2022

Challenges in Adoption of Knowledge Sharing Within Logistics in the U.S. Army

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Walden University
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Abstract

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MS, Troy University, 1994

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Dissertation Submitted in Partial Fulfillment

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Abstract

U.S. Army leadership published doctrinal directives regarding knowledge management and knowledge sharing principles for organizational implementation. Despite implications for the national security mission of the Army, the logistic community has not uniformly executed these principles. The purpose of this study was to determine why Army logisticians have not uniformly adopted knowledge sharing. The conceptual framework for this explanatory case study consisted of the Baconian method of research-then-theory using abductive reasoning. The research question was used to examine the possible challenges facing logisticians in the adoption and implementation of knowledge sharing. The conceptual lens for this framework comprised recording adequate engagement interviews, identifying ideas, and member checking with 11 senior officer and enlisted Army logisticians. The coding process consisted of using HyperResearch software and open coding. Through the constructivist data analysis approach, four major themes (directives, function, trust, and education) and three minor themes (holistic, sender/receiver, and innovation) emerged. The results indicate that the Army logistics community lacks a uniform plan for adopting stated principles. The results found noteworthy implications of knowledge blindness, facility security limitations, and indifference to innovation. Findings indicate a need for increased awareness, additional clearance quotas, and trust of subordinates. This research has significance for positive social change regarding national security implications for proactive planning by the Army Logistics Branch using organizational-wide knowledge management and knowledge sharing implementation.

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Dedication

I dedicate this study to all logisticians in the armed forces of the United States, especially those members of the U.S. Army who have participated in this study and represented the Logistics Corps. If the operational forces represent the tip of the spear, logisticians epitomize the body of the spear whose potency allows the tip to penetrate the target. In peacetime or war, logisticians work continuously, tirelessly after operators have gone on leave or liberty. Field Marshall Erwin Rommel stated, “The battle is fought and decided by the quartermasters before the shooting begins.”

I dedicate this dissertation to my family for their enthusiastic support of this pursuit of educational advancement. I would like to recognize my wife, Regine Severe Charles, and my children, Catherine, Alexander, and Johnathan, for continuous encouragement in this endeavor. I would like to mention a fellow student, Carl Wamble, PhD, for valuable assistance in completing this dissertation. Last, but not the proverbial least, I dedicate this dissertation to my late mother, Marie Albertina Mansour, who believed that education would overcome all obstacles. You had it right, Mom!

Acknowledgments

I acknowledge the many members of staff and faculty at Walden University for their assistance in producing this dissertation. I would like recognition for my two mentors, Robert Parent, PhD, who triggered the spark for this dissertation, and Karla S. Phlypo, PhD, who pushed it to fruition. I would acknowledge, too many to name, the many members of student cohorts who collaborated with me on many projects. If there remain a few that I did not mention along the way, I wish them well. Although I did not conduct a quantitative study, I would feel remiss if I did not acknowledge Reggie Taylor, PhD, who made navigating SPSS appear easy. I acknowledge Colonel Doarin Lewis, USMC (Retired), a true Marine, for his assistance. This study represents an epistemological commitment and contribution to logistics promising the attainment of a higher degree for a higher purpose.

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Chapter 1: Introduction to the Study

To survive, early humans worked together and developed a method of communicating events, attaining understanding, and sharing knowledge. Philosophers Plato, Aristotle, and Descartes (1644/2009) have provided an awareness of human critical thinking. In terms of mental logistics, human brains receive, capture, create, and share knowledge. The maxim of Descartes, "I think, therefore, I am" does not address this accepted function of the mind.

Researcher John McCrone (1991) conducted extensive metadata analysis of the self-conscious anthropoid that resides in modern humans. McCrone captured the mental logistics of knowledge acquisition, creation, and sharing that comes from individual awareness. Humans created language to share experiences with others (McCrone, 1991). Early humans would not have survived without active and social knowledge sharing (McCrone, 1991). The simple act of communicating for survival has matured from the fundamentals of information filtering and retrieval (Belkin & Croft, 1992), complex systems of knowledge formation (Ahern et al., 2014b), and proceeded to knowledge interaction (Ai & Wu, 2016).

Asimov (1986) speculated that humans invented speech for generationally sharing memories. Writing and subsequent technological advancements have served as logistic vehicles for knowledge sharing. Humans understand knowledge sharing (Tangaraja et al., 2016) and recognize the power of knowledge sharing in the individual (Hwang et al., 2018). The conceptions of survival communication made by McCrone (1991) regarding early humans, does not markedly differ from the interactions, motives, intentions, and

behaviors of employees of a global logistics firm (Hwang et al., 2018; Wong & Davison, 2017).

In this study, I sought to bring together knowledge sharing and logistics as harmonizing disciplines that can benefit the U.S. Army. The U.S. armed services, specifically the Army, have served as an organization that understands the need for knowledge creation and knowledge transfer (Nonaka & Takeuchi, 1995). Pfeffer and Sutton (2000) have noted that innovative American companies have used the Army as a model for knowledge transfer and leadership. When the United States had to prepare for the Gulf War in 1990, the Army had to move personnel, equipment, ammunition, food, maritime, aviation, and medical assets from Europe, the United States, and Asia to Saudi Arabia under threat of hostile conditions (Pagonis, 1992). No commercial organization or combination of business entities has duplicated the logistics capabilities of the Army (Wharton School, 2003).

The topic under study is the challenges facing Army logisticians in adopting knowledge sharing. The U.S. government established the Army with the mission of defending the nation (U.S. Const. art. II, § 2, cl. 1). This mission has continuously involved the extensive use of logistics in the implementation of national security policy (U.S. Department of the Army, 2021b).

Logisticians in the Army are essential given the charges stated in the legislative mandate. *Title 10, United States Code (USC*) and *DOD Directive 5100.1, Functions of the DOD and Its Major Components*, designated the organization, roles, and responsibilities for the institutions of the Department of Defense (Headquarters,

Department of the Army, 2019c). This law specified the legal obligations of each military department. *Title 10* has listed 12 responsibilities to the Army. The logistics branch has accountability for nine of the 12 duties. The following list has those 12 obligations with (L) labeling logistics:

- Recruiting
- Organizing
- Supplying (L)
- Equipping (including research and development) (L)
- Training
- Servicing (L)
- Mobilizing (L)
- Demobilizing (L)
- Administering (including the morale and welfare of personnel) (L)
- Maintaining (L)
- Construction, outfitting, and repair of military equipment (L)
- Construction, maintenance, repairs of building and structures, utilities, acquisition of real property and interests in real property necessary to carry out the responsibilities. (L)

In the spirit of maintaining a modern and evolutionary organizational approach, the U.S. Army embraced the principles of knowledge management in 2003 (Headquarters, Department of the Army, 2019c). The results of this study may provide an explanation to

Army leadership for why logistics, a vital part of national security, does not resonate the clarion for knowledge sharing.

The U.S. Army has adopted principles of knowledge management as the bedrock of doctrinal procedures and published *Knowledge Management Operations* (Field Manual 6-01.1, Headquarters, Department of the Army, 2015). The Army leadership needs to understand why Army logisticians have not adopted the following institutional directions stated in *Techniques for Effective Knowledge Management* (Headquarters, Department of the Army, 2015) that demand applications of knowledge management and, by extension, knowledge sharing. This situation has remained perplexing because members of the armed forces share the same doctrines that civil organizations have found in the four coordination mechanisms: formalization, lateral relations, informal networking, and shared vision (Nguyen et al., 2017).

Army logistician Bunyak (2011) observed in the professional publication *Army Sustainment* that Army logisticians have not adopted knowledge management. Army leadership has not ascertained why Army logisticians have not adopted the institutional directions provided in *Techniques for Effective Knowledge Management* (Headquarters, Department of the Army, 2015) and knowledge sharing. Understanding that knowledge management represented a broad ideal, the Army has placed emphasis on rapid knowledge sharing (Headquarters, Department of the Army, 2019c).

The publication of *Mission Command: Command and Control of Army Forces* (Headquarters, Department of the Army, 2019c) specified knowledge sharing as a necessary practice for the successful achievement of the mission of defending the nation.

Army personnel usually refer to this document as *Mission Command.* For purposes of brevity, I have used this terminology. As of this writing, a literature review of Army publications written by the logisticians, has not found knowledge management or knowledge sharing adopted in logistics documents. *Mission Command* (Headquarters, Department of the Army, 2019c) has a prescribed set of organization protocols, emphasized unofficial linkages, promoted interactions among disciplines, and requested a collective attitude toward mission accomplishment and operational success. The results of this study have potential implications for positive social change related to improved national security.

In this chapter, I explore the background of the problem and the gap in the literature that warranted this research (Willis et al., 2007). I present the problem statement, the purpose of the study, the overarching research question, and the subquestions (Yin, 2014) for this study. I address the conceptual framework, nature, definitions, assumptions, scope and delimitations, limitations, and significance and provide a summary and transition to the literature review in Chapter 2.

Background of the Study

Two decades ago, Karl Wiig (1997) explained the nature of knowledge management and made some broad-based predictions about the evolution of this discipline. Wiig (1997) did not discuss the adoption or profound impact that knowledge management and, by extension, knowledge sharing would have on the U.S. Army. The U.S. Army constitutes a large organization serving in North America, territories in the Pacific, and bases in Europe and Asia. U.S. Army leaders have implemented knowledge

management practices—specifically, knowledge sharing as integral to the effective functionality of the organization (Headquarters, Department of the Army, 2019c).

Army leadership relies on individuals from the most senior commander to the junior enlisted to engage in knowledge sharing. Publication of the *Techniques for Effective Knowledge Management* (Headquarters, Department of the Army, 2015) has provided detailed guidance for knowledge sharing from the Department of the Army headquarters in Washington, D.C., to the most remote outpost in South Korea. According to *Mission Command* (Headquarters, Department of the Army, 2019c), organizations within the Army do not have the discretionary authority of excluding these techniques from operational requirements. Yet, the logistics branch of the Army has not adopted the practice of knowledge sharing (Bunyak, 2011).

Commander and Staff Organization and Operations (Headquarters, Department of the Army, 2014a) provided the organizational structure of the Army for field operations and devoted an entire chapter to knowledge management, including knowledge sharing. I have briefly discussed the organization of the Army from the operational perspective of the general staff system. The general staff system comes from the historical designation of the military staff sections that support the commanding general, hence the letter *G* designation before each staff. Operational units that actively engage enemy forces have four major staff offices: G-1 Personnel; G-2 Intelligence; G-3 Operations; and G-4 Logistics. Other staff offices exist but remain superfluous to this study.

The levels of command below the commanding general receive the letter *S* designation for staff. These designations prevent confusion between the general and subordinate staffs. The proponent authority for logistics comes from the Deputy Chief of Staff, G-4, as stated in *Army Logistics Readiness and Sustainability* (U.S. Department of the Army, 2018). A thorough review of this regulation found the use of the information reports, but no mention of knowledge management or knowledge sharing.

A gap in knowledge exists because the Army has not studied this phenomenon of the challenges in adopting knowledge sharing. Other than the article written by Bunyak (2011), a literature review of military professional publications has failed to yield any study on this subject. Anderson (2009a, 2009b, 2009c) addressed this matter in a series of position papers but did not conduct a study. However, academic and business researchers have extensively examined knowledge sharing in large organizations in the global marketplace.

My extensive literature review provided a basis for comparison between business and the Army. The Department of Army, as part of the federal government, classifies as a public sector agency. Choi (2015) observed the lack of adoption of knowledge sharing applications by public sector agencies. In a cross-sectional study of 28 large U.S. federal government agencies and 54 minor/independent agencies, Choi (2015) found that for significant improvement, these entities needed to develop knowledge sharing mechanisms.

Tangaraja et al. (2016) conducted an exhaustive review of the literature for delineating the difference between knowledge transfer and knowledge sharing. This

distinction has noted knowledge sharing as a subset of knowledge transfer. The following summary highlights some of the literature found in academia and business where knowledge sharing has emerged as a catalyst for organizational success.

The instigation of knowledge sharing by U.S. and Canada customs officials in cross-border logistics steered both nations into an agreeable and profitable condition (Manuj et al., 2014). In a study regarding the surface mount industry, Chen et al. (2014) explored and explained that implementation of knowledge management principles in logistics operations could reduce failure in supplier and buyer organizations. Nguyen et al. (2017) analyzed cross-functional knowledge sharing in the context of cross-functional competition. Many of the successes in knowledge sharing attained by organizations come from individuals taking an active role in knowledge management systems (Hwang et al., 2018).

The U.S. Army has set forth defining policies that require the use of knowledge management principles, specifically, knowledge sharing (Headquarters, Department of the Army, 2019c). This study will benefit national security policy (U.S. Department of the Army, 2021b) and the implied benefits to organizational effectiveness in the pursuit of national defense. The Army did not commission this study.

The mystery remains why has the logistics branch not embraced knowledge sharing. Bunyak (2011) observed that logisticians often engage in data distribution in the form oral and written reports. This distribution of data does not equate to knowledge sharing because information without context or explanation does not promote the formation of judicious decisions (Headquarters, Department of the Army, 2015). The

commander receiving this data from the logistician in a raw form can only ask: “What does that mean?”

The Army has several different missions that it must perform in the national interest. The most obvious missions involve defensive and offensive operations that require deployment of forces locally or internationally. This deployment of forces, whether defensive or offensive, often involves the taking of lives of the antagonist deemed by national policy. The Army also engages in military operations other than war (Idris & Soh, 2014; U.S. Chairman of the Joint Chiefs of Staff, 2016). These operations fall into the category of humanitarian aid and disaster relief, which requires of coordination of logistics and human resources (Peerbolte & Collins, 2013).

The humanitarian mission emerges with accidental or natural disasters, where lifesaving becomes paramount. For example, on November 8, 2013, Typhoon Haiyan (name used in Asia) or Yolanda (name used in the West) devastated the central Philippines (Lum & Margesson, 2014). The Philippines government accepted humanitarian assistance offered by the U.S. government. The U.S. military used 66 aircraft and 12 navy ships, provided 2,495 tons of relief supplies, transported aid workers, and evacuated over 21,000 persons, using approximately 1,000 service members for transporting aid workers (Lum & Margesson, 2014). The U.S. Pacific Command assigned a brigadier general as the commander for execution of the humanitarian mission known as Operation Damayan.

In a mission of this nature, the logistician had two missions: support for the persons affected by the disaster and support for the service members implementing the

undertaking (Headquarters, Department of the Army, 2019b). The commander would have had a liaison officer for coordination with the Philippines government, the area of operation, and the level of support offered. The measure of delivery of humanitarian relief will provide the guidance for logistics support plan developed by the logistician (Kovács et al., 2012). Before embarking on this expedition, the logistician would have informed the commander of available assets on hand. *Logistics Operations* (Headquarters, Department of the Army, 2014) stated: "The goal is to provide commanders with knowledge based on relevant logistics information to which they can apply judgment to reach situational understanding and discern operational advantages" (p. 3-8). Logisticians have always construed this statement as information distribution rather than knowledge sharing (Bunyak, 2011).

In the scenario offered, the logistics officer would present the commander a list of assets available, and the commander would have to work out how to use those assets (Headquarters, Department of the Army, 2019b). Bunyak (2011) has asserted that the logistician could have better interpreted the meaning of the data. In knowledge sharing, the logistician would have presented the commander with possible options on assets use, but the decision remained with the commander. In my literature review, I did not find any publication issued by the Army logistics branch that addressed adoption of knowledge sharing by logisticians. The Army needs an explanation for existence of these challenges to the adoption of knowledge sharing by logisticians.

Problem Statement

The Army has adopted knowledge management as the basis for deployments and operational planning (Headquarters, Department of the Army, 2015). *Mission Command* (Headquarters, Department of the Army, 2019c) serves as the doctrinal basis and "forms the foundation for the tactics, techniques, and procedures for the exercise of *Mission Command*" (p. ii). *Mission Command* specifically stipulated the use of knowledge management principles throughout the Army, without exception. The Army has the mission of deploying forces wherever directed by national security policy (Headquarters, Department of the Army, 2019c). The pursuit of this mission requires the use of logistics for operational planning and deployment of forces (Headquarters, Department of the Army, 2019b).

Mission Command (Headquarters, Department of the Army, 2019c) also required the use of knowledge sharing in the preparation of all directives by senior and junior sections of the organization. The possible challenges in not adopting knowledge sharing have implications on loss of life and property and accomplishing desired objectives. Failure to accomplish a designated or implied mission can result in loss of life, property, or desired objective. The lack of implementation by Army logisticians at adopting knowledge management principles, directed by U.S. Army, has posed detrimental effects on the mission completion process (Bunyak, 2011).

Knowledge management principles represent a vast array of terms and concepts (Dalkir, 2011). Identifying concepts pertinent to this study required sifting through five KM principles in *Techniques for Effective Knowledge Management* (Headquarters,

Department of the Army, 2015). The Army demands rapid dissemination of knowledge throughout the command and has made the distinction between information management and knowledge management (Headquarters, Department of the Army, 2019c). The Army has detailed principles of knowledge management and operations comprising: "drive the operations success, build and maintain situational understanding, apply critical and creative thinking, and encourage collaboration and dialogue" (Headquarters, Department of the Army, 2015; pp. 1–10). Despite the requirement for knowledge sharing established by Army leadership, Choi (2015) conducted a cross-sectional study of 28 large U.S. federal government federal agencies and 54 minor/independent agencies and found that public sector agencies needed to develop knowledge sharing procedures.

In seeking to differentiate and establish understanding of specific knowledge management terms, Tangaraja et al. (2016) conducted an extensive literature review encompassing 2002 through 2013. Tangaraja et al. (2016) found that knowledge transfer occurred as a subcategory of knowledge management. Tangaraja et al. (2016) also found that researchers have established a distinction between the terms: *knowledge transfer* and *knowledge sharing*. Tangaraja et al. identified *knowledge sharing* as a subset of *knowledge transfer*. The subtle differentiation between *knowledge transfer* and *knowledge sharing* has provided the context for understanding that *knowledge sharing* serves as the consistent terminology for this study.

Sunil Kumar and Muthuvelayutham (2014) proposed a planned knowledge-based framework or *decision support system*. The decision support system integrated into an organization can facilitate better decision making through knowledge sharing by

members. Choi (2015) noted the conspicuous absence of knowledge sharing mechanisms in public sector organizations. The Army faced the general problem that groups within the Army have not adopted stated knowledge management principles (Bunyak, 2011). The specific research problem was that logisticians within the Army had not adopted a critical aspect of knowledge management: knowledge sharing. There is a lack of adoption of knowledge sharing by Army logisticians. Hence, the need for "rapid transfer of knowledge between units and individuals" stated in *Techniques for Effective Knowledge Management* (Headquarters, Department of the Army, 2015). Army logisticians engage in knowledge distribution and to some extent, knowledge transfer (Bunyak, 2011).

Purpose of the Study

The purpose of this explanatory qualitative case study was to determine why Army logisticians do not implement or adopt knowledge sharing. I sought to explain the absence of bidirectional knowledge transfer, which should occur with the active participation of the logistician and the commander (Tangaraja et al., 2016). In the framework of Army knowledge management principles, Tangaraja et al. (2016) determined that knowledge sharing has two distinct relationships with knowledge transfer. Knowledge transfer has two components: codification and personalization. Codification usually takes the form of a system devised to transfer knowledge to individuals through methodized resources. Personalization entails unidirectional and bidirectional transmission of knowledge. Unidirectional knowledge transfer has occurred when the logistician transmitted the logistics status of the organization.

Research Question

RQ: Why do Army logisticians have challenges at adopting knowledge management principles, specifically knowledge sharing, imposed by the U.S. Army?

The development of the research question did not emerge until an analysis of the article by Bunyak (2011). Bunyak (2011) postulated that Army logisticians failed at knowledge management. Bunyak made some recommendations based on his experience but did not conduct an actual study of the situation. Knowledge management embodies a comprehensive range of principles that I narrowed for this study (Dalkir, 2011; Davenport, & Prusak, 1998; Greener & Martelli, 2018; Headquarters, Department of the Army, 2015; Moses & Knutsen, 2012). The Army identified seven principles of knowledge management, including knowledge transfer. I discuss knowledge transfer in Chapters 2 and 3. This correlation of logistics with knowledge management occurs because the Army, as an organization, has embraced knowledge management.

Restating the problem in the same manner that Bunyak (2011) approached it would not have provided a suitable path for my study. I had to evaluate the situation and moderate the principles of knowledge management to be more precise. I examined knowledge transfer as described by the Army (Headquarters, Department of the Army, 2015), which Fahey and Prusak (1998) identified as a term of better definition. Girard and Girard (2015) made the effort of defining knowledge transfer, but Tangaraja et al. (2016) determined that knowledge transfer had a subset called *knowledge sharing*. The Army and the business world have different interpretations of terms associated with knowledge management (Dalkir, 2011; Headquarters, Department of the Army, 2015).

Early proponents of knowledge management (Nonaka & Takeuchi, 1995; Wiig, 1997) placed emphasis on the transfer of tacit knowledge but did not differentiate knowledge sharing and knowledge transfer as separate terms. The information technology explosion of the late 20th century increased the speed of communication. Davenport and Prusak (1998) stated that technological advancements did not readily transfer human knowledge or engender the trust that would facilitate knowledge sharing. Trust is discussed further in Chapters 4 and 5. Pfeffer and Sutton (2000) began using the terms *knowledge sharing* and *knowledge transfer* interchangeably. Pfeffer and Sutton positioned the knowledge management landscape for a foundational understanding of knowledge sharing.

Although the preponderance of researchers analyzing the relationship between knowledge sharing and organizational dynamics did not appear until after 2010, this does not exclude early attempts of recognizing the sharing of knowledge. In articles written before 2010, authors addressed knowledge management and knowledge transfer but provided little discussion regarding knowledge sharing. The knowledge-sharing articles that began to appear have the characteristic of involving multiple authors. Additionally, academics began to consider relating knowledge management to logistics (Ayala et al., 2017; Cooper et al., 2016; Taylor et al., 2015). Girard and Girard (2015) and Tangaraja et al. (2016) made it possible for disentangling the literature for construction of an appropriate research question

This research question was the foundation for the interview questions used to collect data from participants and presented in Chapter 3. The interview questions guided

the inquiry with empathy, purpose, and precision (Merriam, 1998; Patton, 2002; Yin, 2014). Asking the questions required active listening, taking notes, recording, and remaining adaptive to the interests of the participants. Yin (2014) advised a fixed awareness of the problem: the lack of implementation in the adoption of knowledge sharing by Army logisticians and avoiding bias. Finally, I persisted in an ethical, moral, and professional demeanor throughout the process (Janesick, 2011; Merriam, 1998; Patton, 2002; Stake, 1995; Wiles, 2013; Yin, 2014).

Conceptual Framework

The lack of knowledge sharing by Army logisticians served as the overall framework for developing an explanation of this challenge faced by Army logistics officers. The framework began with the observations made by Bunyak (2011), and the framework consisted of pertinent themes that have emerged from the literature review process. Merging knowledge sharing and logistics may have initially appeared incompatible, but world historians have developed conceptual devices that blend comparative approaches, units of analysis, and methods outside their discipline to impart understanding (Harris, 2012). These approaches allow world historians to share knowledge of occurrences that may initially appear incongruent.

Qualitative research can trace its roots to anthropology, where a researcher studies persons in their environment (Patton, 2002). The anthropological roots of case study provide the framework for the seminal foundations and methodological focuses of this research, as expanded by Harrison et al. (2017). An anthropological framework proved useful because the logisticians interviewed, despite the common mission of support, did

not always use the same terminologies. Knowledge sharing seminal concepts, such as situated learning, organizational learning, and communities of practice, had a bearing on the explorative aspect of this study (Cox, 2005).

The underlying guidance for this study was the advice given by Patton (2002) that qualitative researchers should engage in authentic situations. Exploratory conversations held with administrative personnel at the Army Logistics University noted that any assistance in conducting this case study would have to occur after working hours. In this study, I did not study logisticians as they performed their duties; that approach would have proven disruptive. Therefore, data were gathered through an interview process that occurred after working hours.

Guidance of the Case Study

Merriam (1998), Stake (1995), and Yin (2014) provided the guidance for preparation of this explanatory qualitative case study. The framework was used to explore the main concepts of knowledge sharing in logistics. The framework has sought emergence of an understanding of why Army logisticians have not adopted knowledge sharing. When addressing a knowledge management system (KMS), Akhavan et al. (2006) posited that the multiple case study method would function more efficiently for assimilating critical success factors of knowledge sharing. Despite the size of the Army and applicability of commercial systems to its function, the single case study has worked best for assessing an explanation of why Army logisticians have not adopted knowledge sharing Yin, 2014).

Bunyak (2011) speculated that Army logisticians remain mired in information distribution rather than knowledge sharing. Akhavan et al. (2006) asserted, "Knowledge is linked to the capacity for action" (p. 98). The Army has clearly stated that a difference exists between information management and knowledge management (Headquarters, Department of the Army, 2015). Knowledge sharing indicates an adoption of knowledge management principles (Akhavan & Zahedi, 2014; Chumg et al., 2016). I devoted the scientific inquiry outlined by Chen (1998) for determining an explanation for this contradictory situation in the Army.

Features of the Case Study

In the literature review, I used a thematic structure. During the literature review process, I found social capital theory (Choi, 2015; Nguyen et al., 2017; Wasko & Faraj, 2005) as a possible foundation for the conceptual framework. However, social capital theory, with limitations on shared visions by members of organizations, would have proven ineffective for this case study. The theoretical framework that emerged from this explanatory qualitative case study approach used the Baconian method of research-then-theory as explained by Reynolds (2010).

Merriam (1998) recommended research-then-theory as a process that can assist this type of case study. The framework has relied on the research-then-theory approach (Reynolds, 2010). Using the explanatory case study approach (Yin, 2014), information garnered from the logisticians has determined whether knowledge sharing has or has not occurred. Studying the proposed participants in workspaces did not occur. Therefore, the

conceptual lens of this framework involved recording and documenting the professional opinions, concerns, and ideas received from experienced Army logisticians.

Research-Then-Theory

The research question has remained the guiding factor for the conceptual framework. The seminal approaches to knowledge sharing, such as communities of practice, organizational learning, and situational learning, have implications for this approach (Osterlund & Carlile, 2003). Typically, a logistician provides a brief to the commanding officer (Headquarters, Department of the Army, 2019c; U.S. Department of the Army, 2021b). In this study, I concentrated on the actions of the logistician, the notes, and the act of providing information to the commanding officer to determine if knowledge sharing occurred. I have not posited a theory and have followed the Baconian method of research-then-theory (Reynolds, 2010).

The constructivist approach of interpreting (Merriam, 1998; Merriam & Tisdell, 2016; Patton, 2002) set the tone for developing a theory for this lack of implementation in adopting knowledge sharing by logisticians. In the literature review in Chapter 2, I address seminal methodologies on knowledge sharing and determine the derivation of the theory. The important features of this case study concerned units of analysis, the researcher as the instrument, and the typology for constructing this study.

Personal Orientation

The literature I reviewed described four qualitative research strategies: inductive, deductive, retroductive, and abductive. The next part of the framework has the abductive research strategy as the logic for retaining the framework (Blaikie, 2010; Creswell, 2013;

Kennedy, 2018; Patton, 2002). Abductive reasoning combines inductive and deductive reasoning (Kennedy, 2018; Patton, 2002; Willis et al., 2007). I discuss the steps of abductive reasoning in Chapter 2. Abductive reasoning occurs in two instances: forcing inductive and deductive together and consensual abduction of the logistician (Kennedy, 2018).

Previous Research

Choi (2015) asserted that little study has occurred for assessing the knowledge sharing behavior of U.S. federal agencies, including the Army. The Army has embraced knowledge sharing, but logisticians have not placed it into practice (Bunyak, 2011). Success has been noted among commercial enterprises that have considered the benefits of knowledge sharing (Akhavan & Zahedi, 2014; Ayala, et al., 2017; Bernstein et al., 2015; Eng et al., 2014; Hu & Zhao, 2016). This growing interest by academics has occupied the innermost frame for explaining the nature of the study.

Nature of the Study

The lack of knowledge sharing by logistics officers has governed this explanatory qualitative case study using the guidance provided by Merriam (1998) and Yin (2014). Research into the lack of knowledge sharing by Army logisticians followed the Baconian method of research-then-theory as identified by Reynolds (2010). This approach has followed the explanatory case study format for theory-building structures (Yin, 2014) with multiple facets of causal arguments. Yin (2014) has imposed that the qualitative case study method of research answers how and why questions.

Merriam (1998) noted that initial questions formed by a researcher assist in the development of "*the* question" (p. 60). Merriam further instructed the student researcher that in qualitative research analysis, the research questions should guide the inquiry. In certain discussions, I have made inferences. Those inferences have the support of documented procedures and strategies steeped in triangulation. The work of Manuj et al. (2014) focused on supply chain management, a noteworthy part of logistics related to knowledge management.

Initially, I intended to interview 20 participants with a minimum of 10 years of experience in the Army and 5 years in logistics. I concluded the study with 11 participants, and data saturation was reached. The Army did not cooperate as initially indicated in correspondence traded with the Army Logistics University. I had to adjust my participation pool from recruiting directly from the Army to LinkedIn online professional groups. I did attain saturation at five participants. The occurrence of the COVID-19 pandemic may have hindered participation. I used the snowball method through referrals from participants. Nevertheless, some potential participants did not return my inquiries. I attributed this situation to complications caused by COVID-19 or reticence when learning that the Army did not actively support this study.

