

reason why she doesn't use some of the other technologies is partly because of her

background [in IT] and doesn't want to sign up for every new thing that is out there while

her colleague that is 15 years younger signs up for new platforms. Also, Participant #7

noted that he and one other executive use the platforms Slack and Teams while others do

not as they prefer to use the platform Zoom, however, the head of customer service is

younger like him and uses the same platforms.

Future research should also explore the influence of cultural subsets in virtual

workspaces. In many diverse virtual teams, members are located in one area but have past

experiences that influence their knowledge sharing and collaboration with team members.

Additionally, other team members relocate during their employment, taking on cultures

of their new location in addition to their past experiences. An example of this is the

narrative of Participant #2, in which the participant worked for a virtual organization and

relocated several times during his employment to different areas of the United States

noting the different cultural subsets he and his coworkers were exposed to. The

recommendation to explore cultural subsets is based on how these aspects influence

knowledge sharing behavior in virtual team workspaces. For example, Participant #7

shared that developers want to type and not talk, so they are driven by specific platforms

while the IT groups like to be more social with the exchange of multimedia; thus, it becomes an influence of subcultures of communication.

Methodological Recommendation 2: Quantitative Validation Through Mixed Methods

A quantitative research method, such as a survey, may provide additional insight into virtual team managers' experiences with knowledge sharing between individual team members in different time zones. Although several portions of my study provided highly detailed results that support the views of all the participants, their experiences may change based on cultural aspects and regions. Supporting research states that despite the various challenges and barriers experienced by virtual teams with regards to knowledge sharing, there are many positive aspects of sharing knowledge with diverse team members, such as different perspectives and new opportunities. Nonetheless, in these same conditions, virtual teams also experience negative situational aspects such as miscommunication and misinterpretation when sharing knowledge (Leung & Wang, 2015). A quantitative study may reveal inconsistencies and similarities not displayed through qualitative research and may generate recommendations for future research (Burkholder, Cox, & Crawford, 2016).

Quantitative and qualitative research offer various methods which have provided remarkable gains in knowledge, based on each respective approach. I would recommend that a quantitative methodology be part of a mixed-methods study to offer an aspect of generalizability to results not attained with qualitative research designs currently used to study virtual team managers' experiences with knowledge sharing and the implications of

effective knowledge exchange despite challenges and barriers. Considering the specific

limitations of qualitative research designs, the incorporation of a

constructivist/interpretative paradigm with a quantitative component including a

positivist approach may reveal further insight on the knowledge sharing behaviors in

virtual team context and contribute to answering questions of an individual's willingness

to share knowledge despite the challenges of relationship development and lack of in

person interaction experienced in virtual settings (Eisenberg & Krishnan, 2018; Haas &

Cummings, 2015).

Recommendations for Future Research

Some themes that originated from this study provide an opportunity for future

research, which will allow for a more contextual analysis of management and leadership

practices related to virtual teams and knowledge sharing. The results could lead to

additional exploration and understanding of virtual team managers' experiences of

knowledge sharing in diverse virtual teams across different time zones, resulting in

positive knowledge exchange across diverse cultures, cultural subsets, and generations, as

well as organizational successes as a result of effective knowledge sharing. Based on the

findings of this study, I have suggested valid recommendations for further research in

three areas in particular, as they relate to virtual teams and effective knowledge sharing.

The influences of subcultures. An examination of the influences of subcultures

in virtual team knowledge sharing is necessary in future research in order to provide a

better understanding of the subcultures that exist in virtual teams and the influence they

impart on knowledge sharing between team members (Chu et al., 2019). Globalization

has significantly influenced the blending of cultures as people traverse across the globe seeking various opportunities. When individuals relocate to different areas, they not only take on new cultural attributes but also impart their unique cultural distinctions in their new surroundings. These cultural attributes and distinctions influence their knowledge sharing behaviors based on past and current experiences (Charband & Navimipour, 2016). My study findings revealed there is a concern with knowledge sharing in virtual teams based on influences of cultural subsets. Further exploration of this topic could provide valuable insight to virtual teams and knowledge sharing behaviors in a blended society (Chu et al., 2019; Gelfand et al., 2017).