However, to enhance the study with rich, thick descriptions (Yin, 2014), I persisted with the professional groups of LinkedIn and arrived at 11 participants, which more than doubled the saturation of data. The interviewees came from active, reserve, and retired personnel. Those 11 participants represented a cross section of senior and experienced personnel in the Army according to grade and experience. Although the

respondents represented a diverse group, the study eschewed gender, age, economic class, or other social models. Chapter 4 includes a table listing the final participants according to grade and experience. Table 1 illustrates the initial target populations for this study.

Table 1

Logistician Target Population by Grade

Population	Group members	Grade criteria
Officers: Field grade	10	Major and above (0-4 to 0-9)
Officers: Company grade	5	Captain, warrant and LDO
Enlisted: Staff NCO	5	(E-7 to E-9)

The military functions as a hierarchical organization. The interviews by telephone in an isolated one-on-one venue that ensured senior members did not influence junior participants. Participants had the opportunity to review questions, their responses, and a summary of the transcript. Throughout this process, triangulation of data for purposes of credibility received continuous attention. Per Merriam (1998), triangulation began with data validation. Data validation reflected internal validity through member checks, peer examination, participatory research, and disclosure of researcher bias. Reliability has an audit trail, investigator stance, and prescribed protocols. External validity involved thick descriptions and modal categories (Yin, 2014).

Definitions

The definitions listed provide a glossary of terms used in the academic, military, and commercial context. I have included the academic, military, and commercial industry environments for correlation. Unless otherwise specified, use of the term *Army* will refer exclusively to the U.S. Army (U.S. Department of the Army, 2021a). Throughout, the use of the terms *knowledge management* and *logistics* will signify the military usage. *Knowledge transfer* and *knowledge sharing* represent two distinctive terms under the discipline of knowledge management. The Army has succinctly stated definitions for logistics (Headquarters, Department of the Army, 2019b) and knowledge management (Headquarters, Department of the Army, 2015).

Regarding knowledge management, Girard and Girard (2015) conducted an exhaustive gathering of lexicon from 13 countries and 23 domains, found over 100 definitions, and subjected the findings to a word-parsing tool that yielded a definition amenable to this study. To prevent any misinterpretation, some of the definitions listed below appear verbatim from the original source cited.

Army Doctrine: "The fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application" (Headquarters, Department of the Army, 2019a, Glossary section, p. 1).

Army doctrine publication: A Department of the Army publication concerned with conformance with government policies that specify the essential standards of

compliance used by operating forces subordinate to a senior command (U.S. Department of the Army, 2021a).

Army techniques publication: A Department of the Army publication that contains recommended techniques that do not restrict the imagination of the commander performance of missions, functions, or tasks (U.S. Department of the Army, 2021a).

Bidirectional knowledge sharing: Mutual sharing of knowledge between two parties (Tangaraja et al., 2016).

Command: "The authority that a commander in the armed forces lawfully exercises over subordinates by virtue of rank or assignment" (Glossary section, p. 2); the term *command* can also refer to the entire organization under the authority of a single commander. The commanding general of a brigade may have a complement of infantry, tanks, and aviation elements that have a subordinate role under that officer (Headquarters, Department of the Army, 2019c).

Descriptive Ontology for Linguistic and Cognitive Engineering (DOLCE):

> An upper ontology of particulars that captures ontological categories found in natural language and human common sense. DOLCE is widely used by a diverse array of domain ontologies, ranging from event recognition to geographical information systems through specialization of its backbone taxonomy. (Chui & Gruninger, 2017, Introduction section)

Department of the Army publication: A publication used for coordinating the efforts of multiple Army agencies or commands that have different reporting structures

(U.S. Department of the Army, 2021a). The coordination between army helicopter units in support of infantry units would exemplify the need for this publication.

Doctrine applied: "The body of professional knowledge that guides how soldiers perform tasks related to the Army's role: the employment of landpower in a distinctly American context" (Headquarters, Department of the Army, 2019a, p. 1-1).

Distributed knowledge system: "A firm's knowledge is distributed in the sense that it is inherently indeterminate: nobody knows in advance what that knowledge is, or need be" (Tsoukas, 1996, p. 22).

Explicit knowledge: Knowledge articulated in formal language including grammatical statements, mathematical expressions, specifications, manuals, and so forth (Nonaka & Takeuchi). In conducting the literature review noted in Chapter 2, I found numerous definitions for explicit knowledge that used some variation of this wording. The definition provided by Nonaka and Takeuchi best delineates the essence of this proposal and maintaining clarity.

Field manual: "A DA publication that contains principles; tactics (the employment and ordered arrangement of forces in relation to each other (main body)); procedures (standard, detailed steps that prescribe how to perform specific tasks (appendixes)); and other doctrinal information" (U.S. Department of the Army, 2021a, p. 41). This manual describes how the Army, and its organizations conduct operations and train for those operations

Knowledge blindness: "Educational research overwhelmingly obscures knowledge as an object" (Maton, 2012, p. 9)

Knowledge creation: The competency of a corporation as an entity creates innovative knowledge, disseminates it throughout the business, and symbolizes it in manufacturing, amenities, and structures (Nonaka & Takeuchi, 1995).

Knowledge diffusion: The active engagement of individuals motivated by communal connections and personal attributes to adopt specific knowledge (Klarl, 2014).

Knowledge Distribution 1: The multiplicity of individual in various disciplines, using tacit knowledge for collaborating across different functions to accomplish organizational goals (Tsoukas, 1996).

Knowledge Distribution 2:

> Can be defined as the transfer of knowledge within and across settings, with the expectation that the knowledge will be "used" conceptually (as learning, enlightenment, or the acquisition of new perspectives or attitudes) or instrumentally (in the form of modified or new practices). (Gupta et al., 2009, p. 186)

Knowledge management: In the Army, it is "The process of enabling knowledge flow to enhance shared understanding, learning, and decision-making" (Headquarters, Department of the Army, 2015, Glossary 1 section). In academia, it involves the development of creating, distributing, applying, and overseeing the knowledge and information of an organization (Girard & Girard, 2015).

Knowledge sharing: Involves an interchange of knowledge among individuals through the actions of knowledge donation and knowledge collection (Tangaraja et al., 2016). Knowledge sharing exemplifies the granular distribution of tacit knowledge.

Knowledge transfer: Encompasses pronounced contribution of "source (sender who shares the knowledge) and receiver (who acquires the knowledge) (using personalization strategy)" (Tangaraja et al., 2016, p. 656).

Logistics: In the Army, "the process of planning and executing the projection, movement and sustainment, reconstitution, and redeployment of operating forces in the execution of national security policy" (U.S. Department of the Army, 2021b, p. 23). In industry,

> The process of planning, implementing, and controlling procedures for the efficient and effective transportation and storage of goods including services, and related information from the point of origin to the point of consumption for the purpose of conforming to customer requirements (Council of Supply Chain Management Professionals, 2013, Glossary of Terms, p. 117).

Logistics assistance: "Advice, training, and assistance provided by technically trained and experienced logistics personnel employed by or under contract to the Army" (U.S. Department of the Army, 2017, p. 15).

Logistics management:

> "Part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements" (Council of Supply Chain Management Professionals, 2013, Glossary of Terms, p. 117).

This definition has caused some consternation among logisticians who regard supply chain management as a subset of logistics.

Mission command: "The Army's approach to command and control that empowers subordinate decision making and decentralized execution appropriate to the situation" (Headquarters, Department of the Army, 2019c, Glossary, p. 3). The keywords in this definition concern the intent of the commander because the commander, as the senior person in theater must have clarity of purpose in executing the mission. The Army places enormous responsibility on the commander. The commander can delegate authority but not responsibility.

Proponent: "The agency or command responsible for initiating, developing, coordinating, approving content, and issuing a publication, as well as identifying a publication for removal." Each publication has only one proponent (U.S., Department of the Army, 2021a, p. 42).

Reverse logistics: "A specialized segment of logistics focusing on the movement and management of products and resources after the sale and after delivery to the customer. Includes product returns for repair and/or credit" (Council of Supply Chain Management Professionals, 2013, Glossary of Terms, p. 168).

Sustainment: "The provision of logistics, financial management, personnel services, and health service support necessary to maintain operations until successful mission completion" (Headquarters, Department of the Army, 2019b, Glossary, p. 11).

Tacit knowledge: "Personal knowledge embedded in individual experience and involves intangible factors such as personal belief, perspective, and the value system" (Nonaka & Takeuchi, 1995, Preface, p. viii).

Unidirectional knowledge sharing: The provider of information engages a straightforward transmission without feedback from the recipient (Tangaraja et al., 2016).

Assumptions

The principal assumption for this explanatory case study stemmed from the same belief held by Bunyak (2011) that logisticians have the utmost desire of completing the mission assigned by competent authority. Logisticians and commanders have a bidirectional relationship that, when properly applied, may lead to success of the assigned mission. Fahey and Prusak (1998) recognized that organizations, which failed at shared perspective, would distribute information as a series of unrelated data points and events. Bunyak (2011) condemned this situation's existence in the Army. Shared context has evolved into knowledge sharing recognizing a bidirectional relationship between persons belonging to the same organization (Tangaraja, et al., 2015).

Army members belonging to the logistics community understand the requirements of *Army Regulation 700-8*, with the title *Logistics Planning Factors and Data Management* (U.S. Department of the Army, 2021b). Parmentier and Gandia (2013) argued that a qualitative case study served as the best method for examining an extenuating situation, which under normal circumstances should not exist. In this study, I assumed that logisticians seek compliance with orders. Consequently, as an admitted bias, I did not question the honesty of the logistics community in this conundrum. Ozlen

(2014) noted that in the successful skill transfer scenario, knowledge transfer in military services came from an environment that fosters pride and honesty.

The challenges of adopting knowledge sharing by logisticians represented an interesting situation for conducting a single case study design of unusual circumstance (Yin, 2014). The unusual factor came from the environment of competent organizational compliance where logisticians performed their duties. Logisticians pride themselves on effective delivery of support to the operational forces (U.S. Department of the Army, 2021b). Any action that undermines this adherence to duty represents an aberration of the norm by logisticians.

As a logistician with 40 years of experience, I made a final assumption that logisticians did not have a problem in speaking truth to power. Logisticians, on request, must always provide the commander with an accurate status of supplies and equipment known as *beans, bullets, and bandages* (U.S. Department of Army, 2021b). This bidirectional relationship of information distribution did not always lead to knowledge transfer. These assumptions remained paramount in finding an explanation for the challenges in adoption of knowledge sharing by logisticians.

Scope and Delimitations

The academic community has adopted the word *delimitation* for addressing what Guba (1978) called the "boundary problem" in naturalistic inquiry. Patton (2002) provided a more deliberate explanation of the situation by analyzing the typology of the research purpose for focusing on the researcher. The typology for this dissertation involves basic research, which seeks the creation of knowledge. The basic research

typology requires a researcher to focus on a particular avocation or interest and contribute to the formulation of theory.

Yin (2014) used the term "bounding the case," which brings the image of this dissertation: aligned, logically defined, and presented in a neat binder. Patton (2002) and Yin (2014) have remained consistent that a researcher controls the delimitations of the project. This delimitation forces a researcher into a narrow scope. In this circumstance, the challenges facing logisticians in adopting knowledge sharing sets the delimitation for this dissertation.

The delimitations for this dissertation consist of certain proscriptions that I have identified in researching this phenomenon: the challenges of logisticians in adopting knowledge sharing. The proscriptions for this project developed from the research question of why Army logisticians face challenges in adopting knowledge sharing. The Army logisticians will serve as the units of analysis for this case study. The population of participants initially comprised a small group of 20 logisticians. However, due to challenges, I accepted 11 participants as the units of analysis. The Army has hundreds of logisticians, but those numbers would have proven difficult, if not untenable for completing this project without official support.

The Army doctrines and manuals and knowledge sharing understandings framed the approach within the delimitations. The specified research procedures for this study, noted in Chapter 3, have set the method designed for use. The locale for the group would have initially occurred near and within the borders of the Army Logistics University in Fort Lee, Virginia. However, I had to modify the approach by using individual audio

calls with participants. I used FreeConferenceCall.com for conducting the interviews with the participants.

Although logisticians have regular interactions with commanding officers, commanding officers do not serve as units of analysis. I made this choice to gather the experience of logisticians and their understanding of knowledge sharing. The requirements of the Institutional Review Board detailed by Walden University and Army Logistics University have served the administrative guidelines for managing this study. I used the LinkedIn website and snowball method for recruiting participants. Participants received no monetary incentives or gifts of value. The research has remained within the boundaries of an explanation building, synchronic single case study (Yin, 2014).

Limitations

Researchers recognize that some courses of action remain beyond their control. In the role of instrument, I served as the tool for executing the project. The availability of the participants was the most significant limitation of the study. The availability of Army logisticians willing to interview was out of my control. Army Logistics University leadership gracefully refused participation in an official capacity.

I regarded myself as the second most significant limitation to this project. I have conducted research for business selection. I find business research has paled in comparison to the protocols, procedures, and exigencies that academic research has placed on a researcher (Blaikie, 2010; Merriam, 1998; Patton, 2002; Stake, 1995; Willis et al., 2007; Yin, 2014). Nevertheless, perfection does not exist anywhere (Patton, 2002; Yin, 2014). Merriam (1998) advised that while navigating through personal ambiguities,

a researcher must have confidence. The explanation building approach considered reasons why Army logisticians faced challenges at adopting knowledge sharing had some difficulties. The explanatory approach presupposed the causal links of how and, most importantly, why this phenomenon existed (Yin, 2014).

Yin (2014) contended that the narrative form used in the case study method would not always have the metrics for accurate measurement of the problem. The complexities existent in a massive organization like the Army limit the scope of the findings. The use of generalizations for the Army does not occur because of the narrow scope of the study. The use of explanation building involved an iterative process where comparison of interviewee responses occurred. Knowing that logisticians would feel cautious about admitting to challenges in the adoption of knowledge sharing, I could have injected a secretive bias sneaking into the findings (Yin, 2014). I continuously struggled against personal and professional biases as a military logistician. In pursuing an explanatory approach, the nature of the basic research has limited the findings to contribution to theory. The limitation of contribution to theory has the positive effect of fertilizing the academic landscape for future study of this phenomenon (Yin, 2014).

Significance of the Study

The U.S. Army conducted extensive evaluations from 1991 through 2010, invested substantial funding, and trained personnel for the development of a knowledge sharing based doctrine (Headquarters, Department of the Army, 2015). Although, the U.S. armed services have always encouraged individual initiative, these endeavors represented a significant change to formalize this philosophical approach. The challenges

of adopting knowledge sharing by Army logisticians have the possibility for exacerbating casualties in war or peace.

The stakeholders affected by this situation include members of the public. The armed services received funding through tax revenue from U.S. citizens. Veltri (2014) asserted that stakeholders exert *social accounting* of the intellectual capital or knowledge that emerges from an organization. The Army, functioning as a knowledge generating entity (Nonaka & Takeuchi, 1995) dependent on stakeholders, should expect an accounting of the implementation of knowledge sharing (Veltri, 2014).

This explanatory qualitative case study may uncover underlying reasons why logisticians have failed to adopt knowledge sharing (Bunyak, 2011). The modern proponents of modern knowledge management Nonaka, and Takeuchi (1995) documented that the treatment of knowledge sharing by the U.S. military significantly contributed to American success in World War II. Although informal knowledge sharing occurred in World War II, formalizing this process may lead to greater effectiveness.

Significance to Practice

Despite restrictive company policies, Wong and Davison (2017) found employees used WeChat, a Chinese mobile social media platform, for work requirement updates, reports, and knowledge sharing. SharePoint, the application designated by the company required desktop use, while the mobility of WeChat allowed effective knowledge interaction among colleagues in offices, frontline personnel, and anxious customers. Akhavan and Zahedi (2014) have identified the military as a project-based organization that would benefit from usage of knowledge management principles.

Wong and Davison (2017) successfully demonstrated through action research the implementation of knowledge sharing practices as indices for success in a global logistics firm in China. Organizations need the correlation between knowledge systems commitment and the intention to share knowledge by the individual (Hwang et al., 2018). The application of knowledge sharing should significantly reduce fatalities in military operations. The study pursued explanation of why logisticians have not effectively practiced knowledge sharing.

Significance to Theory

The adage that a leader should understand what people want and get out in front of it has some bearing on the social theoretical leanings of this study. Ferguson (2016) conducted a longitudinal case study from 2000–2015 that asserted, "professional engagement is perceived as a contested social process" (p. 6). The literature review has continued to uncover that knowledge sharing works best with platforms that have a social dimension (Wong & Davison, 2017). Social capital theory, with the twin components of individuals as resources and cognitive social interactions, has served as the vehicle for knowledge sharing (Choi, 2015) in large bureaucracies. Choi reiterated that social capital theory applied to knowledge sharing in public sector organizations could reap the same benefits occurring in commercial industry.

Nguyen et al. (2017) construed that social capital theory has three dimensions: structural, cognitive, and relational. Knowledge sharing in firms that used the four coordination mechanisms of formalization, lateral relations, informal networking, and shared vision had improvements in organizational performance (Nguyen et al., 2017, p.

3). Wasko and Faraj (2005) found social capital theory at work in electronic networks where individuals would share knowledge, without compensation, for two reasons: enhancement of reputation and the enjoyment of helping. Wasko and Faraj (2005) also noted that company based electronic forums did not yield the level of knowledge sharing found in third-party unanimous message boards resulting in a failure to formally engage social capital. As an aside, I found that fellow logisticians experienced the same enjoyment of helping as participants in this study.

Significance to Social Change

Wasko and Faraj (2005) discovered that electronic platforms equipped with facility of use, such as message boards, invoked freely provided positive contributions of knowledge sharing by strangers. According to Krampe (2016), the United Nations Interim Administration in Kosovo learned an important lesson where the best of intentions in water resource management went awry because of attention to technical solutions versus personal and political realities. United Nations Interim Administration in Kosovo focused solely on technical solutions offered by consultants without engaging the local populace. The leaders had difficulty understanding the resentment voiced by locals despite the impartial implementation plans for water resource management. The local people in Kosovo expected a knowledge-sharing forum for water resource management. Identifying contributory challenges in the Army logistics community with this study should expand knowledge and contribute to the positive social change of maintaining national security of the United States.

Summary and Transition

Knowledge sharing and the logistics of transferring knowledge from one person to another have enabled human survival (McCrone, 1991). U.S. Army leadership has initiated knowledge sharing since the early 1990s, which has culminated into a structural organizational recognition of this discipline. Yet, according to Bunyak (2011), Army logisticians have not fully implemented this doctrine. Army leadership has devoted significant resources to knowledge sharing and demanded implementation in policy promulgation (Headquarters, Department of the Army, 2019c).

The problem of knowledge sharing exists beyond the Army, including in the U.S. federal government and corporate ventures. The Army faces the general problem that members of the Army Logistics Corps have faced challenges in adopting knowledge management principles (Bunyak, 2011). The specific problem is the lack of adoption of knowledge sharing by Army logisticians. The leadership of the Army seeks immediate transfer of knowledge throughout the organization. The goal of this dissertation follows the Baconian method of research-then-theory. Theories such as human capital theory, knowledge-based theory, social capital theory, theory of reasoned action, and many others offer enticing buttresses for developing a study but can lead a researcher to fallacious confidence that the literature review may unravel.

The nature of this study has followed guidance stipulated by Merriam (1998) and Yin (2014). The definitions cited arise from Army publications, scholar development, and established institutions. The assumptions made in this study rest on the fundamental belief that logisticians aspire compliance with Army regulations. The scope and

delimitation of this study consist of basic research. The limitations apply to me as the primary research instrument of the study.

The significance of the study concerned seeking a solution that may prove viable to the Army. The significance to theory should allow the formulation of a theory that can lead to a solution. I address this possible formulation in Chapter 5. The significance to practice involves the reduction of costs, resources, and possible saving of lives as the Army operates in a perilous situation. The significance to social change involves the mission of the Army to provide aid and help during natural or manufactured disasters. In the literature review in Chapter 2, I present the research found in the literature regarding knowledge sharing practices for logistics in government and commercial organizations, which may have application for the Army. In Chapter 3, I provide the research method planned for this explanatory case study. Chapter 4 includes the recruitment of participants, analysis of data, and results. In Chapter 5, I discuss the conclusions and recommendations of this explanatory case study.

Chapter 2: Literature Review

The specific problem is the lack of adoption of knowledge sharing by Army logisticians (Bunyak, 2011). In this study, I used an explanatory qualitative case study, guided by Merriam (1998) and Yin (2014), to pursue why the use of knowledge sharing has not occurred within the Army logistics community. The Army has many missions, not the least of which involves the defense of the United States and its allies (U.S. Const. Art. II, § 2, cl. 1). The Army also performs humanitarian assignments known as military operation other than war (U.S. Chairman of the Joint Chiefs of Staff, 2016).

The success or disappointment of the Army in accomplishing these many missions can have serious implications on American society and for social change. All the missions undertaken by the Army require some form of logistics support. This support could entail a soldier walking to a warehouse for basic equipment or an operation requiring the use of machinery, supplies, and personnel traveling around the globe. The Army has directed the adoption of knowledge management principles throughout the organization (Headquarters, Department of the Army, 2019c) and provided guidance through *Techniques for Effective Knowledge Management* (Headquarters, Department of the Army, 2015). One of the techniques cited enmeshes knowledge sharing.

Literature Search Strategy

The U.S. government expands resources in personnel, material, and finance for national defense. Knowledge that can assist the government in providing a more efficacious delivery of that defense would prove beneficial. The results of this study may have an impact on the Army and social change. The Army has the specific problem of a

lack of knowledge sharing adoption by Army logisticians (Bunyak, 2011). In this research, I conducted an explanatory qualitative case study guided by Merriam (1998), Merriam and Tisdell (2016), and Yin (2014) to pursue why knowledge sharing use does not occur within the Army logistics community.

For my literature search strategy, I used the following online databases: Google Scholar, ProQuest, Bookboon.com, EBSCO, Emerald Management, Metadata CrossRef, Sage Journals, ScienceDirect, U.S. Army Battle Command Knowledge System, U.S. Army Training and Doctrine Command, U.S. Army Publishing Directorate, and the Walden University Library. I purchased most of the books used in the research from an online retailer; other books came from my personal library accumulated over the years.

Search of Military Manuals and Directives

The military manuals and directives essential to performing this study originated from government websites. I have listed and verified, as of this writing, the uniform resource locator for all the Army publications. The Army Publication Directorate (https://armypubs.army.mil/), using Firefox browser, provided the easiest retrieval and download for documents. Archived issues of Army Logistics University journals published as *Army Logistician* became *Army Sustainment* and are available online (https://alu.army.mil/alog/backissues.html).

Initial use of Google for retrieving information from military websites often posed a challenge. Google Chrome would not accept certificates of use issued by some U.S. Department of Defense websites. The military services observe different information technology protocols. Military and government websites have applications meant for

detecting intruders who plan to use a backdoor into government servers. In the instances where federal government and military websites held needed information, I used Mozilla Firefox browser and DuckDuckGo search engine.

Personal Bias and Key Terms Search

The notion of personal bias remained a concern (Merriam, 1998; Stake, 1995; Yin, 2014) when I conducted the key terms and word combinations search. I researched articles from multiple publications about knowledge sharing and logisticians. The focus on a researcher as an instrument (Merriam, 1998; Stake, 1995; Yin, 2014) served as a reminder to remain attuned to the subject matter and retain alignment from initiation to completion. The use of a personal filter merged agreeably when applying the filters available from the databases. When conducting a Boolean search, the following filters were applied: English language, full text, peer reviewed scholarly journals, and custom year range publication dates. I used all available resources: scholarly publications, academic journals, conference materials, reports, reviews, and magazines.

The following key terms and word combinations were used: *knowledge management, logistics, organizational learning, knowledge creation, knowledge transfer,* and *knowledge sharing*. Using the iterative process of obtaining literature sufficient, substantive, and representative for the study resulted in revealing additional pertinent terms: *social capital theory, human capital theory, knowledge sharing dynamics, qualitative analysis*, and *business logistics*. The Boolean search method can often offer articles that have the keyword occurring only once in the article and sometimes that word occurs only in the article's reference list. I reviewed the reference list of articles for

additional research. The overwhelming majority of articles available for download were Adobe PDF. Articles that proved superfluous to the literature search were discarded. Table 2 illustrates details of the literature reviewed for this study.

Table 2

Details of Literature Reviewed by Year of Publication

	Older than 5 years	2014	2015	2016	2017	2018	Total
Peer-reviewed articles	51	31	13	21	20	13	139
Nonpeer-reviewed articles			4	3		2	9
Books	37						37
Web pages			1	1	1		3
Totals	88	31	18	25	21	15	188

Note. The literature review contained more than 139 peer-reviewed articles and 188 total references; the literature review contained material from 179 peer-reviewed journal articles, books, and web pages.

Conceptual Framework

As noted in Chapter 1, this case study does not have a theoretical foundation because of the Baconian method of research-then-theory (Reynolds, 2010). The conceptual framework for this study came from a consideration of the literature that identified the relationships between logistics and knowledge sharing. The discovery of an explanation for why knowledge sharing has not occurred in the Army logistics community remains the foundational purpose of this study. The concept envisioned for this study concerned the specific problem of the lack of adoption of knowledge sharing by Army logisticians (Bunyak, 2011).

Figure 1 illustrates the relationship within the Army between the commanding officer and logisticians regarding knowledge management and knowledge sharing. I have not formulated or adopted a theory that may provide some basis for the existence of this phenomenon. Chapter 5 provides conclusions garnered and inferred by this study. I have remained open to the possibilities that this study may uncover. Kennedy (2018) cautioned that a theory, although helpful in keeping the researcher on purpose, might serve as double-edged sword. A researcher narrows focus on the precepts of the theory and ignores gradations and details that may emerge.

Figure 1

Knowledge Sharing and Logistics Relationship Framework

Note. This figure illustrates the expected effect of knowledge sharing burgeoning from the logistics officer to the commanding officer within the overarching boundaries of the Army Knowledge Management program (Headquarters, Department of the Army, 2015). The framework encompasses the subordinate role of the logistics officer pertaining to the command authority of the commanding officer governed by Army directive (Headquarters, Department of the Army, 2019c).

The conceptual framework does not have a theory (Reynolds, 2010). The Baconian method of research-then-theory has driven the conceptual framework. The explanations derived from the data will provide the theory for existence of the problem

Yin, 2014). Kennedy (2018) cautioned that a theory, although helpful in keeping a researcher on purpose, might serve as double-edged sword. The greater effort placed in compliance with the espoused theory blinds the researcher to weaknesses inherent to that theory. The researcher narrows focus on the precepts of the theory and ignores gradations and details that may emerge. The Baconian method of research-then-theory has driven the conceptual framework (Reynolds, 2010). Marshall and Rossman (1999) encouraged retention of the original interest borne of the burgeoning oddities that piqued the wonder of the researcher.

In contemplating the unknown aspect of this study, honestly, I do not know. Chapter 1 of this study has provided ample background. Still, the lack of adoption knowledge sharing by logisticians has a philosophical peculiarity because this situation represented an unknown phenomenon. Descartes (1644/2009) in *Selections from the Principles of Philosophy* posited that investigations for the truth can lead to the discovery of the unknown. The Army does not invite latitude or discretion in the use of knowledge management (Headquarters, Department of the Army, 2019c). This study has sought an explanation of why this phenomenon among Army logisticians has remained unknown. Descartes further argued that no person would deliberately decide to remain at fault because that path would lead to failure. The philosophical perspectives of John Locke (1847) recognized that an amalgamation of thoughts could allow for the simultaneity of known and unknown.

The Army requirement of adoption of knowledge management and by extension, knowledge sharing exists as the known. The lack of adoption of knowledge sharing by

logisticians beseeches an explanation for this unknown. Descartes (1644/2009) and Locke (1847) provided a philosophical foundation for the researcher in delving comparisons between the existent known and the undiscovered unknown. I adopted abductive reasoning in Chapter 3 because of the philosophical insights of Descartes. Locke recognized that known, and unknown ideas can exist in an organization like in the Army. Kennedy (2018) has brought those considerations forward instructing, researchers should remain understandable to undetermined and variable circumstances.

The lack of adoption of knowledge sharing by logisticians exemplifies an oddity that required an explanation. I have addressed the methodology in Chapter 3. However, the conceptual framework of the literature review should maintain alignment with the constructivist approach of this case method of inquiry (Creswell, 2013; Moses & Knutsen, 2012; Patton, 2002; Willis et al., 2007). The method of inquiring the literature of knowledge sharing and logistics represents a cycle of constructivist analysis. In conducting constructivist inquiry, "the researcher enters this cycle of interpretation with exquisite sensitivity to context, seeking no ultimate truths" (Marshall & Rossman, 1999, p. 26).

I have the goal of avoiding ultimate truths. Ellingson (2014) maintained that truth does not occur in a single bright revelation but develops in a nuanced, plodding, and enveloping shroud. If previous literature contained the answers to this phenomenon, formerly, why pursue explanations for the existence of logistician challenges at knowledge sharing. Yin (2014) stated that causal explanations often work best when using an explanatory case study for understanding a phenomenon. The literature provided

fodder for the dialectic concepts of this dissertation. The explanations derived from the data, have provided the theory for existence of the problem (Yin, 2014). Seminal authors in knowledge sharing (Brown & Duguid, 2001; Lave & Wenger, 1991) have not combined logistics with knowledge sharing.

Seminal Research of Case Study Method

In recorded history, seminal research using case study has originated with the disciplines of anthropology, history, psychology, and sociology (Creswell, 2013; Patton, 2002; Willis et al., 2007). Contemporary case study methods that come to prominence with renowned proponents such as Merriam (1998), Stake (1995), and Yin (2014) did not necessarily have the current esteem. Willis et al. (2007) documented the criticism given to this method by early scientists as unusable for generalization and lacking true scientific processes. Flyvbjerg (2006) felt the necessity for defending the case study by decrying five misconceptions of the approach. I invite the reader to consult Flyvbjerg for a complete discussion of these five misunderstandings. I have concentrated on two of them that pertain to this dissertation.

Common misconceptions include: first, one cannot generalize with a case study; second, the case study remains a biased vehicle subject to preconceptions by the researcher (Flyvbjerg, 2006). Proponents of case study such as Merriam (1998), Merriam and Tisdell (2016), Stake (1995), and Yin (2014) have posited that generalization can occur in from a case study, but the researcher must adhere to strict compliance methods as explained in Chapter 3 of this document. In the conceptual framework of this case study and a previously stated in Chapter 1, this case study has no theory, has no intention

of generalizing, but will endeavor obtaining an explanation for the lack implementation by Army logisticians at using knowledge sharing.

Early social scientists, often, did not trust the case method because of a lack of control of the domain or environments, inclined to accuse the researcher of bias (Frankfort-Nachmias & Nachmias, 2008). Yet, construction of any study, quantitative or qualitative, will have some inherent researcher bias (Blaikie, 2010; Creswell, 2013; Frankfort-Nachmias & Nachmias, 2008; Willis et al., 2007). The case study researcher should use reasoned judgment (Hoover & Donovan, 2011) and apply qualitative research ethics (Wiles, 2013) as mitigation for these criticisms. The contemporary use of single or multi-case studies has steadily progressed from the 1940s into this century, with antecedents of modern-day case study citing the Chicago School of Sociology as a major protagonist (Harrison et al., 2017).

Case study continues to evolve as some social scientists still interchangeably use the terms case study method and case study methodology. I have discussed the distinction, in detail, in Chapter 3. Briefly, case study refers to the method; methodology refers to the constructivism used in this case study (Moses & Knutsen, 2012). To reinforce the case study method, using grounded theory, Akhavan et al. (2006) conducted a case study of the results of multiple single case studies for determining critical success factors of KMSs.

Seminal Research of Knowledge Sharing

Michael Polanyi (2009) stated in his book *The Tacit Dimension:* "We know more than we can tell" (p. 4). This statement indicated a limit on language, media, and

technology at any given time. I have examined the success and limitations of language, media, and technology in the literature review, as these tools narrowly pertain to this study. Polanyi engaged a discussion on tacit knowledge, which served as the precursor for knowledge sharing. The continuous search for knowledge, and the desire for sharing, culminates into what Popper (2002) calls, "the repeated overthrow of scientific theories and their replacement by better and more satisfactory ones" (p. 292)

The seminal research into knowledge sharing, arguably, began with the works of anthropologist Jean Lave and social scientist Etienne Wenger, known as situated learning (Lave & Wenger, 1991). In the seminal book, *Situated learning: legitimate peripheral participation*, Lave and Wenger (1991) posited that learning best occurred in the context of social interactions rather than cognitive processes and conceptual structures. The authors coined the term community of practice (Lave & Wenger, 1991). The community-based approach to knowledge sharing developed by Lave and Wenger occurred with Liberian tailors, Mayan midwives, U.S. Navy quartermasters, sober alcoholics, and supermarket meat cutters. The members of these communities met in formal and informal settings that accommodated knowledge sharing. The members did not develop a uniform set of practices, but individually applied what they learned from the interactions. Wenger has remained an active advocate for community of practice (Wenger, 1998; Wenger & Snyder, 2000) and has continued steady contribution to the field (Wenger & Wenger-Trayner, 2015).

Knowledge sharing has three relational properties: embedded, dependent, and changing (Osterlund & Carlile, 2003). Osterlund and Carlile (2003) conducted a

researched review of the three seminal approaches to knowledge sharing acknowledging communities of practice identified by Brown and Duguid (2001), Lave and Wenger (1991), and Wenger (1998) as the basis for the three seminal approaches on communities of practice. The three seminal approaches consist of community-based knowledge sharing (Lave & Wenger, 1991), professional identity in the community (Wenger, 1998) and sharing practices within shared practices (Brown & Duguid, 2001). Although Lave and Wenger (1991), and Wenger (1998) continued to look at community of practice, as a holistic phenomenon, Brown and Duguid (2001) sought a decoupling of community from practice.

Brown and Duguid (2001) emphasize communities of practice as epistemic, which Wenger (1998) noted professional identity as paramount. Although respected researchers in information and learning, it appears that Brown and Duguid (2001) have conflated communities of practice as defined by Wenger with epistemic communities defined by Haas (1992). Haas, a seminal researcher in epistemic communities contended epistemic communities as a network of professionals within government entities using policy-relevant knowledge. Individual representatives of the states may develop the knowledge, but this knowledge remains applicable only to policy. Whereas Brown and Duguid (2001) consider the practice of cross sharing of knowledge by groups as epistemic.

Although seminal researchers have not unambiguously written concerning this specific phenomenon, sufficient literature exists within logistics and knowledge management for making inferences that encompass these disciplines (Creswell, 2013;

Lincoln & Guba, 1985; Merriam & Tisdell, 2016; Patton, 2002; Popper, 2002). Writings regarding logistics and knowledge sharing in antiquity come from the Chinese martial philosopher Sun Tzu (1983); and the monograph by Engels (1978) regarding the logistics exploits of the Macedonian Army commanded Alexander the Great.

Nonaka and Takeuchi (1995) contrasted the Japanese Imperial Forces and the U.S. military as opposite approaches to knowledge creation in an environment of duress. Nonaka and Takeuchi surmised that the American openness to new ideas contributed to success over the closed-minded Japanese forces. Ozlen (2014) contended that commercial entities that employ former military personnel could optimize performance through the transfer of tacit knowledge from military service members.

The application of previous research concerning logistics and knowledge sharing required a complicated yet focused application of the demands of the Army, academic resources, business resources, and abductive reasoning (Kennedy, 2018; Patton, 2002; Willis et al., 2007). Figure (1) depicts the Army knowledge management program as the overarching element in the knowledge and logistics framework (Headquarters, Department of the Army, 2015). This tome of knowledge management principles published by the Army could have proven overwhelming. Dalkir (2011) noted over 100 definitions for knowledge management in the literary landscape. Therefore, the scope of the phenomenon should narrow from knowledge management to the more defined knowledge transfer.

U.S. Army Knowledge Transfer Versus Knowledge Sharing

The Army stipulated rapid knowledge transfer in the organization (Headquarters, Department of the Army, 2015). The narrowing for the focus came from Paulin and Suneson (2012) who conducted an extensive literature review providing clarity to three confusing terms: knowledge transfer, knowledge sharing and knowledge barriers. Nevertheless, Girard and Girard (2015) also exhaustively collected the works of authors from 13 countries, 23 different fields, and developed two definitions. Although cited in the definition section of Chapter 1, I restate this definition as the guiding foundation for this case study. "Knowledge Management is the management process of creating, sharing and using organizational information and knowledge" (Girard & Girard, 2015; p. 14). This definition along with the emphasis on sharing has served as the antecedent for knowledge sharing as the focal relationship for the behavior of logisticians.

Tangaraja et al. (2016) undertook the task of differentiating the nuance of knowledge sharing and knowledge transfer. Knowledge transfer relies on oral and technological communication that the reader can simply regard as one-way. Knowledge sharing, a gradual experience, requires a bidirectional relationship between the knowledge supplier and receiver. Qualitative research borrows shamelessly from other fields (Lincoln & Guba, 1985; Moses & Knutsen, 2012; Patton, 2002; Willis et al., 2007).

The meshing of knowledge management and logistics may appear counter intuitive, but I envision it as a comingling for achievement of a possible positive result. The domains of knowledge sharing, and logistics should both contribute to the social change of Army disseminating greater success as a choir delivering a composition in

antiphony. The literature review has encompassed three areas: Synthesizing knowledge sharing from knowledge management, organizational obstacles and opportunities, and the future trajectory of logistics and knowledge management.

Literature Review

The impetus for the literature review began with the history of the U.S. Army Battle Command Knowledge System (Galvin, Jr., 2007). The Army began exploration of knowledge management in the early 1990s when Army leadership noticed noncommissioned officers using the Old Soldiers BBS (Bulletin Boards Systems) as an effort for sharing experiences of lessons learned in the profession of arms. This bulletin board no longer exists. However, this effort led to the development of the Army as an enterprise level knowledge management organization.

The themes of the literature review include the following: acceptance of knowledge management (Dalkir, 2011) and logistics (Blanchard, 2004) as related disciplines (Bunyak, 2011). The overriding theme of this case study concerned the transition from knowledge management (Dalkir, 2011), through knowledge transfer (Carlile, 2004; Klarl, 2014; Paulin & Suneson, 2012), evolving to knowledge sharing (Tangaraja et al., 2016; Van Acker et al., 2014). Knowledge sharing served as the underlying focus for the themes of environment, human emotions, language, motivations, and technology that apply to Army logisticians in performance of their duties.

Selection of Army as Appropriate Organization

The Army serves as the focus for this case study because this organization represents the most complicated logistics entity in the U.S. government, perhaps the

world (Wharton School, 2003). Therefore, knowledge sharing in such a complex organization would prove a challenge (Choi, 2015; Cooper et al., 2016). Per *Army 101,* a PowerPoint briefing currently located at (https://www.army.mil/comrel/resources/), the Army, as of 2018 has 1,006,166 Soldiers supporting domestic and 140 worldwide locations.

The Federation of American Scientists (https://fas.org/man/dod-101/army/unit/toe/) published the table of equipment and organization (TO & E) for the Army by unit. The following numbers provided may change because the Army actively procures and discards equipment. As of this writing, the Army has approximately 367,000 motor vehicles, 18,000 armored vehicles, 27,000 MRAP (mine-resistant ambush protected) vehicles, 3,500 aircraft, 11,000 unmanned aerial vehicles (UAV), and 50 seagoing vessels.

Based on the equipment used, the Army has assets like all the other military branches. Additionally, the Army through the Army Corps of Engineers has the following mission: “deliver vital public and military engineering services; partnering in peace and war to strengthen our nation’s security, energize the economy and reduce risks from disasters” (https://www.usace.army.mil/About/Mission-and-Vision/).

On December 13, 2003, the Wharton School published an opinion paper that noted the military supply chain of the U.S. military has more food, clothing, and medicine than retailers, Wal-Mart, or Sears (Wharton School, 2003). Additionally, the paper went on to say that commercial transportation logistics giant, United Parcel Service, could not match the military for delivery of personnel and material under

hazardous conditions. The Wharton School paper stated that the Army has a forward and reverse logistics pipeline (Mihi-Ramirez & Girdauskiene, 2013; Rogers & Tibben-Lembke, 2001). A comparison of era deployments noted by Pagonis (1992), the tons of supplies and equipment moved by the Army went from 836,060 tons during World War II to 1,071,317 tons in 1990 in the Gulf War. Therefore, no other organization has the complicated logistics capabilities and knowledge sharing requirements of the Army (Wharton School, 2003).

The Army recognized the need for knowledge management and instructed the entire organization to adopt knowledge management principles and develop appropriate procedures (Headquarters, Department of the Army, 2015). Major Jason Pape (2009), an Army officer, wrote a monograph that captured the resistance to change existent in Army culture. Major Pape proposed that, beneficial or not, most members of enduring organizations, like the Army become recalcitrant to embrace change. The absorption of a new policy and the expectation of conversion to philosophy may take time in an organization whose personnel pride themselves in the traditions of the past (Pape, 2009). Maton (2012) observed that a similar situation has occurred in academia, known as knowledge blindness.

Development of the Literature Review

The following narrative represents a development of the literature review that encompassed the technical and informational aspects of this study presented in four parts. The first part concerns the language, context, obstacle, and opportunity. The second part, synthesizing knowledge sharing from knowledge management addresses the synthesis of

knowledge management to knowledge sharing. The third part addresses: organizational obstacles and opportunities in logistics and knowledge sharing.

Finally, the current trajectory of logistics and knowledge sharing provide present trends in the fields of logistics and knowledge management. Although theme based, this approach endeavors a quasi-chronological evolution of knowledge management to knowledge sharing and logistics. I have presented early ideas on knowledge management but intersperse the latest literature that has advanced understanding of logistics and knowledge sharing. The three sections below address the synthesis of knowledge sharing with a focus on logistics.

Terms, Context, Obstacles, and Opportunities for Knowledge Sharing

The analysis of literature found for this dissertation caused the development of a hierarchy of terms that progressed in the following manner: data becomes information and leads to the creation of knowledge. The ideal progression occurs from created knowledge-to-knowledge management, moving as knowledge transfer, and ends with knowledge sharing. Logistics has remained a constant common denominator in the knowledge equation. Unfortunately, the evolution of knowledge management resulting in knowledge transfer constitutes a messy process. Scholars in the military, industry, and academe have made selective examinations of the differing facets of knowledge management.

Semantics, grammar, and vocabulary often provide obstacles and opportunities for presenting ideas (Bourland, Jr., & Johnston, 1991/1993). In Chapter 1, I provided specific definitions that related to the understanding of the language used in this study.

Still, the reader needs to understand that the discussion of knowledge and related terms can often prove dumbfounding (Dalkir, 2011). The research for this dissertation retained a constructivist paradigm approach concerning epistemology and ontology.

The term ontology, when used in the constructivist sense concerns multiple truths coupled with the epistemological paradigm of interpreting knowledge for the unearthing of fundamental meaning (Munn, 2008). I will briefly state that this literature review does not delve into the ontology of knowledge management, knowledge sharing, or logistics in the philosophical sense (Hennig, 2013). I have remained mindful of the epistemology of logistics and knowledge sharing because the context of this study envelops the military, commercial industry, and academic scholarship. In researching the literature, I have found extensive reference to applied ontology (Hennig, 2013).

Applied ontology has a bearing on this dissertation because researchers use this concept in developing knowledge sharing and decision-making protocols using digital methods (Ghrab et al., 2017). The digital methods that affect knowledge sharing and logistics, function from the accumulation of heterogeneous sources that necessitate the need for a common e-infrastructure (Barjak, et al., 2013; Ghrab, et al., 2017; Lyu & Zhang, 2016; Sandkuhl, 2015).

Applied ontology software models play a significant role in understanding behaviors and motivations for knowledge sharing among business professionals, including logisticians (Blanch, et al., 2017; Ghrab, et al., 2017; Scheuermann & Leukel, 2013). I have devoted extensive discussion on applied ontology in the section that

addresses the current trajectory of knowledge sharing and logistics because of the positive social change impact on knowledge sharing and logistics.

Perspectives of Army Professionals on Knowledge Management and Logistics

Bunyak (2011) provided the stimulus for researching this relationship between knowledge management, consequently knowledge sharing as these disciplines relate to logistics and logisticians. In the 1980s, the Army decided to combine the three major officer logistics specialties of ordnance, quartermaster, and transportation into the logistics branch (Stenfors, 2006). Citing the Army personnel management system Stenfors (2006) noted that logisticians of the 21st century had evolved into logistics pentathletes. Pentathletes seemed appropriate because newly minted logisticians had two other additional responsibilities that included medical service support and leadership.

Carroll and Coker, 2007, in a historical paper documented several different legacy technologies and systems used for implementation of logistic support, which culminated into the establishment of the Single Army Logistics Enterprise (SALE). The *2009 Army Posture Statement*, contained an information paper that advertised SALE as a complete system that would use current technologies, interface with the Department of Defense, access real-time logistics data, and enable critical decision making for war fighting and humanitarian intervention (Hamlett, 2009). Lieutenant General Stevenson (2011) noted regarding SALE: “This was to be the single most important factor in laying the foundation for information supremacy and situational understanding” (p. 3).

Prescient in understanding systems, Dr. Nicholas J. Anderson (2009a, 2009b, 2009c), an Army professional with academic credentials, portended the situation

elucidated by Bunyak (2011). Anderson (2009a, 2009b, 2009c), a retired Army colonel, authored a series of position papers inferring that deployment of the Single Army Logistics Enterprise (SALE) did not include a knowledge management infrastructure. Anderson (2009b) conducted an analysis of organizations within the Army, including the logistics community and found that out of 100 publications, no relationship between knowledge management and logistics existed. Anderson (2009c) constructed a chart that aligned knowledge management practices with SALE implementation. Yet, two years later Bunyak (2011) opined the failure of logisticians in adopting knowledge management.

Synthesizing Knowledge Sharing From Knowledge Management

The germination of the idea for this dissertation began when I discovered the arguments made by Nonaka and Takeuchi (1995), in their groundbreaking book regarding the creation of knowledge by Japanese companies. Nonaka and Takeuchi (1995) conducted an extensive literature review grounded in organizational theory and historical due diligence. Throughout the process, I have kept in mind the advice that "Our belief in the truth of something does not constitute our true knowledge of it" (Nonaka & Takeuchi, 1995, p. 21). This admonition by the authors has intrinsically impressed the concern with professional and cultural bias that I may sense, while conducting the literature review.

Nonaka and Takeuchi have developed renown among scholars regarding modern knowledge management (Ahern et al., 2014a; Ai & Wu, 2016; Akhavan & Zahedi, 2014; Barao et al., 2017). Nonaka and Takeuchi (1995) extensively used the U.S. military

organization, especially the Marine Corps in World War II, as the prototype for the knowledge generating entity. The military perspective evoked by these two academic scholars provided a platform for the association of logistics and knowledge sharing.

Nonaka and Takeuchi (1995) contrasted the flow of knowledge within the U.S. and Japanese military organizational infrastructures. The Japanese Imperial military had advantages in greater forces, plentiful resources, and keen familiarization with the conflict theater. The U.S. military, especially the navy, suffered desperately from the attack on Pearl Harbor that significantly diminished the fighting fleet. In the Japanese Imperial forces, knowledge only flowed from the top downwards. In contrast, the U.S. military accepted useful knowledge from any source within the organization. The Japanese effectively suffered from what Maton (2012) coined as knowledge-blindness. Knowledge-blindness occurs when an entity fails to query, develop, use, or apply essential knowledge. In this setting, the inference of the longstanding adage that "knowledge is power" does not hold dominance. The U.S. Army demands the application of knowledge sharing by every soldier, including logisticians (Headquarters, Department of the Army, 2015).

The U.S. victory, in World War II, against Japan occurred because of the U.S. Army structural environment that encouraged knowledge creation, dissemination, and application. Yet, the Army did not formally employ this procedure until the 21st century. Nonaka and Takeuchi (1995) regarded the Japanese loss as an organizational defeat, because the rigidity of a culture that did not permit knowledge sharing. The Japanese

learned from this experience and began adopting American synthesized structures and dismantling their rigid bureaucracies in industry (Nonaka & Takeuchi, 1995).

The Japanese also invited W. Edward Deming, who developed the *Deming Management Method* (Walton, 1986) for increased knowledge creation, sharing, and application. In the late 20th Century, Japanese companies enjoyed worldwide reputation for innovation and financial success by adopting this method (Walton, 1986). Other contemporaries of Nonaka and Takeuchi (1995) in academe and business-initiated investigations of knowledge management and knowledge sharing. The following discussions explore evolution from data to knowledge and ultimately knowledge sharing.

Organizational Adoption of Knowledge Management Principles

The Army, as an organization, has adopted the knowledge management ethos as part of the structural strategy (Headquarters, Department of the Army, 2015, 2019c). Dayan et al. (2017) affirmed this practice with a quantitative exploratory research paper that queried, worldwide, 200 knowledge management experts on the strategic value of integrating knowledge management in the corporate configuration. The knowledge-based theory of the firm functioned as the locus for a quantitative research paper conducted by Dayan, et al. Using knowledge-based theory of the firm, as the guiding principle, Dayan, et al., concluded that implementation of an appropriately defined knowledge management stratagem would result in fruitful mission realization. The philosophical underpinnings for this literature review rely on uncovering the often-obscured relationship between logistics and knowledge sharing.

Considering that all organizations deal with some form of logistics, few have acknowledged the relationship the way that Jagersma (2011) has presented the subject. The acknowledgement of knowledge as an asset for management, transfer, and sharing in logistics (Jagersma, 2011) served as the focus of this literature review. Businesses have considered the control of information as a technological challenge. Jagersma (2011) conducted 44 senior leader interviews from numerous multinational firms that included Bayer, Bosch, Goldman Sachs, Google, Sony, and Matsushita.

In an empirical approach research paper that initially coined the term information logistics, Jagersma (2011) reasoned that business leaders should treat information, albeit knowledge, as an asset with the required application of logistics principles. Information technology may facilitate information logistics (IL); however, leaders should not confuse the asset with the conveyance. Information logistics treats information as an asset that requires creation, procurement, storage, security, retrieval, and distribution.

The following logistics example comes from my experience as a warehouse manager. A produce distributor that owns a warehouse storing fruits and vegetables understands that profit comes from selling the commodities. The warehouse serves as the facility for receiving, storing, sorting, and distribution. A computer or other technology device functions like a warehouse. Data and information stored with information technology tools represent memory that users can retrieve. Pfeffer and Sutton (2000) asserted that extracting memory does equate to thinking. McCrone (1991) has documented phenomenal mnemonic feats by humans with photographic memories. The

ability for accurate recall does not translates into critical thinking, nor should this capacity serve as a substitute for knowledge sharing (Pfeffer & Sutton, 2000).

Knowledge Sharing Emerges as the Power of the Person

The works of groundbreaking authors (Davenport & Prusak, 1998; Nonaka & Takeuchi, 1995; Pfeffer & Sutton, 2000) indicated that knowledge sharing in the context of knowledge management required collaborative activity. These researchers have prepared the groundwork for understanding that collaboration begins with one person interacting with another person (Hwang et al., 2018). Hwang et al. found that knowledge giving by one person does not equate to equal sharing. Hwang et al. conducted a quantitative survey of 78 accounting professionals using the theory of reasoned action. Developed by Martin Fishbein and Icek Ajzen in 1967, the theory of reasoned action (Hale et al., 2002) addressed understanding the interactions of attitudes, intentions, and behaviors by individuals. The reader can pursue a historical and contemporary elucidation of this theory from Hale et al. (2002), or Montano and Kasprzyk (2015).

In a quantitative study that surveyed 330 respondents, Karnowski et al. (2017) found a dual relationship application of the theory of reasoned action for news sharing in social media. Consequently, Hwang, et al. contrasted the effectiveness between formal KMSs by the organization and personal information management motivation by the individual. The authors found that formal organizational KMSs provided the soundest incentive for individual commitment to knowledge sharing. Yet, the individual may place greater reliance on informal knowledge resources.

In business organizations, employees have greater belief in information dropped at the water cooler rather than truthful dictums that come from management. The military suffers from the same affliction termed as scuttlebutt. Scuttlebutt refers to an old nautical term for the barrel where sailors, aboard ship, would gather to drink water. Hwang, et al. advised that organizations should consider the link of formal organizational information systems to the power of the person.

Ayala et al. (2017) through research consisting of theoretical sampling, served as the protagonists who extricated the goal of knowledge sharing using servitization. Servitization represents a holistic approach for providing solutions to the client with a product service system that avoided product commoditization (Ayala, et al.). Commodities include such products as oil, orange juice, wheat, corn, rice, and sugar. Commoditization of a product can lead to price volatility and undermine stability in the marketplace for supplier and purchaser. Servitization has morphed into Business Model Innovation (BMI).

The platform for this analysis occurred in the logistics setting of the relationship between the supply chain of automobile manufacturing suppliers and car sharing providers. Ayala, et al. noted that representatives of the auto manufacturer General Motors sit on the board of directors of Lyft. Lyft and competitor Uber allow individuals use of personal vehicles for commercial taxi service. This relationship has created a climate for knowledge sharing for both companies. Ayala, et al. conducted an empirical multiple case study, using theoretical sampling, which applied a framework that followed the progression of knowledge transfer to knowledge translation resulting in knowledge

transformation. This research followed the precepts of building theories (Eisenhardt & Graebner, 2007) and accepted reliable data collection procedures (Yin, 2014).

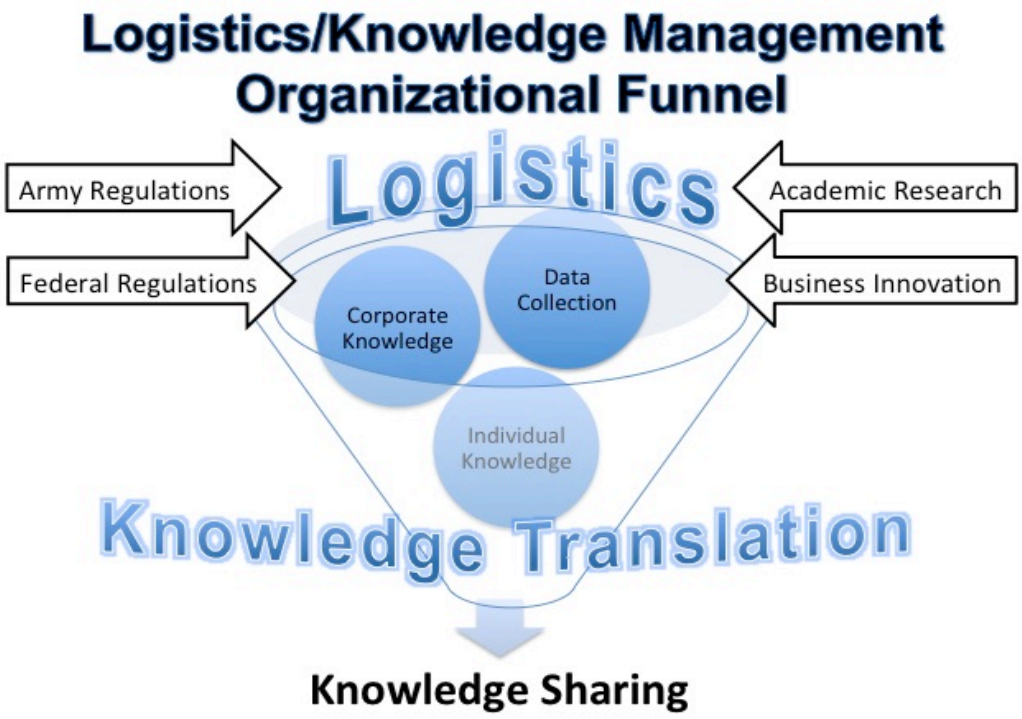
Ayala, et al. (2017) relied on the works Carlile (2004), who developed the ideas in a position paper concerning integrating knowledge across disciplines and specializations. Carlile (2004) advanced the framework of a cross discipline relationship in knowledge sharing from the strengths of historical metadata analysis conducted by seminal theorists Davenport and Prusak (1998), including the conceptions of Nonaka and Takeuchi (1995). True knowledge sharing can only occur after the recipients of transfer have the capability of translating, then transforming the knowledge received. Earlier, I invoked semantics as obstacles and opportunities. Like understanding a foreign language, the nuances, and contexts of cultural norms for knowledge translation require the development of shared significations before knowledge sharing can truly occur.

Progression of Knowledge Sharing in Organizational Settings

The respected authors of research procedures usually advise and admonish researchers on the importance of the logistics of conducting research (Creswell, 2013; Janesick, 2011; Merriam, 1998; Patton, 2002; Yin, 2014). The study of logistics engineering and management in military and commercial domains has engaged historians, business professionals, and military leaders (Blanchard, 2004; Engels, 1978). Throughout this review, I have used both military and academic resources, but the emphasis has remained on future application of the benefits of this case study to the Army. The following figure illustrates the literature review focus on the progression of knowledge sharing relative to organizational dynamics.

Figure 2

Logistics/Knowledge Management Progression to Knowledge Sharing



Note. This figure originally designed for this study represents an amalgamation of U.S. Army regulations, academic research, federal regulations, and business innovation capturing the essence of logistics and knowledge management interface. No copyright infringement exists.

In the early 1990s, the leadership of the Army began exploration of knowledge management principles and incorporated knowledge management as a philosophy in 2003 (Headquarters, Department of the Army, 2015). This approach by the Army represented a paradigm shift in thinking because, like civilian counterparts, the use of technology concentrated on data or database management (Adams, 2010). The reader

should note the deliberate absence of technology in the organizational funnel illustrated in Figure (2).

Technology in the form of information systems plays a vital role in speeding and filtering information but the task of judging appropriate knowledge sharing remains with the person (Hwang et al., 2018). Throughout the day, data, and information bombard us from the logistics of media that we willingly or unwillingly accept. Radio, television, smart phones, conversations, meetings, and many more work as delivery devices determined to give us information that we can hopefully translate into useful knowledge. Sometimes we can tune out superfluous information relating to our personal lives because our minds work like fishnet filtering out the water and catching the fish (McCrone, 1991).