Generational differences. Further research on the influence of generational differences in virtual team knowledge sharing is vital to developing a comprehensive understanding of the impact multiple generations have when collaborating across distance, time, and space. With several generations currently in the workforce, it is vital to understand the knowledge sharing behaviors of the various generations as they each were exposed to different levels and types of technology during their youth and as they progressed through their careers (Gilson et al., 2015). Thus, each generation may have different perspectives, reactions to, and behaviors working in a virtual team environment compared to that of a traditional face-to-face setting (Eisenberg & Krishnan, 2018). As my study revealed generational differences influenced the types of technology used and how it was used when sharing knowledge with individual team members in virtual workspaces, future studies might contribute insight and new knowledge that is specific to this topic (Han et al., 2017).

Regions and states with multiple time zones. Future research on virtual team knowledge sharing occurring in regions and states where multiple time zones exist is encouraged at the organizational and individual management level. Some studies have suggested that an hour difference between time zones has a greater impact than a time zones difference of multiple hours (Sivunen et al., 2016). Not all employees have the same perceptions concerning time zones, nor are all employees aware of hidden boundaries of time zones in the United States. This can significantly impact collaboration and productivity, depending on when in the day, team members are trying to exchange knowledge or coordinate actions (Prasad et al., 2017). My study revealed that delays and miscommunications relating to time difference arose in a state where multiple time zones exist in addition to the typical challenges of known time zone differences. Future studies may identify other pertinent issues relating to time differences beyond the boundaries of subjective distance and virtuality that impact knowledge sharing, such as with team composition and team processes (Foster et al., 2015; Siebdrat et al., 2014).

Implications

Implications for Social Change

An important finding from my study is that the experiences of virtual team managers in the United States are that of an exceptionally complex and dynamic environment. Thus, no two virtual team manager's experiences are the same. Communication and relationship building through virtual means has become a norm in society and an outlet to bring groups of people together for positive social change. Nevertheless, miscommunication, misunderstandings, differences in perceptions and

knowledge sharing behaviors, and organizational relationship aspects continue to

challenge virtual teams in the facilitation of effective knowledge sharing. Knowledge as

an asset in organizations is a vital link to long term sustainability and the ability to remain

competitive in respective industries (Zhang & Jiang, 2015). Although globalization has

dramatically influenced diversity in organizations, modern technology offers a multitude

of ways to operate over distance, time, and space. Further, as society continues to

diversify, the blending of cultures becomes even more apparent as diverse individuals

come together to accomplish shared goals and objectives. Challenges with

communication, relationship development, and developing a shared understanding to

maximize performance and productivity become even more complicated when

integrating the surface level challenges of geographic dispersion, spatial distribution, and

time zones. In light of this information, positive social change is necessary and is

recommended for practice to cultivate better knowledge sharing between virtual team

managers and their team members. Moreover, researchers can give virtual team managers

a voice formulated from their distinct experiences with knowledge sharing between

diverse individuals across different time zones to effect positive social change.

This study gave a sample of virtual team managers in the United States

illustrating their experiences with knowledge sharing between individual team members

with varied cultural perspectives working in different time zones, an area that remains

poorly understood regarding solutions to adequate knowledge sharing in scholarly

literature and organizational practices (Eisenberg & Krishnan, 2018). Understanding the

experiences of virtual team managers and how they share knowledge and what influences

their willingness to share contributes to the sensemaking of how organizations and society are evolving during the digital era. This research has the capability of becoming a facilitator for social change by drawing awareness to the challenges and barriers relating to knowledge sharing across time zones that virtual team managers in the United States experience in virtual workspaces as remote work continues to rise across the nation.