Businesses, governments, and military organizations have the need for erecting a filter for the retention of beneficial knowledge and the discarding of superfluous data. This task remains with the individual and the formal processes implemented by organizations. As noted earlier, Jagersma (2011) emphasized that information logistics (IL) rather than information technology (IT) should serve as the focus of a knowledge sharing system. Belkin and Croft (1992) have noted that the successful operation of an organization concerns filtering and retrieval of information. The functions of filtering and retrieval assume that the organization has procured, created, and stored information that can receive application as knowledge. The advent of information technology (IT) has spurred dual expanse where scholars, businesspersons, military members have a fuzzy understanding in the use of information technology and knowledge management as separate terms (Ewest, 2010).

Organizational Obstacles and Opportunities in Logistics and Knowledge Sharing

The Army has identified four knowledge management tasks: knowledge creation, knowledge organization, knowledge application, and knowledge transfer (Headquarters, Department of the Army, 2015). Consequently, I should note that the Army and military antecedents had possessed a knowledge management processing system since the days of antiquity (Engels, 1978; Sun Tzu, 1983). Sun Tzu (1983) instructed military leaders on the necessity of spies for gathering information regarding a possible adversary. The military has always termed the result of this information gathering as intelligence. Military intelligence functions with processes like knowledge management in the creation, organization, storage, dissemination, and protection of knowledge.

Commercial enterprises often borrow military terms. Business intelligence has emerged in the lexicon of profit-making enterprises (Dayan et al., 2017). Business intelligence encompasses information regarding competitors, partners, customers, and the marketplace. Yet, the logistics and operational portions of the Army have remained knowledge blind (Maton, 2012) to the possibilities of organizational cross-pollination. Wiig (1997) reinforced this contradictory outlook for commercial enterprises by reasoning that knowledge management, in essence knowledge transfer, should have a low influence or remain subordinate to business operations, product development, and customer service.

Knowledge Sharing Not Always Knowledge Pooled

The term knowledge sharing can mislead the reader that knowledge sharing always occurs in a benign setting. The definition of knowledge sharing in Chapter 1

identified two conditions for the occurrence of knowledge sharing: knowledge donation and knowledge collection (Tangaraja et al., 2016). I believe that most of us accept knowledge sharing as knowledge donation. Knowledge collection, however, can occur with overt and covert methods that may not have a nefarious outlook, but can occur without the necessary cooperation of the other party (Nguyen et al., 2017).

Kull and Ellis (2016) have contended that despite the actuality of an adversarial relationship between purchaser and seller, knowledge acquisition, albeit sharing, can occur through the application of supplier cost analysis. In logistics, the supplier and buyer have a symbiotic relationship that can harm either party should the former decide to defraud or extort the latter. In other situations, the buyer may withhold payment or take other negative measures. Both members in the relationship can disadvantage the other. Kurt and Ellis conducted a quantitative study that surveyed of 222 purchasing firms. The authors constructed a theoretical model using interorganizational learning theory which concluded that "supplier cost analysis and supplier integration as elements of a logistics strategy" can lead to knowledge sharing by the supplier and knowledge acquisition by the buyer, without consent (Kull & Ellis, 2016, p. 356). In this instance, I concluded that knowledge sharing occurred between two contrasting parties in a covert manner.

Organizational obstacles in knowledge sharing can often serve as markers for solutions (Saini et al., 2018). The reverberating frustration for leaders of organizations concerns management of sharing tacit knowledge within the organization (Nonaka & Takeuchi, 1995). Knowledge management consultants Davenport and Prusak (1998) collected examples of actual business cases and provided an early exploration of tensions

and solutions in knowledge transfer. Companies may exacerbate trust in subordinates with the introduction of a sound, knowledge management policy hindered by poor shared knowledge (Rodger, 2012) procedures. In many of these situations, companies that classify employee behavior of reading and talking on the job as idling send as lack of trust, which undermines the sharing of tacit knowledge.

Successful Factors for Knowledge Sharing

Controlled or not within enterprises, the sharing of tacit knowledge occurs (Davenport & Prusak, 1998). Saini et al. (2018) prepared a quantitative analysis research paper that analyzed knowledge sharing in the construction supply chain (CSC) or logistics, which spanned the years 2002 through 2015. Using a Likert scale method, Saini et al. (2018) tested for critical success factors (CSF) for "Transferring and sharing tacit knowledge (a) in lean process (b) in agile processes is high" (p. 75).

The presentation of these critical success factors illustrated the possibilities that academics can construct solutions from the problem found by previous researchers. The analysis concluded by Saini et al. (2018), steered to identification of ten critical success factors:

- Organizational trust among construction supply chains
- Tacit knowledge sharing incentives
- Reinforcement and inducement provided by leaders for knowledge sharing
- Construction process developed strategies for sharing knowledge
- Competencies of individuals for sharing tacit knowledge
- Procedural enhancements identification made by leaders

- Specification of knowledge worthy of sharing
- Recognition of knowledge provider
- Specification of knowledge recipient.

Karl Wiig (1997) traced the history of contemporary knowledge management and boldly predicted the demise of that discipline in the 21st century. Wiig (1997) did note that competitive pressures would force industries to adopt knowledge management for "operational excellence, product leadership, and customer intimacy" (p. 14). This prediction would prove true, as I have found with current literature that acknowledged the shadow cast by Wiig (Venkatraman & Venkatraman, 2018). The reader should note a discussion of this fluctuation in the next section that considers the trajectory of knowledge sharing and logistics in the future.

The negative outlook for the future of knowledge management probably spurred Fahey and Prusak (1998) into penning *The Eleven Deadliest Sins of Knowledge Management*. The purposes of identifying these sins stemmed from an effort in helping organizations understand faulty decision-making. In the Japanese Imperial military, despite superior forces, a faulty decision process inevitably led to defeat. Davenport and Prusak (1998) persevered in detailing the obstacles in organizational cultures that would derail knowledge transfer; and presented solutions for an organizational environment that would encompass solutions.

Throughout the literature search for this review, the theme that had a continued reverberation concerned the difficulty of separating the knowledge asset found in the individual and the database asset found in organizational repositories (Barao, et al.,

2017). Barão et al. developed a project paper with an engineering approach designed for the acquisition of organizational learning networks. This approach to the logistics of knowledge collection and subsequent knowledge sharing concerned availability information networks and creation of networks. The authors constructed conceptual maps that illustrated the relationships between knowledge acquisition, ontology integration, implementation, and evaluation. The process required thorough documentation for feasibility purposes. The authors found that absent a common ontology across software platform, capturing tacit knowledge posed a challenge.

The most difficult challenge concerned retention of intellectual capital, which remained in the heads of employees. Barão et al. restricted the analysis to mechanical or engineering methods without regard to behaviors and motives of employees. In the next section, I have presented researchers that have examined, investigated, and offered insights into motivations and behaviors of members of organizations.

Personal Motives as Obstacles and Opportunities for Knowledge Sharing

Chumg et al. (2016) conducted a mixed method case study with emphasis on mathematical modeling using *structural equation modeling*. Social scientists have used models as an abstract of reality (Frankfort-Nachmias & Nachmias, 2008). The authors sought understanding of motives for knowledge sharing. Social capital theory served as the theoretical foundation for the study coupled with organizational culture. The authors gleaned data from a field survey consisting of 131 employees of Taiwanese nongovernmental organizations.

Chumg et al. (2016) concentrated on the use of *information and communication technologies* by these employees as conveyances of knowledge sharing. The study fused psychology, sociology, and anthropology respectively, as follows: employee sense of prosperity, social capital theory, and Chinese culture. The model concluded that employees with a positive sense of self would actively engage in knowledge sharing.

Lyu and Zhang (2016) embarked on an innovative mixed method paper that merged empirical data gathering and mathematical modeling of KMSs that can lead to employee incentives for knowledge sharing. Lyu functioned as the logistician and Zhang performed mathematical social modeling from the perspective of an economist. These authors analyzed 146 completed questionnaires of a large pool of participants from many different disciplines including finance, retail, manufacturing, entertainment, and construction. Lyu and Zhang unambiguously declared that information sharing does not equal knowledge sharing.

These assertions by Lyu and Zhang reinforce the observations of Pfeffer and Sutton (2000) that memory does not equate to thinking. Information sharing increased the corporate database but did not necessarily transform into knowledge until learning had occurred in the individual employee. Lyu and Zhang implied that information sharing does not result in learning by individuals in the organization unless the culture encouraged learning behavior. Although, I found this study mathematically abstract and esoteric, the narrative provided a clear transfer of knowledge created by the authors.

These two separate studies appear to parallel knowledge sharing as based on motives (Chumg et al., 2016) and incentives (Lyu & Zhang, 2016). Both studies

extensively discussed the consequences of technology on organizations but concentrated on the individual and corporate culture as contributors to knowledge sharing. The cooperation among social scientists from different disciplines indicated a convergence and recognition that logistics and knowledge sharing continued to exist in the commonality of the power of the individual.

Online Opportunities and Obstacles for Knowledge Sharing

The presence of the World Wide Web has created virtual networking communities among many disciplines including scientific discourse. Park and Gabbard (2018) decided on exploration of knowledge sharing activities among scientists in the health and life sciences, using social exchange theory (Blau, 2017). Park and Gabbard centered their study on the works of Blau (2017), who wrote extensively on social exchange theory.

Homans (1958), also a prominent sociologist, and a contemporary of Blau defined the basis for social exchange theory. Homans expounded that social behavior served as form of exchange like the way we treat currency for goods. The behaviors of individuals in society received reinforcement or discouragement based on mutuality, connections, status, selflessness, and exclusivity (Park & Gabbard, 2018). The exchange of behavior can occur with the awareness or obliviousness of the participants.

Scholars from different disciplines using heterogeneous sources have coalesced on the notion of ontology, specifically, applied ontology when knowledge sharing behaviors and motives take prominence (Blanch et al., 2017; Chui & Gruninger, 2017; Ghrab et al., 2017; Lopez-Gil et al., 2016; Scheuermann, & Leukel, 2013). Knowledge

sharing behaviors played a prominent role in the development of a "Core Ontology of Know-How and Knowing-That (COOK)" proposal paper developed by Ghrab, et al. (2017, p. 138). Ghrab et al. advanced the ontological framework for COOK making extensive reference to the DOLCE. DOLCE comprises an open laboratory of applied ontology that the reader can find at the following website: (http://www.loa.istc.cnr.it/old/DOLCE.html).

As an example, Borgo and Masolo (2009) have written extensively regarding the rudimentary properties of DOLCE. Those authors provided *Handbook on Ontologies* (Borgo & Masolo, 2009) that explained the context of this platform regarding ontologies. Simply, DOLCE represents a Web based digital platform for fundamental or upper ontology in knowledge sharing for portrayals and circumstances. Scheuermann and Leukel (2013) conducted an extensive literature review and argued the need for a task-oriented ontology in supply chain management. As noted earlier, the purveyors of supply chain management (SCM) have begun eclipsing logistics, but the Army still relies on logistics and this dissertation has remained in that vein. The relationships between knowledge sharing and logistics remain dependent on the situational element of the military mission.

Current Trajectory of Logistics and Knowledge Sharing

Venkatraman and Venkatraman (2018) have suggested that despite the presence of standardization, which acknowledged the practice of knowledge management, that the greater practice of knowledge sharing required implementation of a community of practice (CoP) (Wenger, 1998). Persons may structure communities of practice when

engaging cooperative scholarship for attainment of a united ventures that expand knowledge and overcomes challenges (Venkatraman & Venkatraman, 2018). The latter sentence encapsulated the intent of this dissertation in reconciling the relationship between knowledge sharing and logistics in the Army.

Etienne Wenger, the seminal developer of community of practice collaborated with Beverly Wenger-Trayner and continued the development of the CoP model (Wenger & Wenger-Trayner, 2015). This model posits that learning, specifically, knowledge sharing occurs during joint activities. These activities create a learning loop of knowledge within the community that can result in immediate, potential, applied, realized, and ultimately, transformative values. The Wegner CoP model identified the domain, the community, and the practice as the three main components. Regarding application to the Army, I would infer Logistics encompassing the domain, Army logisticians representing the community, and knowledge sharing exemplifying the practice.

The Wiig Knowledge Management cycle contended that organizations build, hold, pool, and use knowledge (Wiig, 1997). Venkatraman and Venkatraman conducted a Grounded Theory qualitative study applying the Wenger CoP model (Wenger, 1998) coupled with the Wiig Knowledge Management cycle (Wiig, 1997). Venkatraman and Venkatraman acknowledged the innovations in information and communication technology (Tauscher et al., 2018) have given rise to virtual communities that suggest implementation of communities of practice. Still, Wiig (1997) had predicted the demise of knowledge management by the end of the 20th century. Yet, the Army has chosen

adoption of knowledge sharing in the 21st century (Headquarters, Department of the Army, 2015).

Knowledge Management Systems

KMSs (KMS) have undergone a dormant percolation that has blossomed through sharing of tacit knowledge. Commercial organizations have recognized that duplication of technological innovations cannot replace the intellectual capital submerged in the minds of individuals. Tauscher et al. (2018) argued that worldwide knowledge sharing, and standardization could advance progression in service-based enterprises.

Aviation represents a globally used service. Tauscher et al. published an information paper that considered classification of systems, content, components, tools, and service platforms in the information and communications technology market. Information and communications technology services represent the logistics of rapid paced knowledge interaction (Jagersma, 2011). Standardization of a process or product requires a measure of cooperation for knowledge sharing among competitors (Tauscher et al., 2018; Wiig, 1997).

Energy products as electricity, petroleum, coal, and biofuels use the same logistics delivery systems globally standardized for each commodity (Dziak, 2017). Despite having different manufacturers, disc players, computers, and media delivery systems such as radios, televisions, and smart phones also require standardized protocols that all users can understand (Inkinen et al., 2009; Kownatzki et al., 2013).

Language Examples as a Platform for Knowledge Sharing

The following example concerns language a platform for knowledge sharing. The reader should imagine a person from Tokyo, Japan who only speaks Japanese. The traveler must journey to Sao Paulo, Brazil to visit family that has relocated to South America. The flight requires a stop in Los Angeles, USA. The airline pilot provided reassuring updates to the traveler as the journey proceeded to the destination. The traveler gave no mind to the requirements of the English language aptitude required as the pilot communicated with the air traffic control towers at each destination. The traveler may not have known that the global aviation community engaged in commercial transportation, which includes air traffic controllers, flight crews, and flight safety investigators must speak Aviation English (Estival et al., 2016).

Aviation English represents an international communication knowledge-sharing platform where the logistics of passenger and cargo movement can occur. Estival et al., (2016) denoted their "*Aviation English* as a *lingua franca for pilots and air traffic controllers"* as a foundation for aviation communication (p.01). This book consisted of an interdisciplinary approach in piloting, flight control, linguistics, and cognitive psychology for a knowledge-sharing program. The authors conceded that Aviation English represented a construct of the language that eschewed cultural nuances of the native speaker.

The necessity of Aviation English developed from a safety perspective. Language can act as an opportunity or barrier for knowledge sharing (Bryson, 1990). Aviation English enhanced knowledge sharing through the exchange of ideas for the improvement

of safety standardization in the logistics of passenger flight, ground control, training procedures, and cargo delivery. Nations with English as an official language, often vary in usage and spelling from region to region and within those countries (Bryson, 1990). The relationship of individual motives has continued to influence knowledge sharing behaviors. The global agreement of a single language for the complicated and sometimes dangerous environment of aviation, exemplified a form of standardization in knowledge sharing and logistics.

Fifteen years ago, I watched the interview, on a national news magazine, of an Immigration and Naturalization Service (INS) officer, who noted that his fluency in Spanish had a detrimental effect on advancement. Agents, who spoke only English, would ask this native Spanish speaker, who enjoyed bilingual dexterity in English, to assist them with oral or written translations. The native speaking agent, as member of the organization, initially enthusiastically assisted colleagues. Despite the ability to navigate in English and Spanish, the agent failed to receive the same promotion as peers.

The agent had freely shared language and cultural knowledge with colleagues and assisted the organization. The agent stated that he initially attributed the failure of advancement to some sort of cultural bias, or racial discrimination had occurred. After the agent launched complaints that his contributions did not receive recognition, his seniors informed him that his personal workload did not attain at the level of others. The time spent helping others proved damaging to accomplishing tasks.

Using analysis based on the works of Blau (2017), Homans (1958) wrote a calculative essay. Homans reasoned that the social behavior of freely sharing knowledge

does not always engender a reward from colleagues or seniors. The Spanish-speaking agent subsequently declined all requests for translation assistance from colleagues and seniors. He informed them to hire a full-time translator.

The Behavior of Academics Affecting Logistics and Knowledge Sharing

Park and Gabbard (2018) conducted a quantitative study that surveyed 141 research scientists of bioinformatics resources. Five determinant factors played a key role in considering knowledge sharing behavior motives of these scientists: "reciprocal benefit, anticipated relationship, reputation, altruism, and fear of being scooped" (Park & Gabbard, p. 326).

Popper (2002) reckoned that in making new discoveries that scientists partook in a gleeful exercise of overthrowing past theories. In a treatise that reviews the motives of contemporary developers of knowledge, Geuens (2011) questioned publish or perish as the motivation existent in academic research. Geuens asserted that this mentality did not necessarily contribute to knowledge, only to additional publication. Park and Gabbard constructed a model using the partial least squares method that found, despite altruistic and professional intentions fear of being scooped, as significantly negative in the sharing of both explicit and implicit knowledge. The fear of being scooped may motivate health and life scientist in the avoidance of collegiality and remain behind a curtain of concealment (Park & Gabbard, 2018).

In an analytical research paper that examined the related industry of pharmacology, Kim (2016), a legal scholar, addressed a contradiction trending in knowledge sharing and innovation: secrecy. Wiles (2013) extensively focused on the

qualitative research ethics that concern confidentiality, privacy, and anonymity of the individual, but overlooked secrecy by the researcher. Researchers and their employers working in commercial laboratories have a monetary concern that Kim (2016) pondered whether government legislation or public policy could regulate this societal dilemma of knowledge sharing. Secrecy becomes a motivating factor when individuals can maximize an exclusive with financial gain.

Societal Gains in Losses Affected by Knowledge Sharing and Logistics

Many discoveries that could benefit society and endeavor beneficial social change remain obscured when personal and financial gains outweigh societal needs. Kim (2016) invoked the rational choice theory, as noted by Ostrom (1998) that society suffers when individuals in a communal situation pursue self-interest outcomes that diminish other members of the group. Consider that in a basketball game, one player may lead the league in points, assists, and rebounds but the team has a losing season because said player monopolized the ball. In the logistics of knowledge accumulation (Jagersma, 2011) that can occur in the pharmaceutical industry, the company benefits financially from development of a highly desirable but thinly distributed product (Kim, 2016). The community does not benefit from a secretive mindset.

Secrecy, Confidentiality, and Security of Knowledge Sharing and Logistics

The acceptance of secrecy also invoked another phenomenon that affects the individual and the organization in the logistics of knowledge sharing: information security awareness. Ortiz et al., (2017) conducted a quantitative study on Facebook using mySurvey as the data collection tool for analysis of self-protection and self-presentation

on a social network platform. The authors regarded information security awareness as personal acknowledgement of protective procedures that the individual should take on social networks. The authors asserted a correlation between self-preservation and knowledge sharing. Ortiz et al. hypothesized that individuals operating in an organization with established information security policies had the tendency of adopting these methods to personal security awareness in social networks.

The authors culled 598 valid questionnaires out of 1128. Interestingly, 46.6% of the respondents spent 4-6 hours on Facebook (Ortiz, et al., 2017). The self-protection aspect resided in the threat appraisal apprehension by the participant. The study found that knowledge sharing and information security in social networks have an adverse relationship. The Facebook participants sought social networking bonding through knowledge sharing only when confidence in the platform would confer self-protection. The knowledge-sharing platform should offer the logistics for feedback to the providers when participants feel threatened. Ortiz, et al. recommended that social network providers invest in appropriate security measures for protecting the accounts of participants. Osawa (2017) cautioned that cyber security has emerged as a necessary function of national security in an era of state sponsored information and knowledge terrorism.

Logistics of Knowledge Sharing by Teachers, Instructors, and Academics

Van Acker et al. (2014) studied the knowledge sharing behavior of teachers using open educational resources The social exchange theory model served as the basis for this study (Homans, 1958). Through an online panel of 1,568 participant teachers from

primary, secondary, and higher education institutions, these authors conducted a quantitative analysis study testing for three factors: "knowledge sharing self-efficacy, benevolence-based trust and competence-based trust" (Van Acker et al., 2014, p. 140). Per social exchange theory, those three factors represented nonmonetary motives for knowledge sharing. The logistics of placing content on the Internet usually came through digital learning materials found in dedicated education repositories of higher learning institutes.

The study looked at two methods for sharing: interpersonal (contribution to immediate colleagues) or public (Internet sites). Wikipedia, Dictionary.com, and other databases available to the public do not qualify, because the content does not consist of instructive or academic material. The motivations of educators could benefit the Army in examining the gap in the relationship between knowledge sharing and logistics. Based on the three factors of motivations, 56.25% of the participants actively shared interpersonally or on the Internet (Van Acker et al., 2014). Interestingly, 25% of the respondents never circulated their open educational resources interpersonally (Van Acker et al., 2014).

Synthesis of Current Logistics and Knowledge Sharing Trends

Blanch et al. (2017) along with Scheuermann and Leukel (2013) inclined their assertions of knowledge sharing concerned human comportment, lexicon, nomenclature, ontology, and information technology. The main theme that has resonated throughout the literature centered on human behaviors and the need for capture of a common form of sharing knowledge. Chui and Gruninger (2017) presented a quantitative research paper

exhibiting mathematical proofs of the math models in the Common Logic Ontology Repository (COLORE) that supports DOLCE. Significant in the effort by Chui and Gruninger concerned the substantiation and flexibility of classifying DOLCE as an upper ontology.

The development of web ontologies, specially, DOLCE, have a structure that deemed to categorically configure authenticity. Relying on their expertise in computer languages and computer engineering, Lopez-Gil et al., (2016) prepared an analytical review of web ontologies that see capture of "human emotional, cognitive, and motivational processes" (p. 1). These researchers made use of comparative tables, mind maps, and literature review concluding that a common framework for knowledge sharing depended on the emotional state of people coupled with interpreted realities of the world.

The literature search strategy began with identification of the gap that sought why Army logisticians fail at knowledge sharing (Bunyak, 2011). Bunyak, an Army logistician, identified the situation but did not study the phenomenon through scientific examination. Neither the Army, nor the U.S. government has addressed this shortfall. Simultaneously, knowledge management experts began to look at information logistics from a competitive perspective (Jagersma, 2011).

Choi (2015) studied U.S. government knowledge sharing behaviors through the lens of social capital theory. Nonaka and Takeuchi (1995) used the organizational structure of the American armed forces during World War II as the model for a knowledge creating company. Private industry representing corporations such as General Motors and Motorola integrated Army learning procedures into these organizations

(Pfeffer & Sutton, 2000). Initially developed in 1993 by Ikujiro Nonaka, the SECI (socialization, externalization, combination, and internalization) model formed the basis for using the Army as an example of the knowledge creating company (Nonaka et al., 2000). Lis (2014) reexamined the knowledge creation SECI that applied to American and NATO (North American Treaty Organization) military services.

In the seven-year period from 2011 through 2018, scholars began exploration of knowledge management inexorably moving toward the granularity of knowledge sharing (Dayan et al., 2017; Karnowski et al., 2017; Tangaraja et al., 2016). The literature found, indicated a continuous effort toward collaboration, cooperation, and partnership among scholars using multiple methods for organizational knowledge sharing (Ghrab et al., 2017). The highlighted examples remunerated in this paragraph and the articles noted in this study have provided the foundation for further exploration. However, not one of the studies made a direct correlation for the challenges facing Army logisticians at adopting knowledge sharing. Therefore, the gap identified by Bunyak (2011) still existed.

Summary and Conclusions

The literature reviewed for this dissertation has percolated several themes: environment, human emotions, motivations, and technology. In the second decade of the 21st century, an undercurrent of knowledge management research focusing on knowledge sharing has occurred. Knowledge sharing does not always occur in a benevolent environment. The purpose for the Army implies operation in a malevolent environment. The landscape of knowledge accumulation and knowledge donation does not always occur in an altruistic environment. In the effort of converting information to knowledge,

members of the Army collect, process, store, display, disseminate, and protect data. The Army received praise for turning knowledge into action and seeking solutions from failures (Pfeffer & Sutton, 2000). However, the situation regarding the integration of knowledge management and logistics has remained elusive in the Army.

Human emotions regarding contentment, fear, sense of accomplishment, and attainment of success can affect knowledge sharing. People who have developed the tacit level of knowledge feel a sense of contentment but may practice secrecy out of fear of losing the value obtained from this success. The emotions experienced by individuals in organizations can drive the relationship with other members that can affect the dissemination of knowledge sharing. In an organization such as the Army, knowledge sharing plays a key role in executing a sound logistics infrastructure. Despite the military environment of collective support and prescribed uniform execution of tasks, the individual remains the single point of failure.

The use of technology in the form of databases, computer programs, and web ontologies can serve as facilitators for organizational success. The logistics of heterogeneous databases, exploiting intuitive computer languages can significantly contribute to the collaborative process of providing working ontologies that benefit knowledge sharing, supply chain management, and logistics. The most conspicuous finding in the literature review revealed that regardless of technological advancement, methodological approach, and organizational structure, the individual remains the essential catalyst for success in knowledge sharing and logistics.

In the analysis of the known and unknown of the problem, the most striking analogy that I can conceive regarding knowledge sharing and logistics involves two essential ingredients that the entire world uses in cooking: salt and water. Humans cannot live without either of these substances. I would ascribe knowledge sharing as salt and logistics as water. Water dissolves, retains, and transports salt in foods. Humans can see the food, the converted water, but not the added salt. The known and the unknown exist simultaneously (Locke, 1847). I would not know the presence of the salt until tasting the food.

Chapter 3, following, details the methodology that I expect to employ in development of a theory for why Army logisticians fail at knowledge sharing. I infer per Descartes (1644/2009) that Army logisticians would not seek failure. The reason for the lack of adoption of knowledge sharing by these professionals remains unknown until the finding of an explanation. The reader should note that scholars have identified organizational opportunities for implementation of knowledge sharing processes. Members of the Army have recognized this shortcoming and have not addressed it. The principlist approach drives the research conducted in Chapter 3, using abductive reasoning (Kennedy, 2018), for reconciliation of the known and unknown.

Chapter 3: Research Method

The purpose of the explanatory qualitative case study was to determine why Army logisticians face challenges in adopting knowledge sharing. I sought an explanation, through an explanatory qualitative case study, why the lack of knowledge sharing has occurred among Army logistics officers. Yin (2014) noted that a case study is used to address a logical question not a logistics matter. In this study, I delved into the logic of the situation.

The goal of this study was to explain why logisticians in the Army fail at adopting knowledge sharing (Bunyak, 2011). This breakdown contradicts the inroads of knowledge sharing made in commercial industries engaged in logistics services (Ayala et al., 2017; Bernstein et al., 2015; Chumg et al., 2016; Cooper et al., 2016). Federal agencies have rarely explored this phenomenon through studies, reports, or publications (Choi, 2015; Wilhelm, 2010). Other than the clarion call by Bunyak (2011), the lack of adoption of knowledge sharing has received little or no consideration from the Army in general.

The research problem may stem from a lack of awareness by logisticians and the Army as an organization. Even though the Army has mandated use of knowledge management in *Mission Command* (Headquarters, Department of the Army, 2019c), as stated in Chapter 2, the reason for this situation has remained unknown because no one has engaged in scientific enquiry of this phenomenon. Past practices of information distribution apportioned as knowledge sharing may have inculcated the organization to a state of what sociologist Karl Maton (2012) described as *knowledge blindness.* Maton

(2012) emphasized that knowledge blindness in education occurs with the reduction of knowledge to power.

The fallacious mentality that the user has attained a position of power from knowing, the goal of knowledge furtherance disappears. Forms of knowing usually entail the knowing of this, that, and how remain restricted to a particular subject or task but not knowledge that enmeshed knowledge transfer (Maton, 2014). The acceptance of knowledge as an object of study focused on knowledge building and removed the learning blinders that have existed in forms of knowing (Maton, 2014).

The sharing of knowledge from one person to another is not always successful because the transmitter must rely on the personal mental processes of the receptor (Maton, 2012). In a hierarchical organization like the U.S. Army, the responsibility falls to the subordinate to inform the supervisor of pertinent knowledge (Headquarters, Department of the Army, 2014). Paulin and Suneson (2012) concluded that knowledge transfer, knowledge sharing, and knowledge barriers exist as unclear terms in the lexicon of social scientists.

Knowledge sharing is a term distinct from knowledge transfer. Tangaraja et al. (2016) argued that prevailing knowledge management literature should make a distinction between knowledge transfer and knowledge sharing. Knowledge transfer epitomizes an action that involves interaction between the transmitter and recipient of knowledge (Tangaraja et al., 2016). However, knowledge sharing as the next stage entails a mutually trusting relationship between the transmitter and receiver (Davenport, & Prusak, 1998; Pfeffer, & Sutton, 2000; Van Acker et al., 2014). Tangaraja et al. (2016)

described knowledge sharing as either unidirectional or bidirectional. In a situation requiring the transference of knowledge, the relationship between the commander and the logistician have unidirectional and bidirectional relationships. Unidirectional knowledge transfer occurs when the logistician transmits the logistics status of the organization. Bidirectional knowledge transfer occurs when the commander and the logistician have and active interchange regarding the knowledge shared.

Recognizing the need for clarifications in decision systems, Ghrab et al. (2017) developed ontology for cultivating knowledge sharing in the decision-making process. Accepting this environment, I pursued an explanation of the absence of bidirectional knowledge transfer, which should occur with the active participation of the logistician and the commander. Knowledge transfer has two components: codification and personalization (Tangaraja et al., 2016). Codification usually takes the form of a system devised to transfer knowledge to individuals through methodized resources, such as training and education. Personalization entails unidirectional and bidirectional transmission of knowledge, which represents the core of knowledge sharing.

The organization does not know that it does not know something about internal practices (Moses & Knutsen, 2012; Pfeffer & Sutton, 2000). I have designed a method that illuminates or exposes this conundrum. I conducted this study using a qualitative case study, and I provided the literature review supporting this study in Chapter 2. In this chapter, I present the research design and rationale. In the role as researcher, as the main instrument for this case study, I have detailed the method through sample strategy, development of instrumentation, and internal and external validity of data.

Research Design and Rationale

Why do Army logisticians encounter challenges adopting knowledge management principles, specifically knowledge sharing, imposed by the U.S. Army? As a professional logistician, I have developed a keen interest in knowledge management and knowledge sharing. This case study concerned the aspiration of explaining a complicated institutional phenomenon (Yin, 2014) where Bunyak (2011) identified a failing in the Army. A researcher chooses a topic that entices personal interest (Chen, 1998). A review of the literature demonstrated a gap within the Army (Anderson, 2009c). The use of this qualitative case study inquiry should add to knowledge currently not fully developed or existent in the literature (Hoover & Donovan, 2011; Patton, 2002; Willis et al., 2007)

The why question advanced the notion of seeking an explanation or consideration for the phenomenon (Blaikie, 2010; Merriam, 1998; Merriam & Tisdell, 2016; Patton, 2002; Stake, 1995; Yin, 2014). Science has remained the fundamental mode of research (Frankfort-Nachmias & Nachmias, 2008; Hoover & Donovan, 2011). The scientific process of investigation has determined the research design and rationale. The social science community has accepted three methods of research: qualitative, quantitative, and mixed methods (Creswell, 2013; Patton, 2002; Willis et al., 2007).

I dismissed mixed methods outright because this approach would require preparation of two combined studies: quantitative and qualitative (Onwuegbuzie & Leech, 2005). Given the timeline and coordination with the Army, the expense of resources needed would prove extravagant. The quantitative approach would require the use of numbers and possibly forgo capturing the rich experiences (Merriam, 1998; Stake,

1995; Yin, 2014) of the logisticians trying or facing challenges to adopt knowledge sharing. The qualitative method remained the best option.

Moses and Knutsen (2012) emphasized the difference between methods and methodologies. The literature has noted two central methodologies representing the current perspective of social scientific research: naturalism and constructivism (Creswell, 2013; Moses & Knutsen, 2012; Patton, 2002; Willis et al., 2007). Naturalism requires the researcher to observe events as they occur naturally (Lincoln & Guba, 1985). In constructivism, the researcher is the main instrument of data collection and analysis (Creswell, 2013; Janesick, 2011; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). The circumstance of Army logisticians adopting knowledge sharing does not occur in nature but should operate as a function of a complex organization.

I have found consensus in the literature among respected authors for five common types of qualitative research: narrative, phenomenology, grounded theory, ethnography, and case study (Creswell, 2013; Merriam, 1998; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). The fundamental methodology of constructivism served as the preferred method for developing the techniques of this qualitative case study. The epistemology governing this study has mostly followed the *interpretive*, sometimes referred to as *constructivism*, which relies on the researcher as the observer or interpreter of the phenomenon (Merriam, 1998; Merriam & Tisdell, 2016; Patton, 2002).

Yin (2014) identified five rationales for a single case study: critical, unusual, common, revelatory, and longitudinal. Critical relates to theory or theoretical intentions. My study does not have a theory. I sought to develop or discover a theory (Reynolds,

2010). Unusual represents phenomena that deviate from the accepted culture. Unusual does apply to this case study because logisticians have no difficulty in compliance with Army norms. Common does not pertain to this case study because Army logisticians usually follow doctrine and regulations. Revelatory would mean that the study of lack of adoption of knowledge sharing occurs only in an inaccessible corner of the Army.

The entire organization has received written regulations to adopt knowledge sharing (Headquarters, Department of the Army, 2019c). Many research studies have some temporal variation because the researcher should address factors relating to time (Blaikie, 2010; Creswell, 2013; Frankfort-Nachmias & Nachmias, 2008; Hoover & Donovan, 2011). Chapter 2 included some elements of history for context, clarity, and alignment but I was not looking at Army logisticians at different segments of time. This case study of unusual circumstance has occurred in a synchronic fashion where temporal variation may have minimal to no bearing on the phenomenon.

Table 3

Research Design and Rationale

Basis	Purpose	Process
Typology	Explanation	Basic research
Methodology	Interpretive	Constructivism
Tool	Qualitative	Case study
Strategy	Logic	Abductive reasoning

Note. This table represents the strategy in designing this explanatory case study using abductive reasoning.

The case method has remained an unambiguous practical procedure for conducting the study (Moses & Knutsen, 2012). Patton (2002) relied on Stake (1995) to emphasize that case studies have two significant epistemological differences: recognize cause and effect or ascertain the human experience. The approach of this case study followed the epistemological framework (Merriam & Tisdell, 2016) of constructivism that focused on explaining the causal linkages of challenges to the adoption of knowledge sharing by logisticians.

I had the goal of pursuing an explanation for the lack of adoption of knowledge management by logisticians using the unusual rationale single case study design noted by Yin (2014). In an organization known for adherence to regulations, this unusual situation stems from the challenges of complying with Army directives by logisticians. The discussion details the foremost components used for determining the research method. The reasoning came from the philosophical ideas proposed by case research method leaders: Merriam (1998), Merriam and Tisdell (2016), Stake (1995), and Yin (2014).

Role of the Researcher

The sages and luminaries of qualitative research, especially case studies have uniformly admonished the researcher against personal bias (Blaikie, 2010; Creswell, 2013; Frankfort-Nachmias & Nachmias, 2008; Hoover & Donovan, 2011; Merriam & Tisdell, 2016; Patton, 2002; Stake, 1995; Yin, 2014). In naturalistic inquiry, the human has served, and has continued serving as the best instrument for conducting research (Lincoln & Guba, 1985). The human researcher has three prevailing qualities that make for the best instrument.

The human adapts to the situation. The human instrument can evolve through the refinement of education and training. Last, the researcher prepares initial design statement that details the logistical determinations for the endeavor (Lincoln & Guba, 1985). As a military logistician, I understand that regardless of mental effort to compartmentalize, some level of bias may subconsciously remain in my psyche. This cultural bias stemmed from a logistician studying fellow logisticians. I will not disavow this underlying preference because this feeling has stirred the excitement for conducting this study, provided an insider perspective, and may gain the confidence of fellow logisticians (Janesick, 2011; Merriam, 1998).

I have no personal relationships with the participants, nor has any interaction involved my work environment (Merriam & Tisdell, 2016). As a retired military logistician, I have a collegial relationship borne out of service to the United States. This relationship does not entail any supervisory or instructor situations that involve power for either the participants or me. The relationship remains simply a matter or military courtesy and protocol. These mutual courtesies and protocols have aided in the ability to approach these participants for the study.

Per guidance provided by Patton (2002), I do not underestimate the effect that participants may have on the observer. The ethical foundation this study, stems from the principlist approach (Wiles, 2013). Wiles (2013) defined the principlist approach as deference toward the autonomy of others, with an attitude to do no harm, avoid consequentialism, and operate in an environment of informed consent (Yin, 2014). Currently, the proposed participants, the Army Logistics University, or me do not have

any conflicts of interest or power differentials. Last, I do not plan delivery of any tangible or imagined incentives to the participants. The basis of the study remains true to the scholar-practitioner ideal, desire to improve knowledge, and benefit the nation in improving military logistics.

Our ancestors relied on the development of language for communication and survival (McCrone, 1991). That ability became a skill coupled with hunting and foraging that contributed to greater brain development (McCrone, 1991). Primeval persons had to develop methods for hunting, as I have had to develop procedures for explaining the phenomenon of lack of adoption of knowledge management by Army logisticians. For me, this role as researcher also embraces the Walden University dictum of contributing to social change by helping the Army explain a problem.

The struggles for existence in primeval days to the complicated logistics of the modern era reflect the value of the human as an instrument. The researcher must have certain skills and develop qualities that can assist in conducting the research (Creswell, 2013; Janesick, 2011; Lincoln & Guba, 1985; Merriam, 1998; Stake, 1995; Yin, 2014). I have served as the observer of the participants during face-to-face interviews (Willis et al., 2007). I have not participated as a subject because that action would add bias to the study. I have not served as an observer-participant. In the role of researcher, I have written an initial design statement that encompasses person or persons conducting the research, prepare a schedule, develop a budget, make provisions for the Institutional Review Board, arrange peer debriefings, and make the process transparent (Lincoln & Guba, 1985).

This study will only have me as the person affected by the entire process from a logistics and resources perspective. I have addressed the role of participants in the sections that follow. The researcher should develop suitable questions, listen attentive, remain flexible, understand the subject matter, and avoid biases (Yin, 2014). As the instrument (Merriam & Tisdell, 2016), I have conducted interviews using open questions that allow the interviewees to elaborate about knowledge sharing and logistics. Closed questions do not work in this environment because of the desire to have participants express themselves freely and comfortably.

The researcher remained discreet regarding the identity of participants, emoted sensitivity to participants needs, developed rapport with participants, and displayed confidence in the ability for completion of the study (Merriam, 1998). Preparation for this process consisted of a rehearsal, not a pilot, with a fellow logistician. This rehearsal has served as the method for pacing and structuring the interviews.

Methodology

Moses and Knutsen (2012) have exposed a flaw existent in the social scientist spectrum regarding the interchangeable use of method and methodology. Moses and Knutsen have defined methodologies, as either naturalistic or constructivist. Depending on the approach taken, methodologies represent two separate toolboxes available to social scientists. The method, as in this dissertation, case study, becomes the tool in the toolbox.

The technique of acquiring knowledge, adopted for this dissertation accepts the precept given by Moses and Knutsen (2012), as describing the methodology of constructivism as the toolbox, and case study as the tool. Purveyors of constructivism

have acknowledged the role of the researcher in apparatuses constructed by man. The method, case study, which represents one of the tools of the constructivist toolbox, in this instance, uses the typology of basic research (Patton, 2002), as previously noted in Chapter 1. The logic of the strategy uses abductive reasoning. In Chapter 1, I identified the four qualitative research strategies of inductive, deductive, retroductive, and abductive reasoning (Kennedy, 2018; Patton, 2002; Willis et al., 2007). Inductive allows the researcher to navigate from specificity to generality; deductive traverses the general seeking the specific; retroductive has some similarities to inductive but requires the construct of multiple hypothetical models (Blaikie, 2010; Creswell, 2013; Patton, 2002).

Blaikie (2010) and Kennedy (2018) provided a thorough explanation of the abductive research strategy, which prompted my adoption of this approach for the dissertation. The abductive research strategy allows the researcher to construct theories from the data derived from the participants. The role of the researcher becomes observances of an insider or trusted friend of the participants, because the observations come from the perceptions of the members not the viewpoint of an outsider.

In this environment, as the researcher, I can easily fall into a biased outlook that would skew the findings. I have described bias avoidance in the sample strategy section. In this instance, the internal validity of this study may come into question. Addressing the internal validity and convincing a reader that it exists requires use methods developed, adopted, and respected by researchers. The uses of triangulation, member checks, and adequate engagement have served as the conduits of validity and credibility for this study (Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). I address each of these techniques

subsequently in the Data Analysis Plan and Credibility sections of this dissertation. The reader should note that I have supplemented triangulation with member checks and adequate engagement, for strengthening the validity and reliability of this study (Willis et al., 2007).

Sample Strategy

The sample strategy depended on a few factors, in which I have striven to answer why logisticians have challenges adopting knowledge sharing. First, determining the sample strategy required a review of procedures for gathering data. I had to ask myself: whom, what, or where could I find the data for this case study? I conducted research of published data from the Army to see if secondary data would provide the explanation for a lack of adoption of knowledge sharing by logisticians. I did not find this data. I wondered if commercial industry had conducted studies that would allow inference for military application of this phenomenon. Searches from that perspective did not bear any outcomes. Last, I determined that the answer for this situation could only come from logisticians themselves. Purposeful sampling (Patton, 2002) served as a useful procedure for this case study in targeting people, organizations, and communities. The sampling pursued discernment of a phenomenon occurring within these entities.

The logistics of the sample strategy which involved locating a site, finding participants, gaining access, purposeful sampling, collecting data, recording information, resolving issues, and storing data (Creswell, 2013) played a significant role in determining this process. Random sampling has the benefit of generalization (Frankfort-Nachmias & Nachmias, 2008), but the approach would not facilitate this method. I do not

have a working theory or hypothesis to posit. The pool of logisticians would require greater expenditure of resources available.

The logic of the situation led to purposeful sampling, which according to Patton (2002), have engaged evidence plush circumstances, which have a specific focus and demands on limited funds. Initial inquiries with the Marine Corps, a service I served, provided muted responses. Initially, I had received a warm response from the Army Logistics University located in Fort Lee, Virginia. However, I had to consider that the Army might not wish to cooperate with such an intrusive study. Although I had received warm responses, officially, the Army system for conducting this research proved costly, lengthy, and burdensome.

Participant Selection Logic

I had to infer certain criteria for selecting participants. First, the selection process had to respect the integrity of maintaining the confidentiality of participant information and any requirement of the IRB. Having stated this foremost condition, the process of selecting participants followed an administrative and logistics development. I have over forty years of experience in the logistics community, comprising of twenty years on active duty and twenty years as a commercial government contractor. The availability and experience of participants dictated the selection process. I had not identified any specific individual for the participant pool or target group. I have not conducted *focus group* interviews (Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). The focus group interview process would have proven unwieldy in pool of logisticians used to developing their own ideas independently.

The participant pool consisted of a concentration of Army logisticians with five or more years of experience working in military logistics. I initially projected a participant pool of 20 members. I had attained saturation with five participants but continued to obtain more, obtaining the rich, thick descriptions emphasized by Yin (2014) in an explanatory case study. The researcher obtained 11 participants. Gardner et al. (2015) asserted that 10 interviews or less, would provide sufficient saturation. The researcher had obtained saturation, therefore, credibility at five participants. Elo et al. (2014) addressed qualitative content analysis in a few ways regarding saturation. The authors asserted that sample size commonality did not exist in qualitative studies. Ruel (2019) noted the difficulty to researchers of determining the sample size, when no prior research on the subject has occurred. Unlike the dissertation process, Payne, and Payne (2004) observed that researchers often sacrifice detailed accounts of original sampling size because publishers limit the space allowed for that clarification.

Elo et al. (2014) persisted researchers had attained saturation with grouping of data and creation of concepts. The researcher has grouped data, coded data, created concepts, and developed themes from this study. Hennink et al. (2017) in a study that examined 25 in-depth interviews determined that researchers could achieve code saturation at nine respondents. Code saturation meant that the researcher had received all the data that the sample group could offer. The purpose of the study, research questions, and richness of data would determine the ideal sample (Elo et al., 2014).

Table 4, provided below identified the desired pool by military grade, which infers level of experience in the logistics community. These members represented a cross

section of leadership from the most experienced enlisted personnel to the upper echelons of officer grades. The selectees should have had not less than 10 years of experience in the Army. Reading the table from the bottom up, the reader should note Enlisted Staff Non-Commissioned Officers. This group represents individuals who have enlisted in the Army as privates and have moved through the ranks until arriving at the senior grades of Sergeant First Class (E-7) through Sergeant Major (E-9).

The next group concerned company grade officers. Company grade officers represent the largest concentration of logisticians at the middle leadership level in the Army and tasked with the greatest number of responsibilities. The warrant and limited duty officers (LDO), characterize enlisted personnel who have displayed exceptional subject matter expertise in a field, in this case, logistics; and promoted to this level of leadership. Last, the most senior grade of major through colonel represented the most accessible upper echelon of leadership that may consider participating in this study. I did not elect to select general grade officers because the seniority of that group, which represented the uppermost leadership of the Army, would prove elusive. Nevertheless, through the snowball method, a general officer willingly participated in the study.

Table 4

Participants Population With Retirement Criteria

Population	Participants	Grade criteria
Officers: Field grade	5	Major and above (0-4 to 0-6) Retired* or active
Officers: Company grade	10	Warrant and LDO + (0-2 to 0-3) Retired* or active
Enlisted: Staff NCO	5	(E-7 to E-9) Retired* or active
Total	20	

*Retired after 2014

Note. This table reflects the initial desired population for this study.

Instrumentation

The researcher has the role of chief instrument (Patton, 2002). The data collection instrument consisted of an interview (Blaikie, 2010; Creswell, 2013; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). The approach of identifying experienced Army logisticians of various military grades for interviews represented the foundational dependency for this study. The participant pool consisted of a specific group of Army logisticians with five or more years of experience working in military logistics. I had projected a participant pool of 20 participants. The number of participants selected by qualitative researchers does not always fall into the power analysis process often performed by quantitative researchers (Jensen et al., 2013). Quantitative researchers do not have to snowball the numbers until attainment of saturation. Jensen et al. (2013)

contended that qualitative researcher falls into the disadvantage of difficulty in estimating the proper sample size. This sample size reflected the requirement established for this study by Walden University.

The interview encompassed five, open-ended, main questions and subsequent continuation questions that would elicit a story from the participants (Crawford & Lynn, 2016). The additional interview questions probe into the reason for the initial responses. The expected dynamic nature of the face-to-face interview format did not occur. Nevertheless, audio calls allow asking questions that unraveled responses provided by the participants. The Army logisticians represented the best source of data because their stories best explained the relationship between knowledge sharing and logistics.

In developing this instrument of open-ended questions, I had to consider the culturally specific nature of the military logistics community. This community has always had the role of supporting cast member in the military theater of operations. I formulated the questions for avoidance a single word response. Yes or no responses would have proven detrimental to this process and would have prevented the richness of information from emerging from the interviewees. The questions also served as boundaries to keep the researcher and participants grounded on the purpose of the study. Remaining bounded by the proposed questions did not prevent me from seeking additional clarification from the participants or probing an interesting piece of data exposed. I maintained the goal of avoiding tangential subjects that may have distracted from the purpose of the study.

The following portion notes that any researcher can design but circumstances change, despite careful planning (Janesick, 2011). Initially, I had planned to spend a total

of seven days at the Army Logistics University in Fort Lee, Virginia for conducting interviews. I had the expectation of conducting five interviews per day over a period of four days. I had hope of conducting three interviews in the morning and two interviews in the afternoon. I did not count my travel days for the interview days. The allocation of additional days would have provided time for alternative dates should one or more the interviewees incur a conflict. I had reserved one hour per interview.

The actual interviews, using FreeConferenceCall.com moved along briskly, captured the data, and respected the time allocated by the voluntary participants. At the end of interviews, while the information remained fresh, I expanded my initial notes in the recording notebook. I had prepared conducting the interviews at, possibly, three separate locations close to the Army Logistics University. However, I conducted them at my personal office at home. The participants determined their own settings.

Procedures for Recruitment, Participation, and Data Collection

Recruitment

After the initial setback with the Army Logistics University, I had to change the recruitment process. I have membership in several other nongovernment military organizations that have a large pool of retired military persons. However, the use of only retirees would not have captured the current challenge facing the Army in respect to the real-world aspect between knowledge sharing and logistics. The procedure for recruitment occurred in two stages. First, I joined two groups on LinkedIn: the U.S. Army Logistics Corps Officers, and the Integrated Logistics Support Group (ILS). Second, using the snowball method, I asked those who volunteered to refer other professionals.

The selection process entailed availability of personnel. Throughout this process, I ensured that all persons partaking in the study as liaison or interviewee have received the full Walden IRB confidentiality notice. The IRB issued approval with approval # 05-29-20-0263904.

Resistance to change arguments regarding logisticians, whether intentional or not, may materialize during recruitment (Pape, 2009). The reader should treat this brief discussion on resistance to change as a probability that I have not overlooked or failed to pursue. Senge (2006) reiterated that organizations do not oppose transformation, only the people who populate the organization. I found that despite best intentions, petitioning the pertinent officials in the Army proved difficult. Presupposition of resistance to change would have biased my approach and divert concentration from seeking an open-minded explanation for logisticians not adopting knowledge sharing. The procedures for recruitment, participation, and data collection followed the graphic presentation noted below in figure (3).

Figure 3

Qualitative Research Process Plan

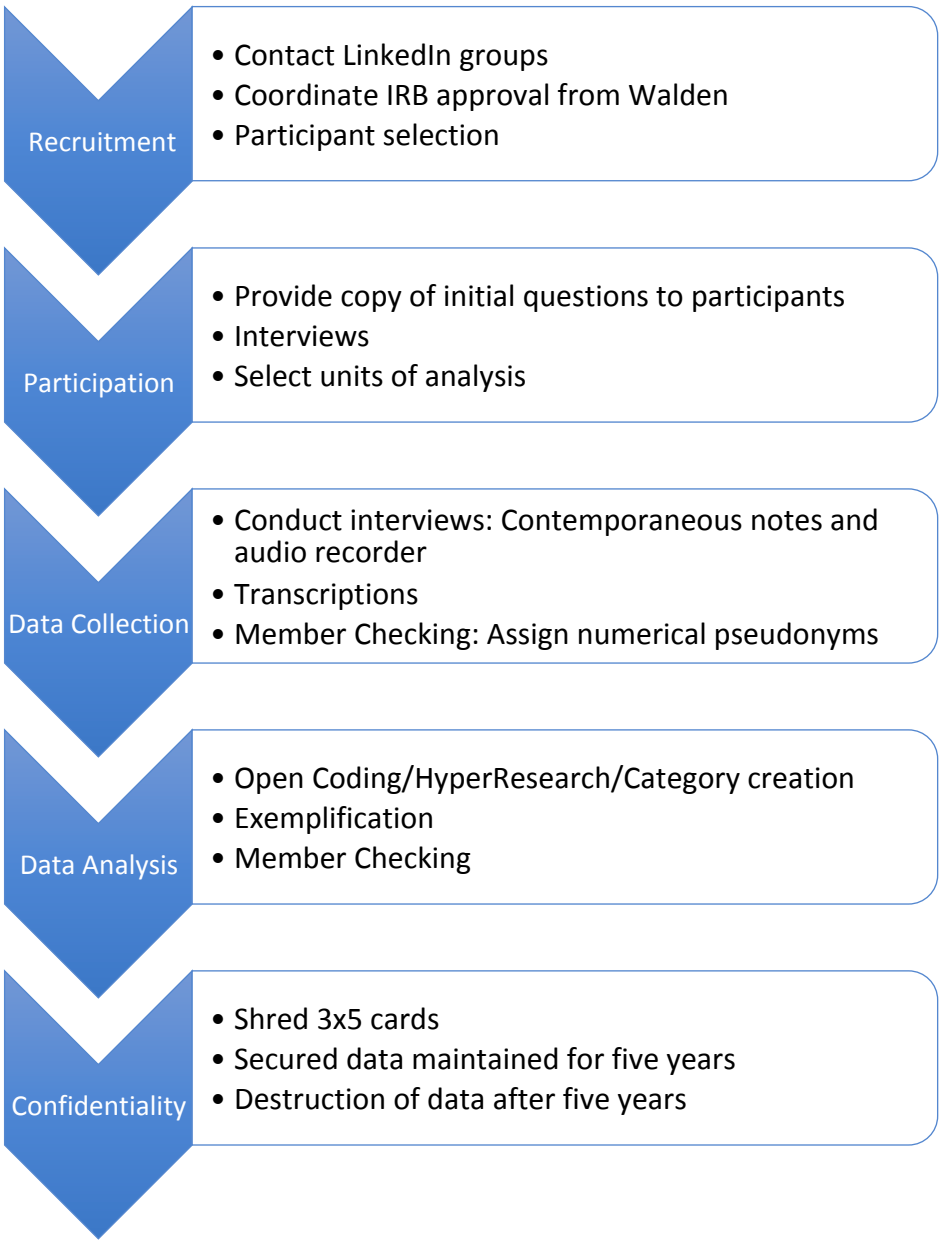


Figure 3 illustrated and summarized the qualitative research process for this case study. I have a personal and professional understanding of the military culture. I wanted the participants to know that they could speak to a fellow logistician who has undergone

similar experiences in the avocation. The announcement to logisticians that interviews will occur telephonically versus personally, has yielded a better outcome than expected from participants. I understand the implications of bias, but the members of the pool have proven more accommodating speaking to a fellow logistician. The telephonic approach of conducting the interviews significantly reduced the expansion of resources and remained crucial to the recruitment process. Logisticians from LinkedIn University and subsequent snowball effect remained the best approach for candidates providing the data needed for this study.

Participation

Janesick (2011) has regarded the participants and the researcher conducting the study as coresearchers. This reasoning makes sense because the participants made significant contribution to the data. In this instance, the logisticians became consensual abductors who would gain from the explanations that I hoped to find in this study. The study had a strong dependency on the assistance of the group moderators on LinkedIn. This assistance would play a meaningful function in lending credibility to me because the groups would not appear as an endorser but willing participant. Without the consent of the LinkedIn, the study would still have occurred, but that would have entailed an additional IRB petition, possible letter writing campaign to known veteran groups, and would lengthen the recruiting cycle.

This study has no language requirement other than American English. The participants have acknowledged understanding of the requirements of this study by signing the adult consent form. The researcher has only used participants who have

served a minimum of five years in the U.S. Army as a logistician. I sought 20 participants for this study. Although I have set aside a one-hour period for the interview, the voluntary nature of the study allowed the participant to stop the interview at any time. I did provide the members a copy of the questions ahead of time. Member checking occurred after completion of the interviews of all participants. I did emphasize that the questions have no right or wrong answer attributes. The aggregation of the responses should provide the explanation that I seek to uncover in the study.

Instructions for the interviewees:

1. The study will consist of an interview of experienced logisticians and their relationship to knowledge sharing.
2. The interview will not seek, nor will ask, any personal, or sensitive information.
3. Please remember that no "right" or "wrong" answers exist for this study.
4. In the study, I do not seek to "game the system."
5. In preparing this study, I have the goal of explaining the current relationship existing between knowledge sharing and logisticians.
6. Whatever the findings, I will provide an aggregate response that protects the identity of the participants.
7. The interview will last no more than 50 minutes.
8. I may contact an interviewee, in the future, for minor clarifications, if required.

Data Collection

Per IRB guidelines, the interview protocol has respected the anonymity of the respondents by assigning a number from 1 through 20 for each interviewee. I have

prepared twenty index cards with the contact information of each volunteer on the ruled sided of the card. I placed the cards in alphabetical order. Then I shuffled the index cards with the blank side facing me. I randomly placed a number from 1 through 20 on the back of each card. I recorded the name of participants in the Participant Information Sheet in the Appendix.

The illustration serves as the guide for preparing this sheet. I printed the sheet and entered the participant information by hand. The participant information sheet does not have the names in alphabetical order, only the numerical order from the index cards. The participation information sheet served as a checklist for double-checking that I had contacted all individuals during the member checking process. The member check column provided in the dissertation simply notes completion of the member check. The participation information sheet, established for shredding, has the date. This action represented a precaution, that prevented a random mark from misleading me that the completion of this step has occurred. This process should have mitigated researcher bias.

At completion of data collection, in the follow-up phase, I have shredded the index cards and the participant information sheet. The raw data on record will only depict the participants by number only. This process has ensured that neither I nor someone else can identify the participants through alphabetical order at the end of the study. No person looking at the raw data should have the ability to identify the participants by name.

The confidentiality and autonomy of the participants has remained paramount. Although, the study has noted a variety in the military grades and positions of logisticians, in this study, I did not seek nor had an interest in the different feedback,

according to demographics existent in the logistics community. The use of demographics that detail specific grades within the logistics community, would have required a larger pool of participants which would necessitate resources and cooperation from the entire Army, rather than the LinkedIn members. This study has remained focused on twenty individuals that represented a targeted pool for explaining why logisticians faces challenges at adopting knowledge sharing.

Interview Protocols. According to Janesick (2011), planning proper interview protocols and logistics contribute significantly to the success of a face-to-face interview. The resources in the list described below represented the effort that I had initially committed for this project. I had to abandon these efforts considering COVID-19 and rely solely on LinkedIn and FreeConferenceCall.com.