Implications for Practice

As the utilization of virtual teams rises across the nation, it is essential to develop a better understanding of virtual teams in a variety of contexts that span beyond global virtual teams. National and regional organizations are utilizing virtual teams to reduce costs and their environmental footprint while expanding their reach across the nation and various regions (Ford et al., 2017; Olaisen & Revang, 2017). Advancing technology provides countless tools to help facilitate virtual team functions. With that said, virtual team leaders and managers are faced with the challenging task of harnessing unique traits, skills, and knowledge of diverse team members to develop a shared understanding to accomplish team goals and objectives (Eisenberg et al., 2016). Likewise, challenges exist in virtual team members' ability to properly utilize appropriate tools through a lack of skill and understanding of many platform functionalities. These challenges contribute to the lack of effective communication and knowledge exchange when considering the effects of virtual synchronous and asynchronous interaction.

Further, when considering virtual communication across distance, time, and space virtual teams are now faced with debates of when to interact and share knowledge without interfering with work-life balance. Though many organizations have strategies on

how to adapt to the complexities of working across virtual spaces, there is still a gap in integrating specific challenges of virtual team leaders and respective solutions to issues such as effective knowledge-sharing across academic literature and industry practices (Eisenberg & Krishnan, 2018). From a practical perspective, the results of studies on virtual team managers' experiences can also provide valuable information on how organizational culture can affect virtual team performance, relationship development, and facilitate work-life balance, thus improving overall organizational success, social development, and morale (Liao, 2017).

My findings indicate that relationship development among team members was essential to successful knowledge sharing and the development of shared understanding between team members. Considering the practical significance of an organization's ability to leverage knowledge, understanding the challenges and barriers that interfere with or hinder knowledge sharing are essential when considering relationship development (Paul et al., 2016). This research presented narratives of virtual team managers that were each uniquely significant in its symbolic meaning and understanding of the social reality that occurs in intra-organizational relationship development among team members (see Søderberg, 2006). Thus, continuing to develop a deeper understanding of relationships in diverse virtual contexts may help managers create and maintain organizational climates that embrace and value diversity, member knowledge, expertise, and alternate perspectives (Kim, 2018).

Implications for Theory

The lack of exploratory research on virtual team managers in the United States and their experiences with knowledge sharing between individuals with varied cultural perspectives working in different times zones and the implications of these experiences for developing adequate knowledge sharing in virtual team workspaces is a critical knowledge gap. This knowledge gap is a result of the lack of incorporation of various factors explicitly relating to virtual teams and knowledge sharing in reciprocal and social exchange theoretical frameworks. Although reciprocal exchange has been considered and applied in several studies relating to knowledge sharing, few studies have applied reciprocal exchange to examine knowledge sharing in a virtual team setting (Lin & Lo, 2015; Serenko & Bontis, 2016a). Likewise, the application of social exchange has frequently occurred with both knowledge sharing and virtual teams research; however, there is an absence in the literature incorporating the influence of different time zones into studies (Alsharo et al., 2017; Endres & Chowdhury, 2019; Killingsworth et al., 2016). To the best of my knowledge, this is the only narrative inquiry study regarding virtual team managers in the United States and their experiences with knowledge sharing. Further, studies concerning virtual teams in the United States typically examined university populations resulting in the absence of real-world experiences of virtual team management studies (Iorio & Taylor, 2015; Killingsworth et al., 2016; Serban et al., 2015). Discrepancies have been noted in scholarship as examinations discuss aspects of leadership in virtual teams found in student populations that may considerably vary when examining organization-based teams (Gibbs, Sivunen, et al., 2017).

My study confirms the importance of exploring virtual team managers' experiences with knowledge sharing between individual team members across varying time zones and the challenges and barriers they face despite advancements in technology and the need for more multilevel analysis to capture the complex interplay of micro-level individual, meso-level organizational, and macro-level national influences regarding the study problem. These are all pathways of future theoretical investigation that can better inform academics, organizations that support virtual teams, and the field of management as a whole. Through an empirical investigation into virtual team managers' experiences with knowledge sharing between individuals with varied cultural perspectives working in different time zones, my study filled the gap of missing knowledge in theoretical foundations of the conceptual framework. This study contributes original, qualitative data to reciprocal and social exchange theory that may prove to be useful in future related research.