1. Equipment:
    a. Audio digital recorder
    b. Water for participant and myself
    c. Notepad and appropriate writing instrument
2. Location: Hotel room, classroom, or office
3. Additional Protocols
    a. Approval of IRB
    b. Provide advance copy of questions
    c. Inform participant that follow up questions may come up during interview for clarification
    d. Stay on schedule

e. Follow up via email

f. Provide copy of final report for member checking

g. Maintain a journal of activities

The recording devices for the interviews consisted of data recording notebook for handwritten contemporaneous notes (Creswell, 2013; Merriam & Tisdell, 2016; Yin, 2014) and audio recordings from FreeConferenceCall.com. I did not create a video of the participants. Body language does not have any significance on this study. The recording procedure included specific devices that maintained integrity and validity throughout the interview process.

I have a composition interview notebook to write contemporaneous notes (Creswell, 2013; Merriam & Tisdell, 2016; Yin, 2014). I did not expect to scribe each word the participant has stated. I have captured some words and the idea conveyed by the interviewee. The interviewee and I spoke on the telephone to record the responses. After completion of the last interview, I have made two copies of each interview for safekeeping purposes.

I instructed the participants that in each instance of a question, "please provide a real-world situation example, whether a live deployment or training exercise."

Initial interview questions:

1. After providing the commanding officer the logistics brief, has the commanding officer ever responded: "Alright Log O, what does that mean" or words to that effect?

a. What sort of briefing instructions have you received before providing the logistics update?

b. How did you resolve any concerns the commanding officer had with your brief?

2. Has the commanding officer, XO, or Operations Officer asked you to elaborate on the status of logistics?

a. How did the nature of the mission of the unit affect your briefing?

b. How did the logistics capability affect the nature of the mission?

3. What understanding do you have regarding logistics and knowledge sharing?

a. Do you believe that a distinction exists between knowledge sharing and knowledge distribution?

b. If so, why? If not, should we have one? Please elaborate.

4. Please tell me in your own words, what knowledge sharing should mean to a logistician.

a. What do you think of the instructions that the Army has promulgated regarding knowledge sharing?

b. How has knowledge sharing changed your approach to briefing logistics capabilities?

5. Please provide a scenario, whether exercise or theater of operations, that you experienced, where logistics and knowledge sharing played an important role in the mission?

Data Analysis Plan

The general steps in the data analysis plan followed guidance provided by Creswell (2013), Janesick (2011), Merriam and Tisdell (2016), and Yin (2014). The data analysis plan used internal validity procedures consisting of triangulation, member checks, and adequate engagement (Merriam & Tisdell, 2016). I addressed the specific issues of trustworthiness in the next section, but the reader should note that, in this study, the data analysis plan incorporated trustworthiness at all phases. Elo et al. (2014) have noted that ascertaining rigor, transparency, and documentation in the content analysis procedures should create confidence in the results of the study. Elo et al. have also instructed researchers on recognition of attainment of saturation.

The interview transcripts derived from the questions and contemporaneous notes have provided the basis for data analysis. The initial reading of the transcripts had provided responses that would require follow-up with the participants. This follow-up consisted of agreement with the participants for review of the responses and member checking. Additionally, I have documents consisting of Army manuals and regulations that instruct personnel on the application of knowledge sharing from comparison of responses. This paragraph states the overall approach for data analysis. The following discussion provides the details of analyzing the data.

Table 5

Data Analysis Plan

Steps	Action	Results
1	Organize the data	Creating the folio
2	Read the transcript	Reading and memoing
3	Classification and labeling	Coding and categorizing
4	Interpretation	Themes from codes
5	Engage options	Decide on hierarchy of categories
6	Represent the data	Create a visual
7	Identify findings	Report writing

Note. This table represents the data analysis.

I have also prepared a qualitative content analysis table that illustrated the reasoning of analysis used in this study. I remind the reader that abductive analysis has served as the reasoning rationale for this study. The table also illustrates inductive and deductive. The researcher has purposefully illustrated abductive with the other two methods to prevent an unintentional drift into inductive or deductive. I recognize my own limitations as a novice researcher and this tool served as constant for clarity and consistency in the data analysis plan.

Table 6

Qualitative Content Analysis

Methods of Analysis			
Phases	Inductive	Deductive	Abductive
1. Preparation	a. Collecting suitable data b. Selecting unit of analysis	a. Collecting suitable data b. Selecting unit of analysis	a. Collecting suitable data b. Selecting unit of analysis
2. Organization	a. Open coding b. Category creation c. Abstraction	a. Category matrix development b. Coding of data for correspondence c. Exemplification of identified categories	Combination of: a. Open coding b. Category creation c. Exemplification
3. Reporting	Category content describing phenomenon	Category content describing phenomenon	Category content describing phenomenon

Note. This table served as a tool for recognizing the difference in methods and adhering to the abductive reasoning process.

The combination of inductive and deductive reasoning, with a coherent foundation (Kennedy, 2018; Patton, 2002) results in abductive reasoning. First, to avoid a sense of overwhelming data engulfing me in confusion, certain practical steps noted by Merriam and Tisdell (2016) have assisted. I have separated the eleven separate transcripts into folios. I have reviewed each folio with the same procedure of reading, rereading, note taking and commenting on the data. I have written a separate memo that captures reflections, possible themes, and ideas, while remaining focused on the main research question of why logisticians face challenges at adopting knowledge sharing. I do not expect discrepant cases because I have noted use of the Baconian Method of research-then-theory (Reynolds, 2010) in an explanatory approach (Yin, 2014).

I conducted this step for each transcript. According to Merriam and Tisdell (2016), this process should yield data relevant for labeling and identifying codes. At this

point, I have eleven folios with relevant memos and emerging themes. The integration of trustworthiness procedures in the preparation, organization, and reporting phases should ensure the attainment of credibility, transferability, confirmability, dependability, and authenticity (Elo, et al., 2014). Refinement of the data required six iterations from: initial interview, transcript confidentiality conversion, transcript refinement, transcript interpretation, member check review, and final data. I have used open coding and HyperResearch software.

Issues of Trustworthiness

Credibility

The credibility of a study hinges on the truthfulness of the researcher and the proper use of internal validity and reliability (Blaikie, 2010; Creswell, 2013; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). I have mentioned triangulation, member checks, and adequate engagement. Among these methods, triangulation has received the greatest examination (Blaikie, 2010; Creswell, 2013; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). Patton (2002) has considered triangulation ideal for combining methods but costly in use of resources.

However, in qualitative research, such as this case study, triangulation does not mean that different methods will provide the same result (Patton, 2002). Additionally, Patton (2002) admonished researchers to tread carefully when conducting analysis of the data. Accordingly, I have used methodological triangulation. Willis et al., (2007) has instructed the researcher that methodological triangulation consists of exercising three data collection procedures. The assessment of triangulation will test for consistency by

the researcher (Merriam & Tisdell, 2016). Therefore, each step in the process follows a uniform process.

Member checks form the second leg in the tripod of credibility for this study. Merriam and Tisdell (2016) have called this respondent validation. The participants or respondents play an active role in the process of data collection. The interview collected the initial data, but the members have the opportunity for reviewing the findings of their individual folio and providing their own interpretation. As stated in a prior section, the participants become coresearchers. This situation represented an opportunity prevent bias seepage into the findings. The researcher has tempered possible member bias with actual contemporaneous notes and member checking (Yin, 2014).

The third step of credibility concerned adequate engagement in data collection, which means that the researcher seeks attainment of saturation. Merriam and Tisdell (2016) defined saturation as finding no new information, after the researcher has exhausted the data. In this process, I have remained consistent in examining each folio to ensure that the data would yield any divergent information among the participants. This study searched for an explanation for the challenges facing logisticians in the adoption knowledge sharing. If this study had posited a theory, then I would have had to look for alternate explanations.

Those explanations found in Chapter 4 have emerged from the data and become the building blocks for forming a proper theory, per the Baconian method of research then theory (Reynolds, 2010). Eisenhardt (1989) published a position paper that provided steps for building theories from case study research through replication logic. Eisenhardt

and Graebner (2007) updated the building of theories from cases emphasizing the challenges and opportunities inherent in deductive research.

Transferability

The terms transferability and external validity have the same meaning of whether the findings of a study can apply to different circumstances (Merriam & Tisdell, 2016). I remind the reader that purpose of this explanatory qualitative case study stood to determine why Army logisticians have challenges in adopting knowledge sharing. Therefore, this study has a few transferability strategies that complement and transpire concurrently: triangulation, member checks, adequate engagement, audit trail, and rich, thick descriptions.

I have already stipulated the triangulation, member checks, and adequate engagement strategies. The audit trail provides a meticulous depiction of the techniques, practices, and resolution topics of this study (Blaikie, 2010; Dey, 2005; Janesick, 2011; Yin, 2014). The strategy for transferability includes extrapolations, found in the rich, thick description resultant from this study (Creswell, 2013; Merriam & Tisdell, 2016; Yin, 2014). The rich, thick descriptions should provide the Department of the Army context for making inferences regarding the challenges in the adoption of knowledge management by logisticians.

Qualitative studies do not engage in generalization (Creswell, 2013; Yin, 2014). Yin (2014) carefully navigated the circumstance by citing analytical generalizations. Analytical generalizations allow for inferences. The human mind could not attain the levels of sophistication that communication, cooperation, and coordination provide

without the use of inference (McCrone, 1991). Specific situations found in a case study can provide context for other circumstances that occur (Merriam & Tisdell, 2016).

Merriam and Tisdell (2016) considered extrapolations as "modest speculations" (p. 255), with the possibility of building theories from the findings (Eisenhardt & Graebner, 2007). The explanations found can lead to extrapolations that can provide context for the findings of this study. I concur with this reasoning because this approach remains fundamental to human reasoning (McCrone, 1991). I have provided inferences and extrapolations in Chapter 5.

Dependability

Dependability, the qualitative equivalent of reliability, of the study begins and ends with the researcher (Creswell, 2013; Dey, 2005; Janesick, 2011; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). Despite having a thoroughly developed research plan, unanticipated events could occur that might challenge and remind the researcher of the need for precision (Houghton et al., 2013; Jensen et al., 2013; Merriam, 1998; Stake, 1995; Yin, 2014). I have already noted to the reader the modifications that I made with the Army and the current pandemic of COVID-19.

Understanding that the scholar practitioner approach to this study should correspond to internal review guidance published by the Department of the Army (2016), I have maintained an audit trail that captured of the processes, decision points, inferences, and conclusions made. The recording procedures for this audit include prepared documents, descriptive notes, reflective notes, and journal (Creswell, 2013; Janesick, 2011; Patton, 2002; Yin, 2014). Concurrently, I have presented dependability through

review of data sources, acknowledging investigator biases, member checking, and methodological triangulation (Merriam & Tisdell, 2016; Stake, 1995; Yin, 2014).

Confirmability

Confirmability or objectivity in a qualitative research study can prove daunting to the researcher (Blaikie, 2010; Dey, 2005; Willis et al., 2007). Onwuegbuzie and Leech (2005) have postulated that purists seeking acceptance of processes, techniques, and results often forget that many of the instruments developed have the inherent subjectivity of the developer. When addressing the confirmability of a case study, qualitative researchers have relied on reflexivity, which, when properly prepared, exposed an analytical reflection biases, relationships, and theoretical orientation (Merriam & Tisdell, 2016; Ngozwana, 2018; Othman & Fathilatul Zakimi Abdul, 2018; Raven et al., 2018; Thomas-Hughes, 2018).

Creswell (2013) provided an easily understood approach regarding reflexivity; the researcher should develop an acute awareness of personal biases, worldviews, and the influences that have shaped perceptions. In reflexivity, I disclosed experience with the subject of the study (Merriam & Tisdell, 2016; Stake, 1995; Yin, 2014). Per the American Psychological Association (2020), the researcher should have developed an appreciation for the language used that may reflect unintentional biases, pejorative terms, and cultural norms. These criteria have served as the guidelines for confirmability in this study.

Ethical Procedures

I have followed the IRB guidelines because human participants have a significant role in accomplishing this study. I have obtained all institutional permissions, IRB approvals, and communication with the participants. I have provided a guideline and list of steps for this study that adheres to the requirements of a principled ethical study. Yet, the reader should note that despite the IRB guidelines, and assurances that I have provided, a novice researcher might inadvertently fall into a moral crevice while conducting research (Wiles, 2013).

Karl Popper (2002) maintained that we, humans, could not realize naked truth, because our minds retain the biased lens of education and tradition. The researcher has started walking the ethical tightrope with the initiation of access to the field through dialogues and arrangements (Oscar et al., 2018). The nature of these discourses with the field often involves concessions made by the researcher and the other party. Despite these concerns, the researcher must persist rather than remain in a shackled state of inaction.

Initiation of Ethics Process

In this study, the moment that I commenced conversations with the Army Logistics School, the ethical clock activated. The acquiescence of Army Logistics University personnel created a coproductive research environment that can lead to the attainment of transformative knowledge or may result in ethical confusion (Thomas-Hughes, 2018). The ethics of conducting a qualitative research study did not initially appear to pose a challenge to me. Fundamentally, the ethical clock never ended, when I modified this research in using LinkedIn and the snowball process.

Yin (2014) advised complete and consistent documentation. I have reviewed previous communications that pertain to this study. I have constructed a record that has developed as part of the supporting documentation for this study. I have always considered myself an upstanding member of society and military training has always emphasized integrity in the performance of duty. Concerning ethical difficulties, I did not purposely select the noncontroversial topic that pursues a connection between knowledge sharing and logistics. Nevertheless, Othman and Fathilatul Zakimi Abdul (2018) cautioned that the researcher might face unanticipated ethical predicaments in the field. Despite the seemingly innocuous nature of my study, a conflict of values may arise between the participants and me (Ngozwana, 2018). Although each interviewee has an individual folio, the data may reveal a conflict of values among the participants.

Guidance for Ethics

The respected authors (Blaikie, 2010; Creswell, 2013; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014) of qualitative research that I have trusted provided examples of ethical misbehavior in the past but did not communicate a technical understanding of ethical challenges that the budding researcher may face. Fortunately, Wiles (2013) provided the technical grist by distinctly identifying four facets of ethics in qualitative research: principlist, ethics of care, consequentialist, and virtue ethics. The principlist researcher fundamentally adheres to an approach like the Hippocratic oath of first "doing no harm!" This approach associated well with the IRB requirements of volunteerism, confidentiality, anonymity, and respect for the autonomy of the participants. The researcher assumes a mantle of beneficence to society.

The ethics of care approach identified with the feminist outlook in research. The researcher makes ethical decisions based on care and compassion toward the participants. The situation, rather than the approach of the principlist, should dictate the methods, which the researcher uses. The underlying motive should always work to the benefit of the participant. The consequentialist believes in the adage that "ends justify the means." The consequentialist considers outcomes, rather than principles; and engages in covert research, if the results benefit individuals or society. Finally, virtue ethics rely solely on the integrity and moral character of the researcher. The researcher must conduct research and behave in an honorable manner.

Detailing the ethical approaches outlined by Wiles (2013) have assisted me in maintaining vigilance for deviation from a principled bearing. First, as noted earlier, participants consisted of volunteers. The recruitment materials whether printed or digital will remain confidential and protect the anonymity of the members. This material will remain in my possession until appropriately disposed through destruction or deletion. There will always exist a situation where a participant may withdraw after providing consent (Patton, 2002) or expire (Wiles, 2013). I have ensured that the consent form delineated these circumstances for the benefit of the participant. Per IRB guidance, the participants have simply responded, "I consent" to the email requesting their participation. No volunteer withdrew participation or refused consent once an agreement occurred.

Ethical Interview Process

I had allowed for ten days of direct personal interviews with 20 members at one hour per individual. This process did not happen as initially envisioned. The process of obtaining recruits occurred through a five-month timeline. As noted earlier, once the member checks have occurred, shredding of all personal information has occurred. The folio, contemporaneous notes, and documents will remain the only source material. I have not selected, nor have I selected any persons from my work environment. Currently, nor foreseen any conflicts of interest existed between the participants and me.

I did not offer, nor encouraged the participants any tangible or intangible incentive to the participants of the study. I disclose, that as a matter of military customs, and courtesies that active and retired military members address each other formally by grade and conclude a response with "sir" or "madam," as gender appropriate. This display of politeness will promote an environment of ease for me and participants. No person should impugn that a power differential existed in this study because of the formal nature of military protocol. There does not exist any or perceived power differential between the participants and me.

Summary

The procedures detailed in this chapter have the purpose of an explanatory qualitative case study to determine why Army logisticians face challenges in adopting knowledge sharing (Bunyak, 2011). The research design and rationale center on the *why* question for explaining Army logisticians and seeking their relationship with knowledge management (Yin, 2014). The methodology of constructivism has coupled with

qualitative case study method for navigation of this research (Moses & Knutsen, 2012). The researcher has served as the primary instrument for study (Lincoln & Guba, 1985). I do not have any personal relationship with the participants; nor does a senior and subordinate relationship exist.

The methodology has followed the precepts of constructivism, which asserted by Moses and Knutsen (2012) that the researcher serves as an apparatus. Abductive reasoning had served as the strategy for constructing the theories that may emerge (Blaikie, 2010; Kennedy, 2018). Currently, I have not postulated any theories regarding this phenomenon (Reynolds, 2010). The logic of selecting seasoned Army logisticians stemmed from the condition that the Army has provided guidance for knowledge management adoption that has not fully occurred in this profession. Instruments for obtaining the data should emerge from individual interviews, researcher contemporaneous notes, and Army documents. Procedures for recruitment, participation, and data collection have occurred in a detailed manner that meets IRB requirements and respects the confidentiality of participants.

The participants received open-ended questions that allowed free expression of experiences relating to knowledge management and logistics. Triangulation, member checks, and adequate engagement have served as procedures for internal validity. Trustworthiness of the study rests on the thoroughness, rigor, and clarity of coding the data through open coding and the use of HyperResearch software. I have allowed the text to guide the coding, without any predefined codes.

Methodological triangulation consisted of respondent validation, saturation, and assessment triangulation functioned as the test for credibility (Creswell, 2013; Elo et al., 2014; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). Transferability occurred in the form of triangulation, member checks, adequate engagement, audit trail, and rich, thick descriptions. The maintenance of an audit trail attested the dependability of the study. Reflexivity by documenting and exposing personal biases, worldview, and perceptions addressed confirmability.

The ethical standards applied to this research concerned a principlist approach (Wiles, 2013). The principlist approach embraced the NIH and IRB standards of doing no harm to the participants or institutions involved. The actual research has occurred using FreeConferenceCall.com and contemporaneous notes. Chapter 4 has featured the actual study, in detail, and provided the results found. The procedures detailed in this chapter have the purpose of an explanatory qualitative case study to determine why Army logisticians failed to adopt knowledge sharing (Bunyak, 2011).

The research design and rationale centered on the *why* question for explaining Army logisticians and seeking their relationship with knowledge management (Yin, 2014). The methodology of constructivism coupled with qualitative case study method for navigation of this research (Moses & Knutsen, 2012). The researcher served as the primary instrument for study (Lincoln & Guba, 1985). I did not have any personal relationship with the participants; nor did a senior and subordinate relationship exist.

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Chapter 4: Results

In this chapter, I present the data analysis and findings obtained from 11 interviews with senior Army logisticians. The purpose of this explanatory qualitative case study was to determine why Army logisticians did not adopt knowledge sharing as prescribed in *Mission Command* (Headquarters, Department of the Army, 2019c). I sought through an explanatory qualitative case study to determine the reason for why implementation of knowledge sharing procedures has not occurred among Army logistics officers.

The research question was focused on Army logisticians' challenges at adopting knowledge management principles, specifically knowledge sharing, imposed by the U.S. Army. The premise for the research question stemmed from a scenario defined by Bunyak (2011). This scenario concerned a brief provided by the organization logistics officer to the commanding officer. I used two techniques of triangulation simultaneously. The first, data triangulation, consisted of 11 open-ended interviews, contemporaneous notes, and Army directives. The second technique involved adequate engagement, member checks, and truthfulness of the research.

Typically, logistics officers provide a briefing of multiple data points that reflect the status of supplies and equipment readiness. The commander, in that scenario, when provided this volume of information, retorted, "So what?" (Bunyak, 2011, p. 41). This rejoinder by the commander expressed a frustration with having a great deal of data without the benefit of useful application of the information. Additionally, this situation provided a truly narrow target for pinpointing this research and developing interview

questions. Concentrating on the setting noted by Bunyak, the research has maintained alignment with the abductive method of analysis. Using the same briefing environment for all interviewees, I created a common setting for extracting responses from the participants.

In this chapter, I discuss the research setting, demographics, data collection methods, data analysis procedures, and evidence of trustworthiness for this explanatory study. Yin (2014), using *how* and *why*, defined an explanatory case study as a explaining a circumstance that has occurred. Yin (2014) noted that a case study addresses a logical question not a logistics matter.

Setting

Yin (2014) emphasized that a researcher should discuss familiarity, preconception, and analysis for a study. I have an internal bias from serving in the military for 20 years and working as a logistician for 40 years. I did not have any personal or professional senior/supervisor relations with any of the participants. The research setting proved quite challenging. I sought assistance from the Army Logistics University located in Fort Lee, Virginia, to conduct this study. Initially, I received a warm response from the organization. However, the leadership at the ALU changed by the time I began the data collection process. I had planned to travel to Fort Lee and interview the participants in person. Those plans included extensive logistics preparation for location and support equipment to accommodate the interviewees.

The official representative for the Army on conducting research about the Army, referred me to *Use of Volunteers as Subjects of Research* (U.S. Department of the Army,

1990). U dutifully followed the method of working with the Army office that handled such matters. Despite all effort at transparency and compliance with the detail of this regulation, I learned that without an active-duty leader willing to champion this study, my efforts would prove dilatory, if not impossible. Despite the willingness of assistance by Army officers, I sought but could not find a sponsor.

Another factor that had a profound effect on the research setting was the COVID-19 pandemic. Because of the global pandemic, I could not travel to Virginia to meet the volunteers. I did not know the possibility of meeting volunteers face-to-face in a closed location. I adjusted the parameters of the study using telephonic audio technology.

I received recommendation from the IRB to use a public forum for obtaining participants. This recommendation consisted of using the professional networking resources of the social media website LinkedIn. I had membership in LinkedIn but did not belong to the U.S. Army Logistics Corps Officers group. I petitioned the group owner and received admission as a fellow logistician. I also joined the Integrated Logistics Support Group on LinkedIn. I posted a request in both groups soliciting volunteers. LinkedIn proved helpful, because this professional public platform removed any restrictions or complications that the volunteers may have faced from Army leadership organizational reluctance.

Demographics

The study pool consisted of 11 experienced Army logisticians, above the pay grade of E-7, with a minimum of 5 years of experience in Army logistics. Table 7 provides participant information including title, pay grade and years of experience in the

Army. At no time did I refer to identifiable markers such as military rank, gender, or years of service in any statement during documentation of the study. I structured the study so that such markers remained irrelevant. Every participant exceeded the metric of a minimum of 5 years of experience in the Army.

Table 7

Participant Demography

Unit #	Title	Pay grade	Experience in years
1	Major General	0-8	30
2	Colonel	0-6	20
3	Colonel	0-6	18
4	Lieutenant Colonel	0-5	20
5	Lieutenant Colonel	0-5	18
6	Major	0-4	23
7	Major	0-4	13
8	Major	0-4	13
9	Captain	0-3	17
10	Captain	0-3	8
11	Sergeant First Class	E-7	13

Note. This table lists participants by military grade by order of senior, per military protocol. This table shields the identity of participants, does not reflect the chronological sequence or frequency of interview with participants.

Although members of the study pool consisted of a cross section of race, gender, and ethnicity, those factors did not have any bearing on the study. Per IRB guidance and certification, at no time did U refer to identifiable markers such as military rank, gender, or years of service in any statement during documentation of the study. Any inference of race, gender, and ethnicity remain superfluous to this explanatory case study. Those demographic markers do not contribute to this study. The volunteers provided candid statements regarding their interactions with commanders when addressing knowledge

management principles or knowledge sharing. The members of the pool remained candid and transparent regarding their awareness or lack of awareness of the requirements of *Mission Command* (Headquarters, Department of the Army, 2019c), as the document pertained to knowledge management or knowledge sharing.

Data Collection

The volunteers came from LinkedIn and referrals from other volunteers. Using the snowball method, I asked the initial volunteers to recommend my study to other Army logisticians. The snowball method proved the best method for gathering participants. Table 8 illustrates the chronology of the recruiting timeline and data analysis aspects of the study. Recruiting participants and conducting interviews occurred concurrently.

Table 8

Description of Procedures

Step	Date	Activity
1	June 1–Oct. 15, 2020	Recruited participants
2	July 9–Oct. 13, 2020	Conducted interviews
3	July 9–Oct. 13, 2020	Recorded information
4	Nov. 1–Jan. 15, 2021	Reviewed recordings
5	Feb. 2–Mar. 8, 2021	Prepared transcriptions
6	Mar. 9–Apr. 9, 2021	Refined transcriptions/reflections
7	Mar. 17–Jun 27, 2021	Member checks
8	June 1–July 25, 2021	Analyzed content
9	July 26–Aug. 27, 2021	Synthesis
10	Aug. 27–Aug. 28, Aug 2021	Written summary

Presently, revisiting the research question has provided the sense of alignment needed to avoid a tangential error in allowing the participants to control the process. "Why do Army logisticians have challenges at adopting knowledge management principles, specifically knowledge sharing, imposed by the U.S. Army?" The pool of participants represented a group of professionals who take their duties seriously and have tremendous responsibilities under demanding circumstances. These professionals expect challenges. Therefore, establishing credibility remained paramount. I formulated six interview questions that would keep these professionals within the narrow confine of the professional brief articulated by Bunyak (2011).

To answer the research question, I developed six interview questions to elicit open responses from interviewees. Those six interview questions delved into the familiarity or comprehension of the individual regarding knowledge management and subsequently knowledge sharing as it pertains to *Mission Command* (Headquarters, Department of the Army, 2019c). In some instances, the interviewee had no awareness of this requirement; I had to modify the questions to inspire a response. While making these modifications, I explained to the participants that no right or wrong answer existed; only their candid responses mattered. The participants proved most cooperative.

In preparation for the interview, I reviewed numerous internet platforms, such as Skype, WebEx, Zoom, and multiple conference calling offerings. I decided to use FreeConferenceCall.com. I had used this service in business and for prior classes where a group of individuals could interact synchronously. FreeConferenceCall.com's services are free only for limited use. I purchased additional resources for recording and storing conversations. This platform allowed the participants the convenience of selecting the interview time. As the researcher, I remained flexible and expressed to the participants my value of their time. Some of the interviews occurred either late at night or early in the morning, depending on the participant's time zone.

FreeConferenceCall.com provided an acceptable transcript of the conversation, a listing of keywords, and a complete recording of the conversation. The transcript delivered captured about 85% of the conversation. The voice recognition software did not accurately transcribe the conversation. The software could not understand certain military specific terms or acronyms. The software would substitute words that had little to do with

the context of the interview. Thus, I had to listen to the recordings multiple times to ensure the transcripts were accurate.

The transcription readout from the software had intermittent time stamps, which varied every 30 to 45 seconds or a significant pause by the speaker. Those time stamps proved useful as I began the process of refining the readout into a data collectable transcript. In the conversion activity, I used a column system in Word. I could track and compare the software rendition with my transcriptions. The recorded rendition had timestamps that the software placed during the conversation. I used those timestamps as aids for returning to the conversation, if I had to rewind, take a break, or called away. I have provided an example below of the procedure of conversion.

Figure 4

Transcript Conversion: Software/Researcher

Please tell me at any time. 06:22 Briefing instruction set stated that you provide the logistics update as it pertains to the knowledge management would quiet much of the Mission Command. 1A. So, I definitely see that nested in the overall presence right now I would give you the most recent example of in jobs that I find myself in right now it's trying to feed or sustain that command with responsibility supporting a dual fold mission one that is supporting. 06:58 Our north and north commander in reference to discussion and covert refer as well as a mission that also supports what the U.S. Army Reserve component commander or the car is looking for in terms of their Cessna it.	1. So, I definitely see that nested in the overall presence. Right now, I would give you the most recent example of, in jobs that I find myself in. right now it's tying to theater sustainment command; with responsibility supporting a dual fold mission: one that is supporting XXXXX, and XXXXXX commander in reference to VVVV and VVVV response, as well as a mission that also supports what the U.S. Army Reserve component commander or the ZZZ is looking for in terms of their assessments.

Note. The column on the left reproduced the raw software transcription. The column on the right reveals the information transcribed, correcting errors and omissions made by the software.

Color-coding the font made it easier to separate the two versions. For confidentiality purposes, I had to remove personal names that the speaker would use. I inserted capital letters for the masking of units or other identifiable acronyms, as noted in the transcript conversion table. I would not interrupt the flow of statements made by participants, because I could remove or mask the names afterwards. The reader will note

that masking of certain information occurred in the right column. When I completed the transcription, I moved the data to a separate sheet for further editing and refinement without losing the words used by the speaker. I converted the interview to a data source on a Portable Data File (PDF) for use by HyperResearch coding software. By the time I made the conversion to data source, I had iterated seven refinements from raw data to source data.

The column on the left represented the rendition provided by the software; on the right the reader will note my transcription with corrections made for acronyms, misheard by software, and words not in the software dictionary The last sentence noted the "Cessna" by the software, but the speaker stated: "assessment". Each speaker spoke fluent U.S. English. However, every speaker appeared to represent a speech pattern found in the different parts of the United States. Most of the time, I had to stop and listen to the recording twice, sometimes three times, depending on the speech pattern of the speaker. You need to really listen to the speaker, because like misheard lyrics on a song, the misheard word changes the entire context or message.

The data collection also consisted of contemporaneous notes taken during the interview, reflective notes taken post interview, and entries in a composition notebook as ideas and themes began forming in my mind. From Steps 1 through 10 (Table 8), I maintained continuous notes of actions taken. I had to consult the Army Publishing Directorate at (https://armypubs.army.mil/) and the U.S. Army Combined Arms Center at (https://usacac.army.mil/organizations/cact/mctp) for clarification on terms and acronyms used by the volunteers.

Participant Masking

The masking of participants proved a challenge. I have observed that some dissertations have provided a data-masking table with unique identifier numbers and pseudonyms. I do not provide this sort of table for reasons noted in this section. The practice of using identifier numbers works well for other qualitative studies but not one that concerns military personnel. I have served as a military officer in the U.S. Marine Corps. All military officers undergo training as investigating officers for possible assignment as line of duty, misconduct investigators. Reminiscent of this training, I had to judge which tracking information that I could share with the reader without the possibility of remotely revealing the participants.

Bearing those concerns foremost, I had to devise a means for retaining the masking of participants. In that sense, I have assigned eleven letter identifications: A through K. Therefore, I address statements attributable to each participant by letter. The validity and credibility of a study using military personnel should identify the rank/grade and years of experience of the participants. As noted in the Chapter 3, I did use the index cards for assigning member check numbers to the participants. I used those index card numbers for member check tracking purposes. I will not share those index cards numbers with the reader because, by some remote chance, they may lead back to identifying the participants.

In analyzing the demographic data, I realized that the military grade of the participant coupled with the index card numbers, necessary for providing the census of this study, could serve as a method for possibly seeking out the participant. I assigned a

random letter for each participant. This letter identifier will prevent confusion when attributing comments by a participant. The participants have provided insights that I will share with the reader. I have quoted participants by letter designation.

Member Checking

Per qualitative case study guidance provided by Houghton et al. (2013), the researcher should engage participants in member checking, post transcriptions. Although I had conducted some initial analysis of the data, I could not pursue in-depth analysis without a complete member check. Houghton et al. (2013) further contended that member checking post analysis produced synthesized data that the participants would not recognize. As noted in Chapter 3, the member check served as one of the legs in the tripod of credibility, which included triangulation, and adequate engagement (Blaikie, 2010; Creswell, 2013; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014).

Member checking with Army personnel remained a challenge during the COVID-19 pandemic. Some personnel had changes of assignments and duty station transfers. Many of the participants did not respond immediately to the first request for member check. In a few instances, I had to inquire the participants at least three times, before obtaining a response. The participants proved cooperative, but I had to work within the parameters of their duty assignments. That situation, although understandable, given the nature of military duties, delayed the analysis of the data.

The researcher prepared and emailed a page long summation of the interview for the participants. The participants received instructions to note whether this synopsis captured their input. I told the participants to return to the frame of mind that occurred

during the interview and not adjust the synopsis with information that they had gathered afterwards. I requested confirmation and asked for submission of any succinct addition or modification by the participant. Two out of the eleven participants offered points of clarification. The remaining participants responded accepted the summation. Having received response from all participants, I began data analysis.

Data Analysis

The purpose of this explanatory case study, as noted in Chapter 1, endeavored in seeking a clarification for the lack of implementation of adoption of knowledge sharing by Army logisticians. The following section will review several procedures and tools used during the data analysis process:

- Data analysis strategy
- Development of codes and themes
- Coding Process
- Abductive Reasoning analysis process
- Word frequencies
- Description of emerging themes
- Discrepant cases

Data Analysis Strategy

I have collected the data through interviews converted into transcripts. The data analysis strategy has remained aligned with the data analysis plan noted in Chapter 3 using guidance provided by Creswell (2013), Janesick (2011), Merriam and Tisdell (2016), and Yin (2014). The data gathering process requested the participants deliver

anecdotes of situations that would arise in the performance of logistics duties. These anecdotes served as source material for the transcripts. This process led to the creation of a folio for organizing the data. During creation of the transcripts, I would make notes on the data. Additionally, I would read the completed transcripts and prepare memos.

The use of adequate engagement noted in the methodology section of Chapter 3, took a prominent role in the theme development process. Adequate engagement and member checks empowered the participants to provide their own interpretations of why logisticians have not uniformly adopted knowledge management and by extension, knowledge sharing. Adequate engagement through interaction with the participants has contributed to validity and credibility in this study (Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014).

Concurrently, I would take notes considering possible codes and emerging themes. These early notes would require scrutiny to see if they would remain during the actual coding process. After reading the transcripts, the classification and labeling process would ensue. This classification and labeling resulted in coding and categorization. Invariably, the participants spoke in their own jargon or lexicon for expressing ideas and procedures. The researcher underwent an interpretive phase with the data looking for themes from the codes. To meet the rigors of the data analysis plan noted in Chapter 3, I used triangulation, member checks, and adequate engagement (Blaikie, 2010; Creswell, 2013; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014).

The following table designates the foundation for the conceptual framework that addressed the themes found in the literature noted in Chapter 2. These concepts with their

authoritative guidance gave me the direction that aligned with the research question, invoke adequate engagement, and enable triangulation. The reader will note a progressive evolution of coding, themes, and reasoning process supported by participant engagement.

Table 9

Codebook Worksheet

#	Concept	Primary or parent code	Author
1	Knowledge management (KM1)	KM1 directives	Headquarters, Department of the Army, 2019c
2	Knowledge management (KM2)	KM2 holistic	Girard & Girard, 2015
3	Knowledge distribution 1 (KD1)	KD1 function	Tsoukas, 1996
4	Knowledge distribution 2 (KD2)	KD2 encoding	Gupta et al. 2009
5	Knowledge diffusion (KDF)	KDF education	Klarl, 2014
6	Knowledge creation (KC)	KC innovation	Nonaka & Takeuchi, 1995
7	Knowledge blindness (KB)	KB rigidity	Maton, 2012
8	Knowledge transfer (KT)	KT sender/receiver	Tangaraja et al., 2015
9	Knowledge sharing (KS)	KS trust	Tangaraja et al., 2016

Note. This table reflects the emergent codes in defining the different types of knowledge management results that eventually lead to knowledge sharing.

Development of Codes and Themes

Army logisticians, like other professions, use a certain lexicon that persons outside the discipline may find bewildering. The military reader, especially logisticians understand the use of codes, but not in the context of a qualitative study. Discussing this relational term, the military logistician should understand that Class I, when used as a code in logistics indicates food and water (Headquarters, Department of the Army (2013). The subsequent codes depict different items used by the Army for accomplishment of mission. The Army has coded the supplies and equipment needed for performance of missions into ten specific codes. I have provided a table of Army classes of supply that

allows the academic and military reader can share knowledge of coding as an aid to concise communication.

Table 10

Army Logistics Class of Supply Codes

Code	Terminology	Plain language
Class I	Subsistence	Food, rations, and water
Class II	Clothing and individual equipment	Uniforms, boots, tools, and office supplies
Class III	Petroleum and solid fuels	Petroleum, oils, and lubricant products
Class IV	Construction materiel	Lumber, cement, barbed wire, etc.
Class V	Ammunition	Bullets, grenades, and mortar rounds, etc.
Class VI	Personal demand items	Personal toiletries, snack foods, tobacco products, etc.
Class VII	Major end items	Trucks, tanks, artillery guns, and helicopters
Class VIII	Medical materiel	Bandages, needles, and medical supplies
Class IX	Repair parts and components	Engines, muffler, batteries, etc.
Class X	Nonmilitary materiel	Agriculture and economic developments materials

Note. This table represents the class codes used by logisticians for supplies and equipment used by the U.S. Army. Constructed from Department of the Army, (2013).

The military reader should understand that the academic use of codes in an academic study does not represent an attempt at obfuscation or murkiness. The academic researcher should understand use of codes for capturing and synthesizing lengthy information provided by the participants. Elliott (2018) posited coding qualitative data as a concept for making decisions. Elliott also noted that the researcher should customize coding per study. As the main instrument, I have decided that the coding for this study concerns an explanation for Army logisticians not adopting knowledge sharing. Conceptualizing the code for this case, in this manner, has remained cogent because of the unique nature of the study.

Coding Process

The literature has numerous coding recommendations (Blaikie, 2010; Creswell, 2013); Flick, 2018; Swart & Harvey, 2011; Stewart et al., 2017; Patton, 2002; Willis et al., 2007). When engaged in the data analysis for developing the coding process, I consulted Elliott (2018; Elo et al., 2014; Janesick, 2011, and, appropriately, Kennedy (2018), because of the emphasis on abduction. Elliott (2018) proved the most satisfactory because of her observation that researchers should code according to the nature of the study.

No standard operating procedures exist in qualitative coding (Creswell, 2013; Elliott, 2018; Patton, 2002). Elliott (2018) also answers the reason for coding and noted that the researcher must decide the appropriate coding method. The interview process used in this study incurred extraneous amounts of words that, although necessary for communication, do not convey knowledge. Coding synthesizes the essential information or data that the researcher seeks (Elliot, 2018). The coding process for this qualitative explanatory case study follows the content analysis of abductive reasoning, which combines inductive and deductive (Kennedy, 2018).

The following table represents a sample of member check, theme development, and adequate engagement.

Table 11

Adequate Engagement, Member Check, and Theme Development

Research inquiry	Participant statement	Codes	Themes
How has knowledge sharing affected your approach to logistics interactions with the commander?	Participant H: The sharing of knowledge across staff sections, besides the commander, represents a collaborative process that creates synergy in the organization.	Knowledge transfer	Sender/receiver
What do you see as an obstacle to knowledge sharing?	Participant B: The restrictive use or allocation security clearances for personnel have a detrimental effect on knowledge sharing.	Knowledge sharing	Trust
Why do like knowledge management but appear reluctant in widespread usage?	Participant G: Knowledge management can prove a useful tool but should not deteriorate into a standard procedure that stifles creativity.	Knowledge creation	Innovation
You have noted the development of a knowledge-sharing tool, but the Army has not adopted it?	Participant C: The Army does not always welcome the development of innovative tools that do not conform to established or accepted standards.	Knowledge blindness	Rigidity
Did the Army determine any impediment to knowledge sharing?	Participant E: Logisticians must adapt to timely information and provide commanders with decision making options	Knowledge distribution	Function

Note. This table reflects the use of adequate engagement and member checks with the participants.

Abductive Analysis Process

The analysis of the data took the form of abductive reasoning as noted in the qualitative content analysis depicted in Chapter 3. This method of analysis occurred in three phases. In the preparation phase, I collected suitable data in the form of interviewing Army logisticians. The units of analysis or codes derived from the transcripts of the interview reveal my interpretations. In the organization phase, I used open coding, category creation, and exemplification. HyperResearch software assisted in

category creation and exemplification. Finally, in the reporting phase, I discussed the category content unfolding the phenomenon.

The use of abductive reasoning combines inductive and deductive approaches (Kennedy, 2018; Patton, 2002; Willis et al., 2007). This method of analysis occurred in three phases. In the preparation phase, I collected suitable data in the form of interviewing Army logisticians. The abductive reasoning process steered the researcher into constructing a worksheet tool that captured statements, themes, codes, and evaluative notes. I did not include the evaluative notes because they represent my overall reflections and would make the table unwieldy. However, those notations on the spreadsheet have served as grist for contributing to the analysis. I derived the table provided from the spreadsheet. The percentages on the spreadsheet reflect the ratio of participant transcripts supporting that statement. The academic reader may ask: why did the researcher include percentages, a quantitative process, in a qualitative study? The answer: these percentages may satisfy the military reader, who might query, 'how many out of your population thought what?'

As the reader navigates across the top of the table the numbers reflect the occurrence of the statement not necessarily its importance. The numerical sequence of the statements reflects their manifestation in this study. This approach provided a sense of discovery of phenomena. The reader should note that I did not assign any weight to each statement. I found all these statements important. The spreadsheet tool assisted in finding 26 (twenty-six) significant data points for analysis. Findings 15, 16, 21, and 24 only have one participant supporting that statement.

The significance of those findings stems from serving as the primary instrument and recognizing a noteworthy statement (Blaikie, 2010; Merriam, 1998; Patton, 2002; Stake, 1995; Willis et al., 2007; Yin, 2014). I will explain the significance of findings 15, 16, 21, and 24, in the study results. Table 11 has served as a reference tool for the remainder of Chapter 4, and Chapter 5.

Description of Themes

The researcher used a two-step process for addressing emerging themes. The development of themes branched into base themes and emerging themes. During the analysis process, I reasoned that some base themes existed. Those base themes emerged from the Army prerequisites for adherence to *Mission Command* (Headquarters, Department of the Army, 2019c). Earlier in Chapter 1, I detailed the requirements of *Mission Command*. Those specifications did not allow for disregard by Army logisticians. The other base themes emerged from the literature as noted in the first six researcher statements noted in the table below illustrate *a priori*, the requirements of *Mission Command* as open coding statements.

The theme of directives can illustrate some of the challenges facing logisticians in complying with *Mission Command.* The interview process of adequate engagement revealed in statements 2, 3, 4, and 6, that some of the participants did not conform to all the stipulations of *Mission Command.* These revelations provided some insight into an explanation for the lack of adoption of knowledge sharing by logisticians.

Table 12

Findings of Emerging Themes and Codes

#	Participants statements	Themes	Participant	Codes	%
1	Logistician knows the existence of MC	Directives	A, B, C, D, E, F, J, H, I, J, K	KM1	100
2	Logistician knows the existence of MC for KM	Directives	A, B, D, E, F, H, K	KM1	64
3	Logistician understands the requirements for KM in MC	Directives	A, D, E, F, H	KM1	45
4	Logistician understands and has implemented KM per MC	Holistic	A, D, E, F, H, K	KM2	55
5	Logistician desires to meet CO intent and support the mission	Function	A, B, C, D, E, F, J, H, I, J, K	KD1,	100
6	Per MC, knowledge management focuses on creating a shared understanding	Sender/ receiver	A, D, E, F, H, K	KT	55
7	Logistician used LOGSTAT portal and Battle Command Sustainment Support System (BCS3)	Function	A, D, F, G, H, J	KD1,	55
8	Logisticians prepared estimates	Holistic, trust	A, B, C, D, E, F, G, H, I, J, K	KD2, KS,	100
9	Logisticians used a unit SharePoint portal	Function	A, D, F, G	KD1,	36
10	Supervisor required logistics status for internal and external mission requirements	Holistic, trust, sender/ receiver	A, B, C, D, E, F, G, H, I, J, K	KD2, KS, KT	100
11	Use of KM principles early and often in professional military education of logisticians would motivate its use in logistics planning	Education	A, B, E, G, H, I, K	KDF	64
12	Formal instruction remains crucial in changing the evolution of the Logistics Corps for implementation of KM principles.	Education	A, B, D, E, G, H, I, J, K	KDF	82
13	Knowledge sharing exists as a voluntary act. Because of the competitive promotion system, peers may withhold information.	Trust	A, C, D	KS	27
14	Knowledge sharing, reduces micromanagement, and encourages initiative born of trust and confidence	Holistic, trust	A, B, D, G, H, J, K	KM2, KS	64
15	Classification quotas for personnel restrict KS	Function, trust	B	KD1, KS	9
16	Compartmentalized information prevents KS	Trust	B	KS	9
17	Structured self-development for KM training	Education	B, C, G, H	KDF	36
18	The higher the level, the less faith senior officers have in subordinates.	Trust	B, C, F, G, H	KS	45
19	Fuel consumption remains a critical	Function	B, C, E, F, G, H, J	KD1	64
20	Army has too many educational requirements for time allotted	Education	C, D, G, I, J, K	KDF	55
21	Officers developed a Plexiglas notebook	Innovation	C	KC	9
22	Logistics made operational	Innovation	G, H, I	KC	27
23	Military decision-making process	Function	D, I	KD1,	18
24	Microsoft Power Business Intelligence. Power BI uses Global Combat Support System Army	Function	D	KD1	9
25	Knowledge sharing requires continuous communications confirming accuracy	Function, trust	D, E, F, G, H, I, J, K	KD1, KS	73
26	The Army does not do a good job of promoting KM	Rigidity, education	A, B, C, D, E, F, J, H, I, J, K	KB, KDF	100

Note. This table reflects comparable statements made by the participants during adequate engagement indicating saturation on the different themes. KM = Knowledge management; KS = Knowledge sharing; and MC = Mission Command.

Evidence of Trustworthiness

The researcher explained the issues of trustworthiness in Chapter 3. The following table represents a reminder of the consistency and alignment for the methodology for evidence of trustworthiness used in this study. The reader will note the use of the constructivist approach in obtaining, analyzing, and reporting the data.

Table 13

Seminal Authors in Case Study Research

Proponent	Merriam & Tisdell	Stake	Yin
Epistemology	Constructivism	Constructivism & existentialism	Positivism
Data validation	Internal validity • Triangulation • Member checks • Long-term observation • Peer examination • Participatory research • Disclosure of researcher bias Reliability • Investigator stance • Triangulation • Audit trail External validity • Thick descriptions • Modal categories • Multisite designs	Triangulation: • Data sources • Investigator • Theory • Methodological • Member checking	Construct validity Triangulation: • Sources of evidence • Chains of evidence • Member checking Internal validity • Analytic techniques External validity • Analytic generalization Reliability • Protocols • Databases

Note. Constructed from *Qualitative Research, A Guide to Design and Implementation* by Sharan B. Merriam & Elizabeth J. Tisdell, 2016, San Francisco, CA. Jossey-Bass Publishers; *The Art of Case Study Research* by Robert E. Stake, 1995, Thousand Oaks, CA: Sage; Robert K. Yin, 2014, *Case Study Research: Design and Methods*. Thousand Oaks, CA. Sage.

Credibility

I have remained steadfast in the use of internal validity, reliability, and external validity required by the literature (Blaikie, 2010; Creswell, 2013; Merriam & Tisdell, 2016; Patton, 2002; Stake, 1995; Yin, 2014). The use of triangulation through member checks, adequate engagement, disclosure of bias and participatory research with the participants has provided internal validity. Saturation, which leads to credibility, occurred through the adequate engagement process Creswell, 2013; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). Per guidance provided by Davis and Friske (2013), saturation has occurred when the researcher finds phenomenon redundancy and data analysis offers no new theoretical insights. The participants understood that I did not seek a schoolhouse solution. I sought their straightforward input.

In this study, data triangulation additionally encompassed three forms: open-ended interviews, contemporaneous handwritten notes, and documents published by the Department of the Army. Merriam and Tisdell (2016) noted that the literature has amended the term triangulation to crystallization. Ellingson (2014) developed crystallization as the evolution of triangulation. The crystallization of the interviews, transcripts, contemporaneous notes, memos, which will include the rich, thick descriptions already noted in the research setting, and Army documents formed a faceted object that I could comprehend and relate to others. Yet, Stewart et al. (2017) noted crystallization as underdeveloped, but can assist the researcher in finding knowledge that triangulation might overlook. I acknowledge the existence of crystallization as an emerging development in qualitative research.

However, with aim of maintaining accepted standards, I have used the established method of triangulation for this study (Creswell, 2013; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). The astute reader will note that I did not include Stake (1995) as support for triangulation. Although Stake (1995) promoted constructivism, his form of constructivism included theory, which this study does not address. I have allowed the data from transcripts, emerging themes, and derived codes to illuminate the research. This explanatory approach retains the credibility of this case study.

Transferability

The transferability strategies of triangulation, member checks, adequate engagement, audit trail, and rich, thick descriptions occurred concurrently. I have an audit trail that begins with composition lined ruled notebook that documents all the techniques, practices, and resolution topics of this study (Blaikie, 2010; Dey, 2005; Janesick, 2011; Yin, 2014). The derivations, demographics, data collection, participant masking, member checking, data analysis and study results contributed to the transferability of this study. The Department of the Army, especially the leadership of the logistics branch can make inference using the descriptions provided. Additionally, I have presented numerous tables that capture the data for immediate review.

The Department of the Army, which has never attempted analysis of this lack of adoption of knowledge management principles, by extension knowledge sharing, by logisticians can now make "modest speculations" (Merriam & Tisdell, 2016, p. 255). I have made discoveries in this study regarding the limitations placed on knowledge sharing by security clearance quotas in units and organizations that require distribution of

critical information. This type of scenario can effectively affect mission performance. This study can serve as a guide for building theories from the findings (Eisenhardt & Graebner, 2007).

Additionally, regarding transferability, the other agencies in the Department of Defense such as the Navy, Marine Corps, and Air Force can duplicate the findings of this study and modify for their needs. The Department of Defense uses the same supply classification codes noted for the Army. The Marine Corps, which has served as secondary inventory control agency (SICA) for supply chain items listed in the supply classification codes could readily adapt this study. Although, each of those agencies have differing military missions, the responsibility for national security remains.

Dependability

I have always understood that the reliability or dependability of this explanatory case study rests with me (Creswell, 2013; Dey, 2005; Janesick, 2011; Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). The scholar practitioner approach has remained steadfast with me, despite the unforeseen challenges presented by the pandemic: COVID-19. COVID-19 could have derailed this research. However, I made use of technology through FreeConferenceCall.com, for effective collection and recording of data. I have maintained transcripts, contemporaneous notes, reflective notes, and journal of every decision and process made for this study.

I have reviewed that data numerous times for refinement, acknowledge my own logistician bias, and conducted methodological triangulation (Creswell, 2013; Janesick, 2011; Patton, 2002; Yin, 2014). The tables provided serve as evidence of methodological

triangulation of ensuring that the data drive the results (Merriam & Tisdell, 2016; Stake, 1995; Yin, 2014). I have only inserted myself, when the 'aha' moment occurred during data collection, analysis, and interpretation. Those 'aha' moments occurred during adequate engagement when I encouraged the participants to provide experienced scenarios where knowledge sharing did or did not occur. Those scenarios offered nuances of discovery that surprise the participants and me. Those findings met the test for dependability because the events and their applications occurred in an authentic setting.

Confirmability

The confirmability or objectivity of this qualitative explanatory case study did prove a challenge ((Blaikie, 2010; Dey, 2005; Willis et al., 2007; Yin, 2014). I have devoted the preponderance of my professional life as a logistician. I conducted the interviews with the participant without engaging in professional discourse about exchange of ideas, required discipline. I have already identified personal bias and placed it aside for the benefit of knowledge that this research could yield.

I have relied on the analytical reflections, processes, abductive reasoning, and adequate engagement for removal of personal biases, worldviews, and other influences (Merriam & Tisdell, 2016; Ngozwana, 2018; Othman & Fathilatul Zakimi Abdul, 2018; Raven et al., 2018; Thomas-Hughes, 2018). The presence of the pandemic COVID-19 affected the logistics of the data gathering but did not change the consistency strategies of the data analysis strategy.

Results

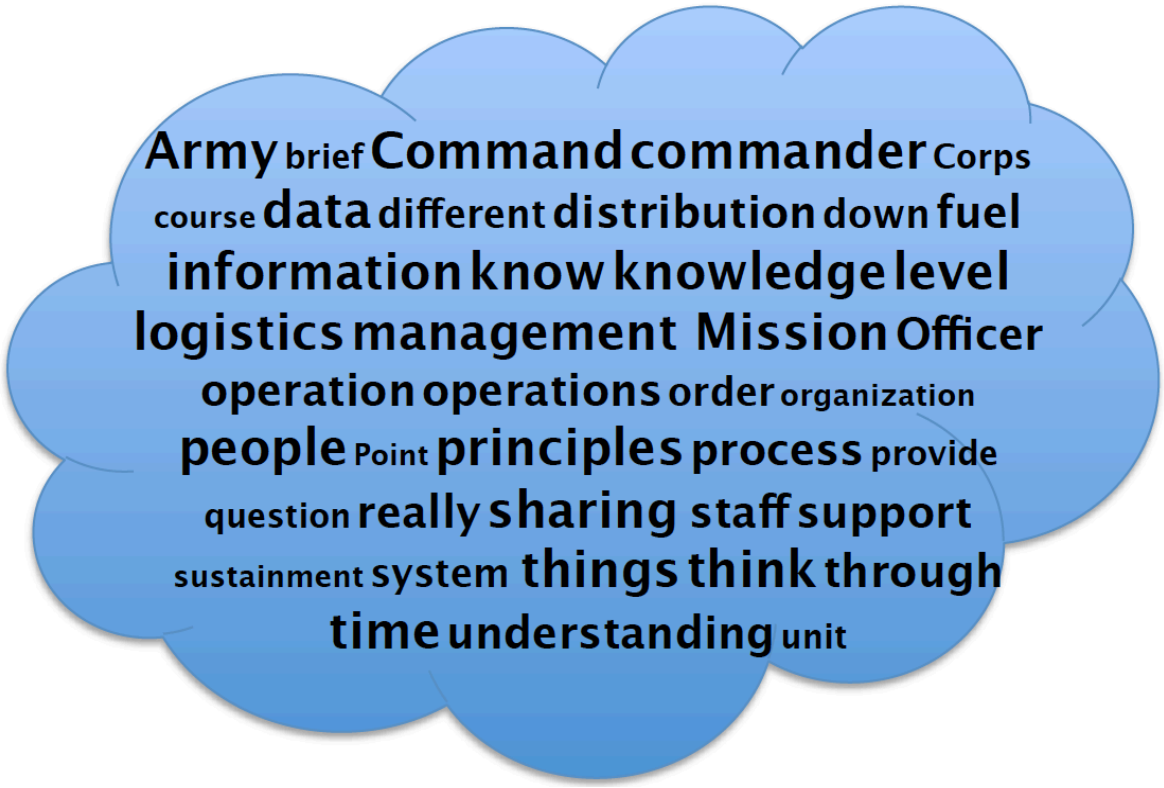
Word Cloud

The use of word frequencies or word clouds required special attention in this study. Leech and Onwuegbuzie (2007) have noted word count as an essential tool in qualitative data analysis for establishing triangulation. Social researchers that seek explanations for societal predispositions based on academic, gender, race, ethnicity, geographic, or economic class with recurring terms of complaints have concentrated on the repetition of certain key words for context (Creswell, 2013; Leech & Onwuegbuzie, 2007; Merriam & Tisdell, 2016; Stake, 1995).

The preponderance of academic studies that I have found among fellow doctoral students, in the social sciences, had a bent toward identifying the causes of some human behavior (Park & Gabbard, 2018), societal discrimination (Cook et al., 2017), or medical inquiry (Houghton, et al., 2013). The use of word frequencies often points to a repetitive behavior or complaint (Leech & Onwuegbuzie, 2007). The challenge for me concerned that the lexicon of the military logistician, did not have a behavioral aspect of complaint. This lexicon, which uniformly used by the logisticians, had a repetitive use of professional jargon, as evidenced by the word cloud.

Figure 5

Word Cloud



Note. This word cloud created from HyperRESEARCH depicts the most frequently used words.

Word Frequencies

I used HyperRESEARCH software for this study. The application noted a total 3,606 words used by the participants that did not include pronouns, articles, conjunctions, prepositions, and words of three characters or less. The software proved helpful but the process of sifting through the list of words proved daunting. I attempted elimination of frequently used terms by the participants only to realize that I had eliminated more than half of the verbiage without any significant contribution to data analysis. Therefore, I

hand coded 90 percent of the statements to synthesize the nuance of each participant statement.

Discrepant Cases

Discrepant case sampling occurs as a sampling method that aims to explain, amend, or improve a theory. A researcher may deliberately choose discrepant to modify an emerging theory (Hackett, 2015). This study did not seek nor have any discrepant cases because I have used the Baconian Method of research-then-theory (Reynolds, 2010) in an explanatory approach (Yin, 2014). Therefore, this study did not factor any discrepant cases.

Major Themes

When approaching the research question: 'Why do Army logisticians have challenges at adopting Knowledge Management principles, specifically knowledge sharing, imposed by the U.S. Army?' I did not assume that logisticians did not know or understand the regulations. The themes of this study relate to the concepts presented in Chapter 1 of the known and unknown of the subject (Descartes, 1644/2009; Locke, 1847). The use of abductive reasoning strategy (Kennedy, 2018; Patton, 2002; Willis et al., 2007) has provided the tool for discerning the known and unknown.

The following discussions will explore the themes found and relate them to the literature noted in Chapter 2. I have presented the themes in terms of the attainment of 100% and as they have emerged. The order of presentation of themes remains a deliberate action to initiate the reader from basic requirements to organizational possibility. The following tables will reflect the themes that have emerged from the data.

These tables illustrate the level of awareness of the themes by the participants. Each theme will have quotes from the participants that exemplify their understanding and awareness. I have summarized statements from adequate engagement that reveal participants viewpoints.

The table below reflects those themes that have emerged with one hundred percent of the participants concurring, individually, on the same topic. The use of adequate engagement with steering the participants in any direction presented: directives, function, trust, and education as common themes for the logisticians. The constructivist approach using abductive reasoning, member checking, investigator stance, and audit trail revealed these themes. The emergence of these themes, previously not assumed, has provided the explanations, and supported this methodology.