Recommendations for Practice

The findings of this research study are informative to virtual team managers as well as organizations that utilize virtual teams in the United States. This study shows that virtual team managers need to acknowledge and facilitate constructive relationship development among diverse team members to better support sufficient knowledge sharing through the utilization of the various modern technology platforms. Further, virtual team managers must continue to practice and encourage developing cohesion and shared understanding among team members to maximize effective knowledge sharing. Interaction over virtual technology can often impede successful knowledge sharing due to

miscommunications, misunderstandings, cultural differences, language barriers, levels of virtuality, and poor utilization of technology (Haas & Cummings, 2015; Hacker et al., 2019; Schaubroeck & Yu, 2017). Further, the influence of time zones can hamper knowledge sharing behavior in that teams are limited to segments of time in which they can come together collectively for collaboration and knowledge sharing purposes (Sivunen et al., 2016). Additionally, unawareness of time zone boundaries can create unnecessary delays in the knowledge sharing process. Maintaining a position in leadership requires situational awareness of internal and external factors affecting their team members, leading by example, and creating an environment that is conducive to active knowledge sharing and positive relationship development. Further, leaders and managers must stay abreast of issues that arise within the team to assist in overcoming challenges and barriers.

As remote work continues to rise across the nation and work collaboration increases, it is essential to maintain awareness of the adversities that influence effective work performance in virtual team environments (Gallup, 2016; Gartner, Inc, 2018). Further, virtual team leaders and managers must consider the influences of globalization that continue to encourage diverse populations. As knowledge sharing, collaboration, and team cohesion remain among the top adversities influencing effective work performance in virtual team environments, it is vital to maintain an organizational climate that embraces and values diversity, member knowledge, expertise, and alternate perspectives (Dulebohn & Hoch, 2017; Hill & Bartol, 2016; Kim, 2018; Paul et al., 2016). The results of this study make contributions to practice towards supporting effective knowledge

sharing in virtual workspaces between virtual team managers and individuals with varied cultural perspectives working in different times zones.

Conclusions

As organizations adapt to the demands of globalization, the development and use of virtual teams continue to rise across the nation. Modern technology supports organizations in their ability to expand and grow their operations across distance, time, and space while capitalizing on access to diverse groups of people. As virtual teams become more prevalent in organizations, there is a growing concern in how teams develop in technology-based environments (Marlow et al., 2017). Virtual teams are faced with many challenges and adversities that hinder effective knowledge sharing and work performance. Further, the success of a virtual teams hinges on the ability of team leaders and individuals to share knowledge amongst themselves, and subsequently synthesize it in a meaningful way (Schecter & Contactor, 2019). Nevertheless, virtual team managers often obstruct knowledge sharing within virtual teams due to the lack of understanding on how to share knowledge effectively with individuals of varied cultural perspectives working in different time zones (Killingsworth et al., 2016; T. W. H. Ng, 2017). Despite increasing research on virtual teams, how virtual teams managers facilitate knowledge sharing between diverse team members across different time zones is not well understood (Endres & Chowdhury, 2019; Kim, 2018).

The findings of this empirical investigation advance knowledge on the virtual team manager's experiences with sharing knowledge between individuals with varied cultural perspectives working in different time zones. Further, this study contributes

qualitative data to the study's conceptual framework. Through the application of concepts of reciprocal and social exchange (Cropanzano et al., 2017), an empirical and theoretical contribution was established to support continued research regarding virtual team manager's experiences of knowledge sharing across different time zones.

My study provides a theoretical and practical understanding of virtual team managers' experiences with knowledge sharing in diverse teams across different time zones in the United States. Their accounts with knowledge sharing in diverse teams must be explored to effect positive social change across virtual workspaces. The qualitative, narrative inquiry approach used in this study offered a platform for virtual team managers to share their experiences in diverse workspaces. Through the analysis of participant narratives, the individualized experiences of sharing knowledge with individuals of varied cultural perspectives across different time zones bring real-life experiences to the forefront while promoting social change by providing organizations and the field of management with information needed to effect positive change in virtual workspaces. Future research should encourage unconventional interpretations of knowledge sharing in virtual workspaces that aim to create new possibilities for virtual team managers and their team members that embrace and value diversity, member knowledge, expertise, and alternate perspectives.

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Appendix: Interview Protocol

Interview Guide for Virtual Team Managers

Hi _____,

Thank you very much for being a part of my research study regarding virtual team managers' experiences with knowledge sharing between individual team members with varied cultural perspectives across different time zones. As you know, the purpose of this interview is to discuss your experiences of knowledge sharing with individual team members across various levels of diversity as a virtual team manager. Before we begin, I have verified that I have received your consent email consenting to this interview. This interview should last approximately 60 minutes. After the interview, I will transcribe and analyze your responses to contribute to the findings of this research study. Your responses may be discussed in the findings of the study and while collaborating with my committee members. However, I will not identify you or your personal information in my documents, and no one will be able to identify you with your answers. You can choose to stop this interview at any time. Also, I need to let you know that this interview will be recorded for transcription purposes.

- Do you have any questions?

- Are you ready to begin?

1. Can you tell me a little bit about your background?

  a. The title of your position

  b. The industry you work in

  c. The length of time in your current position

  d. Your age category: 18-25, 26-35, 36-45, 46-55, 56 and up?

2. When you think of knowledge sharing what typically comes to mind?

3. Can you tell me about a typical day at work where you share knowledge with individual team members?

a. Can you describe the different types of people you share knowledge within your team? For example, whether they span across different locations, time zones, work centers, hierarchical positions, and/or cultures?

- Can you describe some experiences you have of sharing knowledge with individual team members across different levels of diversity (such as with different work centers, hierarchical positions, and/or cultures)?
- Can you describe some experiences you have of sharing knowledge with individual team members across different time zones?

For the next few questions I will be asking you about different types of knowledge such as explicit knowledge and tacit knowledge. For reference, explicit knowledge in this study is described as searchable information found in books, manuals, and various types of publications that can be written or taped and easily transferred from one person to another. Whereas, tacit knowledge is considered highly personalized and difficult to put into words, capture, and transfer to others, such as with first hand knowledge and experiences.

4. What types of knowledge do you share with individual team members (explicit, tacit, or combination)?
- Can you provide some examples?
- How do you decide what types of knowledge to share with different individual team members?
- How do you decide who you share knowledge within your team?
- How often do you share different types of knowledge with different individual team members?

5. What challenges or barriers do you experience when sharing different types of knowledge with diverse team members? For example, members in different work centers, time zones, hierarchy levels, etc.

6. What benefits do you experience when sharing different types of knowledge with diverse team members? For example, members that are in different work centers, time zones, hierarchy levels, etc?

7. What types of technology do you use to share knowledge with individual team members?

- How often do you share knowledge across each platform?
- What types of knowledge do you share across each platform?
    - What challenges or barriers do you experience when sharing knowledge across each platform?
    - What benefits do you experience sharing knowledge across each platform?
- What influences your decision to use certain platforms with certain team members?
    - What influences your decision to share certain types of knowledge over certain platforms?

8. What types of technology do you use to share knowledge with multiple team members at the same time?
- How often do you share knowledge across each platform?
- What types of knowledge do you share across each platform in this setting?
    - What challenges or barriers do you experience when sharing knowledge across each platform in this setting?
    - What benefits do you experience when sharing knowledge across each platform in this setting?
    - What influences your decision to share certain types of knowledge over certain platforms in this setting?

9. What support or resources from the organization do you feel would enhance your willingness to share different types of knowledge with diverse individual team members?

Closing/Debriefing

1. Thank you for sharing your experiences. Do you have anything else you'd like to share?

2. Do you have any questions for me?

3. As I mentioned earlier, I will transcribe this interview to conduct analysis for my research project. Once transcribed, I will forward you a copy of the transcript for the purpose of member checking. Should you have any questions after this interview you can contact me at ▮▮▮▮▮▮▮@waldenu.edu.

4. As a reminder, if you want to talk privately about your rights as a participant, you can call the Research Participant Advocate at my university at ▮▮▮▮▮▮▮▮. Walden

University's approval number for this study is ███████████████████ and it expires on ███████████████████.

5. Thank you for your time today. Have a nice day/evening.