Table 14

Major Themes Derived From Data Analysis

#	Participant	Theme	Researcher statement	Study code	%
1	A, B, C, D, E, F, J, H, I, J, K	Directives	Logistician knows the existence of *Mission Command*	KM1	100
5	A, B, C, D, E, F, J, H, I, J, K	Function	Logistician desires to meet CO intent and support the mission	KD1	100
8	A, B, C, D, E, F, G, H, I, J, K	Encoding, trust	Logisticians prepared estimates	KD2, KS	100
10	A, B, C, D, E, F, G, H, I, J, K	Holistic, trust, sender/ receiver	Supervisor required logistics status for internal and external mission requirements	KD2, KS, KT	100
26	A, B, C, D, E, F, J, H, I, J, K	Rigidity, education	The Army does not do a good job of promoting KM	KB, KDF	100

Note. This table represents the major themes that have commonalities among participants.

Major Theme 1: Directives

The theme of directives appeared three times and serves as the basis for gauging the awareness of knowledge management among logisticians. The Army stipulated use of knowledge management in *Mission Command* (Headquarters, Department of Army, 2019c) and *Techniques for effective knowledge management* (Headquarters, Department of the Army, 2015). All Participants, A through K, stated their knowledge of the existence of *Mission Command*. They did not state that they knew or understood all the contents of *Mission Command.* Logisticians, as all Army personnel should review this doctrinal document. Two of the directives that govern the actions of logisticians: *Sustainment Operations* (Headquarters, Department of the Army, 2019b) and *Quartermaster Operations* (Headquarters, Department of the Army, 2013) do not address knowledge management or knowledge sharing. Therefore, the results underscore awareness of *Mission Command*. The following table represents a diminution of knowledge management awareness among the participants.

Table 15

Major Theme: Directives

#	Participant	Theme	Researcher statement	Study code	%
1	A, B, C, D, E, F, J, H, I, J, K	Directives	Logistician knows the existence of *Mission Command*	KM1	100
2	A, B, D, E, F, H, K	Directives	Logistician knows the existence of *Mission Command* for knowledge management	KM1	64
3	A, D, E, F, H	Directives	Logistician understands the requirements for knowledge management in *Mission Command*	KM1	45

Note. This table reflects the diminution of understanding the requirements of knowledge management in the directives theme by logisticians.

The reader will note that in box #1 of the table 15 above, all the participants knew or used *Mission Command.* Participant F stated, "I'm very familiar with knowledge management principles I actually, assisted in providing guidance on that." Participant H noted, "*Mission Command* represents as system and an action." Participant F, noted: "There's a couple of logistics commands that moved knowledge management into the communication shop." However, as noted in line #3, only five out of the eleven participants had awareness of knowledge management in the directive.

Participant D tried to capture the essence of the main directive, *Mission Command* stating:

> That is the question? Where do I start? so the where! When I want to begin with *Mission Command*, the biggest name on a principles are *Mission Command* is to create shared understanding. And knowledge management is all about creating their shared understanding; and through creating shared understanding. It allowed a lot of other things to happen. So, when you create shared understanding, it helps you build those cohesive team; and build that trust that is needed for us to work individually; and when I say individual, it means individually in our sections, directorates, and also unify. When you're working outside of your directorates, with your, you know, your interorganizational; and externally with your partners in unified action, when you do a unified land operation.
>
> Those principles, like I say, the pillars of *Mission Command*, your people, and processes are the tool they're supporting the organization those are the 4 pillars. I could go on and on, but that those are the core things. Because in order

for *Mission Command* to be executed knowledge management bridges the gap between the art of command and the science.

Progressing down to boxes 2 and 3, the number of participants has diminished. Although aware of *Mission Command*, Participant J iterated, "I don't recall knowledge management as an explicit part of doctrine when I was performing roles as a Logistician." Participant B stated, "So there's a few different ways that we can look at knowledge management; one of those knowledge management things is one of my perceptions of knowledge management; are you talking about the systems?" When queried regarding use of knowledge management as noted in *Mission Command*, Participant C finally stated, "Honestly, sir, I don't think we ever really did that! Okay even being part of the S4."

Major Theme 2: Function

The theme of function occurred eight times. The theme of function, the most prevalent of themes, occurred eight times. Although occurring most often the theme of function lacked the concentration of directives indicating a fragmented effect on the organization. Logisticians understood their duties as a function intricately necessary for meeting the intent of the commander intent and satisfying the mission, but not uniformly. Tsoukas (1996) provided the definition of a distributed knowledge system noted in Chapter 1. The U.S. Army, established by U.S. Const. art. II, § 2, and organized according to National Security Act of 1947, functions as a decentered organizational system.

Tsoukas (1996) also eloquently stated “Firms, therefore, are distributed knowledge systems in a strong sense: they are decentered systems, lacking an overseeing ‘mind’” (p. 11). That statement clearly defined the organization of the Army. The Chief of Staff of the Army leads the organization with the assistance of a bureaucracy (Headquarters, Department of the Army, 2014). Therefore, function has remained a key element in knowledge distribution with a subtheme of knowledge sharing. The success of this organization in using knowledge creation came to fruition during World War II (Takeuchi & Nonaka, 1986). The following table illustrates occurrences of function among the participants.

Table 16

Major Theme: Function

#	Participant	Theme	Researcher statement	Study code	%
1	A, B, C, D, E, F, J, H, I, J, K	Function	Logistician desires to meet CO intent and support the mission	KD1	100
2	D, E, F, G, H, I, J, K	Function, trust	Knowledge sharing requires continuous communications confirming accuracy	KD1, KS	73
3	B, C, E, F, G, H, J	Function	Fuel consumption remains a critical	KD1	64
4	A, D, F, G, H, J	Function	Logistician used LOGSTAT portal and Battle Command Sustainment Support System (BCS3).	KD1	55
5	A, D, F, G	Function	Logisticians used a unit SharePoint portal	KD1	36
6	D, I	Function	Military decision-making process	KD1	18
7	D	Function	Army Microsoft Power Business Intelligence. Power BI uses Global Combat Support System	KD1	9
8	B	Function, trust	Classification quotas for personnel restrict knowledge sharing	KD1, KS	9

Note. This table reflects the diminution of understanding the requirements of knowledge management in the function theme by logisticians.

Participant J noted "Logistics is integral to every military operation; Logistics is the line between order and chaos." Participant A stated that, "Accurate logistics estimates reduce waste of material." The reader should note that the understanding of the function of knowledge sharing has scattered among the participants. Participant B alluded to a problem where procedures can seriously interfere with function when security clearances prevent knowledge sharing:

> I believe what I was trying to say was about 2-3 years ago, they increased the classification of a lot, of a lot of information; and they decreased the amount of people that held that top secret. They decreased the amount of people that held the top-secret security clearance. And the reason why they felt like they did that is because they were like well if you're not utilizing your top secret or else. You've got to have the right people with the right security clearance and the right position. And that's important, and that's important, no matter what.

Major Theme 3: Trust

All the participants commented on the need for trust in knowledge sharing. The theme of trust materialized seven times. The theme of trust took many forms in the mind of the participants. The participants noted that trust of data, person, or situation always came into question. Army logistic officers Downie et al., (2016) presented an analysis in Army Sustainment that the LOGSTAT (logistics status) portal does not always reflect accurate information. The discrepancy may reach 48% inaccuracy. This level of weakness has proven untenable in mission accomplishment. Therefore, the logisticians do not trust this tool.

Table 17

Major Theme: Trust

#	Participant	Theme	Researcher statement	Study code	%
1	A, B, C, D, E, F, G, H, I, J, K	Trust encoding	Logisticians prepared estimates	KS, KD2	100
2	A, B, C, D, E, F, G, H, I, J, K	Holistic, trust, sender/ receiver	Supervisor required logistics status for internal and external mission requirements	KD2, KS, KT	100
3	A, B, D, G, H, J, K	Holistic, trust	Knowledge sharing, reduces micromanagement, and encourages initiative born of trust and confidence	KM2, KS	64
4	B, C, F, G, H	Trust	The higher the level, the less faith senior officers have in subordinates.	KS	45
5	A, C, D	Trust	Knowledge sharing exists as a voluntary act. Because of the competitive promotion system, peers may withhold information.	KS	27
6	B	Trust function,	Classification quotas for personnel restrict knowledge sharing	KS, KD1	9
7	B	Trust	Compartmentalized information prevents knowledge sharing	KS	9

Note. This table reflects the diminution of understanding the requirements of knowledge management in the trust theme by logisticians

Two surprising twists occurred during adequate engagement regarding the theme of trust. Leading, four participants noted the increasing phenomena of mid-level officers, Captains and Majors, not exercising trust in their noncommissioned officers. Participant H reflected, “We do not have a well-trained knowledge management cadre, especially in the logistics side.” Second, this lack of trust increased by some officers who have greater concern for promotions would deliberate withhold information from their peers. These

withholders would only share knowledge in the presence of reporting seniors that way they would receive credit on evaluations. Participant C offered:

> Knowledge sharing as became a little bit of an issue. And I think that a unit, other than with close friends, all that stems a little bit with all our OERs, officer evaluation reports. And so sometimes they can get a little bit competitive. And sometimes you have some people, that they already know they're going to be careerists. And that's what they want to do. They know that they were going to go into politics. And they know that they going to be you know 20 years in the army. And, they have to get that top mark. And so, they will do whatever it takes to get those top marks, and so they don't want to share anything. They don't want to play nice. They don't want to do the betterment of the Army. Because it's not what's best and their long-term career. And, I have seen that at the higher up level too.

Participant H spoke forcefully on the matter of trust and using gritty language added:

> I could support what I saw is distributed *Mission Command* because each of those elements that I brought in has its own *Mission Command* structure. Each of those is somewhat parochial. That remains part of our problem in knowledge management, in my opinion. Staffs and commanders are reticent at lower levels to trust the bastards that you know. I used to say, trust the bastards at squad to know what they're doing. Really, equally the bastards at squad should trust the headquarters. That situation gives them the flexibility they need. And often that's

> not the case so you have these different staffs; taking products that they do not understand or not providing sufficient information. They will not collaborate they have not received the training. We do not have a well-trained knowledge management cadre, especially in the logistics side. This condition does not allow us to fully leverage our *Mission Command*, information systems, et cetera.

These situations illustrated an example where supervisors perform a theoretically delegated task. These actions undermined the subordinate and removes trust. The situation of trust did not only take a negative flow. Other participants had positive comments. Participant D expressed: "So when you create shared understanding, it helps you build those cohesive team." Participant K elaborated: "Trust, because it's a safe space to share with an individual what is your skill set or potentially to expose yourself to what you do not know for the questions that you have and to self-identify that there is something that you might necessarily need help with." Essentially, the participants have noted that trust works in a reciprocal manner between seniors and subordinates.

Major Theme 4: Education

The theme of education materialized five times. The participants believed lifelong learning as part of their profession. The researcher has found that the Army offers the SSD (Structured Self-Development) online program that provides logisticians opportunities for KM training. However, the participants observed that not all their colleagues have awareness of this opportunity or the time. Participant G lamented that without formal instructions, "You know, you talk about our relief in place; when we

replace the people outgoing, you have one week to learn everything you know, they know. So that's a very deep learning curve."

Table 18

Major Theme: Education

#	Participant	Theme	Researcher Statement	Study Code	%
1	A, B, C, D, E, F, J, H, I, J, K	Rigidity, education	The Army does not do a good job of promoting knowledge management	KB, KDF	100
2	A, B, D, E, G, H, I, J, K	Education	Formal instruction remains crucial in changing the evolution of the Logistics Corps for implementation of knowledge management principles.	KDF	82
3	A, B, E, G, H, I, K	Education	Use of knowledge management principles early and often in professional military education of logisticians would motivate its use in logistics planning	KDF	64
4	C, D, G, I, J, K	Education	Army has too many educational requirements for time allotted	KDF	55
5	B, C, G, H	Education	Structured self-development for knowledge management training	KDF	36

Note. This table reflects the diminution of understanding the requirements of knowledge management in the education theme by logisticians

Participant A provided some insight into education by offering the following: Formal instruction remains crucial in changing the evolution of the Logistics Corps for implementation of KM principles. This formal instruction or exposure to KM principles should occur throughout the career of logisticians. Leadership in the Army has done well in emphasizing the correct application of knowledge distribution through mission orders, the operations process, and the use of specified tasks. Yet with use of KM principles, the situation with knowledge

distribution can prove disjointed. Everything works, but without cohesion. Knowledge sharing exists as a voluntary act because of the competitive promotion system of the Army. Peers may hold information in hopes of improving their own image. This type of reasoning can present a hurdle to mission accomplishment.

Although Participant D attended the Knowledge Management Course at Ft. Leavenworth, Kansas, this person stated, "We're not distributing that information to make sure that everyone is on the same page and knows where these resources are. Participant J stated: "The Army has officers with the additional duty of KMO which removes responsibility for integrating KM principles into logistics." The participants have professed a desire for knowledge management education at formal schools, but deployments and other work commitments often prevent this opportunity.

Minor Themes

In Chapter 1, I noted the responsibilities of Army logisticians per the legal requirements of *Title 10, United States Code (USC*). *Sustainment operations* also known as Field Manual 4-0 (Headquarters, Department of the Army, 2019b), illustrated the nine different functions that logisticians must accomplish. The minor theme section philosophically encapsulated those requirements with some honorable mention because they offer as divergence and originality into the discernment of certain logisticians. Although some of the participants did not have complete understanding of *Mission Command*, I ascertained that the participants had a general understanding of knowledge management as described by Girard and Girard (2015).

Participant F offered a unique perspective regarding knowledge sharing in terms of a holistic approach:

> My understanding of knowledge management and how it can affect *Mission Command.* In terms of knowledge management, I tend to look at it through a very unique sense set of lenses from what I've been told. I look at it from an academic a lens; I look at it through a DOD lens, and I look at best practices throughout the entire industry. And so, which gets me in trouble a lot of apparently. So, what that means is that if I look at it as something I know that can be improved upon, by using either a best process or a best practice. And people don't want to change, which you get that a lot of times in commands, especially 3- or 4-star commands. It's the whole aspect of, this is my rice bowl, and you're not going to upset my rice bowl just to do what you want to do. And I, even though if it's a better rice bowl even if it's a better rice bowl, you're not going to mess with my rice bowl, to get to a better rice bowl.

Participant H, captured this insight with: "What I need is an operator of some type, helping me take knowledge, put it together in such a way that it helps the operations process." The sender/receiver theme envisions a loop where the users access data with the objective of creating and refining knowledge for actionable decisions. Participant E pondered: "You know, you can, you can go from one phase an operation, to another phase of an operation, you know, in a matter of hours. Thereby, your requirements changing, you know, how do you get to that knowledge management portion changing?"

Table 19

Minor Themes: Holistic, Sender/Receiver, Innovation

#	Researcher statement	Theme	Participant	Study code	%
1	Supervisor required logistics status for internal and external mission requirements	Holistic, trust, sender/ receiver	A, B, C, D, E, F, G, H, I, J, K	KD2, KS, KT	100
2	Logistician understands and has implemented knowledge management per *Mission Command*	Holistic	A, D, E, F, H, K	KM2	55
3	Per *Mission Command*, knowledge management focuses on creating a shared understanding	Sender/ receiver	A, D, E, F, H, K	KT	55
4	Logistics made operational	Innovation	G, H, I	KC	27
5	Officers developed a Plexiglas notebook	Innovation	C	KC	9

Note. This table reflects the diminution of understanding the requirements of knowledge management in the minor themes by logisticians

The theme of innovation surfaced in two different techniques: physical and operational. The first innovation took the form of operational logistics. Logisticians often must plan resupply and retrograde procedures separately from combat operations. Participant G explained that by persuading his commander to include logistics in the combat operations, “It wasn’t a logistical operation, it was an *operation*, and involved the commanders and the infantry guys, and the armor guys, and the guys that aren’t logisticians.”

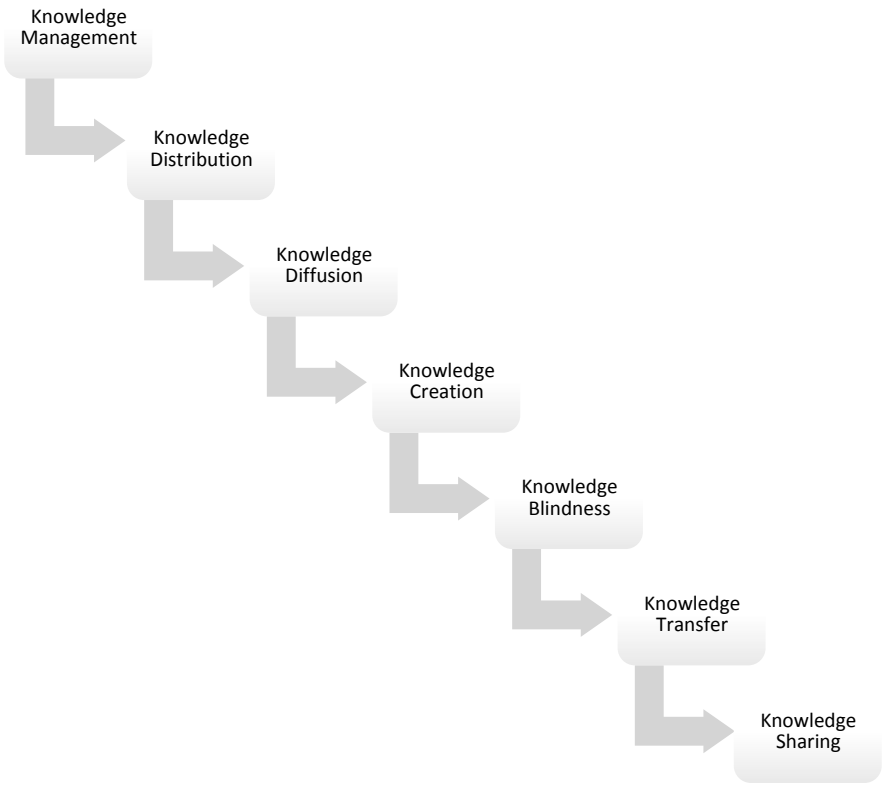
Participant C explained use of a simple device that would not suffer the vagaries of electronics, for example: power outage, hacking, or software glitches Participant C noted that adoption of a convenient Plexiglas notebook used by some officers. He described the following:

> It was a 3 panel Plexiglas, that was taped together the corners; and it folded up together nicely, like a book; and you slip papers into it like you're on like a sheet of paper that, list of vehicles, List the cargo, list of, you know, on a mission briefing paper; and you filled it out with a marker on with, like a PC (personal computer). Here, your driver's was; who's your; what's your sense of equipment on here; what do you carry; all of their stuff.

The theme of rigidity refers to knowledge blindness (Maton, 2012) occurred only once, concurrently with education. Maton described that knowledge blindness occurs when members of an organization treat education as dogma and close their minds to innovative thought. Pape (2009) authored a monograph that identified prevailing Army leadership, as resistant to change, by extension, engaging in rigidity. The following graph depicts the progression from knowledge management to knowledge sharing as evidenced by the data.

Figure 6

Knowledge Management Transition to Knowledge Sharing



Research Question

The research question concentrated on the challenges of Army logisticians at adopting Knowledge Management principles, specifically knowledge sharing, imposed by the U.S. Army. This explanatory case study, as envisioned, sought an explanation for this phenomenon. Yin (2014) noted that this type of study does conclude with a hypothesis producing process for further study. This study has found that 100% of the participants knew the existence of *Mission Command* (Headquarters, Department of the Army, 2019c) but only 64% identified the knowledge management component of this

Army directive. If, the participants reflect the organization taken together, the logistics community has a challenging task. The participants have expressed concerns regarding this shortcoming, and some have offered recommendations, which I have incorporated in Chapter 5.

Summary

The data analysis of interviews from eleven participants that consisted of senior Army logisticians culminated in this chapter. The researcher attained a sense of exhilaration that the data revealed knowledge unknown. The researcher had to pivot the research setting, data collection methods, and logistics of interviewing the participants when the Army Logistics University opted not to participate, and COVID-19 struck in 2020. Despite the prevailing conditions, cooperation of participants, use of LinkedIn and free FreeConferenceCall.com proved workable.

The demographics consisted of senior officer and enlisted Army personnel. The ten-step data collection process, from initial recruitment of participants to writing of the synthesis transpired for 15 months. The most difficult and laborious portion of data collection occurred during preparation of transcripts. The data analysis strategy focused on participant masking, adequate engagement, and member checking remained consistent throughout the methodology of abductive reasoning.

The researcher began the coding process seeking themes. Those codes developed from concepts found in the literature. The codebook worksheet illustrated the codes and the themes. The themes that began to emerge within the study from the data provided by the participants. Directives, function, trust, and education materialized as the prevailing

themes. The abductive analysis process found that professional and personal challenges existed for logisticians in adopting knowledge management and knowledge sharing. The researcher conducted the study in a credible fashion, uncovered transferable knowledge that can contribute to positive social change, with dependable and repeatable procedures.

The completion of analysis offers the transition to interpretations, implications, conclusions, and recommendation of findings in Chapter 5. This transition provides the foundation for the goal of this study in providing possible explanations for this phenomenon. The integrity of the participants and personal ethical commitment adhering to participant masking, triangulation, and abductive reasoning should provide the academic and military reader and understand of why adopting knowledge sharing has proven a challenge to logisticians.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this explanatory case study was to determine why Army logisticians have not implemented or adopted knowledge sharing. The case study method was conducted with adequate engagement, and the constructivism methodology served as the tool for the process of examining the phenomenon. The findings, opinions, implications, and recommendations derived from this study do not exceed the data provided by the participants or data derived from Army doctrine. The scope of this study was focused on the role of logisticians in knowledge sharing within the Army.

The lack of adoption or implementation of knowledge management, and by extension knowledge sharing, on the part of the Army logistics community has not received academic scrutiny in the existing literature. Army logisticians have written informed papers (Anderson, 2009a, 2009b, 2009c; Bunyak, 2011) regarding the phenomenon but have not conducted scientific scrutiny. Although Choi (2015) conducted an extensive study of the lack of knowledge management studies in U.S. federal agencies, details were lacking regarding the Army. Academics have peered into the business community and made considered analysis of the association between knowledge sharing and logistics (Ayala et al., 2017; Cooper et al., 2016; Taylor et al., 2015). The inquiry advanced in this study was a gap in academic scrutiny.

The study results have served as the factors for stating and interpreting the findings. The key findings of this study offer several explanations for why the phenomenon has occurred. The explanation building process (Yin, 2014) using abductive reasoning (Kennedy, 2018; Patton, 2002; Willis et al., 2007) led me to key findings

relating to the following themes: (a) directives, (b) function, (c) trust, and (d) education. The logisticians who participated in this study offered key insights in the use of knowledge distribution, knowledge diffusion, knowledge creation, knowledge blindness, knowledge transfer, and knowledge sharing. Logisticians have the desire to comply with directives, function with professionalism, engender trust in their colleagues, and increase their skills through education. Based on the data collected in this study, I found that these logisticians did not always succeed in attaining of these goals.

Interpretation of Findings

In this qualitative explanatory case study, I sought explanations for why Army logisticians have not adopted knowledge sharing as a practice (Bunyak, 2011). Logisticians should engage in bidirectional transfer of knowledge with commanders (Tangaraja et al., 2016). I used adequate engagement techniques during interviews with senior Army officers and enlisted logisticians to gather data (Merriam & Tisdell, 2016; Patton, 2002; Yin, 2014). My motives stemmed from a desire steeped in ethical commitment (Wiles, 2013) for contributing to the profession of logistics.

Research Question

The research question and adequate engagement methodology provided the framework for the study. This narrow focus retained alignment with the goal of allowing the participants the power for providing genuine experiences in the logistics field related to knowledge sharing. The literature review research provided four initial themes: (a) environment, (b) human emotions, (c) motivations, and (d) technology (Dayan et al., 2017; Karnowski et al., 2017; Tangaraja et al., 2016). However, different themes

emerged in this study. This has reinforced the guidance provided by Kennedy (2018) that rigorous qualitative research does not adhere to a standard approach.

In the literature review, I found numerous instances of knowledge sharing in other institutions and communities of practice. Army logisticians fit the definition of a community of practice (Wenger, 1998; Wenger & Snyder, 2000; Wenger & Wenger-Trayner, 2015). The three seminal approaches of community-based knowledge sharing (Lave & Wenger, 1991), professional identity in the community (Wenger, 1998), and sharing practices within shared practices (Brown & Duguid, 2001) did not occur among Army logisticians. I found three relational properties of knowledge sharing: embedded, dependent, and changing. Osterlund and Carlile (2003) has pertinence to Army logisticians. Embedding has appeared as a challenge for the Army because only 64% of logisticians have awareness of knowledge management. The participants automatically had a dependent relationship with the commanding officer and the nature of the knowledge changed with the operational movement.

Knowledge transfer did occur 100% of the time by participants, but the goal of knowledge furtherance with knowledge sharing did not (Maton, 2012). The logisticians did perform their duties. However, those instances occurred in a unidirectional fashion (Tangaraja et al., 2016). Through explanation building (Yin, 2014), I sought to ascertain the role of professional and personal commitment to knowledge sharing (Hwang et al., 2018). The knowledge developed by this study should offer positive social change impact on the national security of the United States, per legislative requirements (U.S. Const. art. II, § 2, cl. 1). The logisticians have accountability for nine of the 12 responsibilities

placed on the Army by *Title 10, USC.* Often attributed to World War II military strategist Field Marshall Erwin Rommel, logisticians decide the outcome before the fighting has occurred.

Major Theme 1: Directives

The first theme that emerged from this study engenders the directives issued by the Army for direction by all members as noted in *Mission Command* (Headquarters, Department of the Army, 2019c). Army logisticians have explicit instruction regarding knowledge sharing. The logisticians have tacitly ignored this directive in logistics publication *Army Logistics Readiness and Sustainability* (U.S. Department of the Army, 2018). This situation harkens to Polanyi (2009), who espoused that language, media, and technology cannot always ensure knowledge transfer or compliance. Despite the existence of Army logisticians as a community of practice (Wenger, 1998; Wenger & Snyder, 2000), there remains greater effort needed by Army leadership to ensure compliance by logisticians (Wenger & Wenger-Trayner, 2015).

The directives issued by the Army do not address the three relational properties of knowledge sharing: embedded, dependent, and changing (Osterlund & Carlile, 2003). The directives have provided guidance but cannot create a culture of knowledge sharing (Lave & Wenger, 1991). Girard and Girard (2015) addressed the need for organizational development of a process that acknowledges, creates, and shares knowledge. Army Major Jason Pape (2009) warned that despite the benefits of innovative procedures, absorption of new policy and conversion to different procedures incur difficulties with organizations

rooted in past tradition. Therefore, the promulgation directives will not cause logisticians to necessarily adopt knowledge sharing.

Major Theme 2: Function

I found that logisticians understand their function in fulfilling the mission of the Army. However, the function did not always conform to knowledge sharing but spent greater attention to information technology resources such as LOGSTAT (Downie et al., 2016). Stenfors (2006) called logisticians *pentathletes* because of the numerous functional requirements of specialties: ordnance, quartermaster, and transportation. Logisticians must contend with Army 365 initiative, which uses Microsoft 365 as an application tool for SharePoint (https://www.army.mil/standto/archive/2021/06/11/).

Logisticians also contend with SALE, which Anderson (2009a, 2009b, 2009c) noted did not have a knowledge management infrastructure. When reviewing KMSs, Akhavan and Zahedi (2014) found in multiple cases across global projects that knowledge sharing, as a function, in those communities led to critical success. Rodger (2012) found that good KMSs could lead to bad outcomes. The Army investment in a KMS has the intention of knowledge sharing among logisticians. Pondering that situation, Hwang et al. (2018) asked if a meaningful information system fulfilled the requirement. Hwang et al. found that personal information management played a greater role. This implication underscored assertions from Lyu and Zhang (2016) that incentives for individual knowledge sharing play a greater role in the function of the organization.

Major Theme 3: Trust

Trust emerged as the most complex theme of this study. I have found that all the other themes of this study, major or minor, require the prism of trust. From a technical perspective of language, Girard and Girard (2015) evaluated 23 different domains in business and academia for a suitable definition of knowledge management. I provided the example of Aviation English (Estival et al., 2016), where knowledge sharing in a risky platform required shared understanding. Trust requires accuracy in language, data, confidence, and expectation. Saini et al. (2018) discussed organizational obstacles that may prevent trust if critical success factors do not exist. The use of knowledge sharing necessitates a reciprocally trusting relationship between the transmitter and receiver (Davenport & Prusak, 1998; Pfeffer & Sutton, 2000; Van Acker et al., 2014).

Trust can confound logisticians and their commanders in the difficulty of having congruence with the knowledge in the individual and the knowledge found in a database. Personal motives affect the level of trust given and the level of trust received (Chumg et al., 2016). The concept of knowledge donation and knowledge conception does not always engender a benign setting (Tangaraja et al., 2016). The fear of not receiving credit for performance can lead to avoidance of knowledge sharing. A subordinate does not trust peers or seniors to recognize the contribution made. Nonetheless, employees in an organization who have a positive personal image will readily engage in knowledge sharing (Chumg et al., 2016).

Major Theme 4: Education

Education, as a theme, resonated throughout the data gathering. As noted in the findings, the Army did not perform well in promoting knowledge sharing among logisticians. In a large organization dedicated to training and educating personnel, education can prove a challenge for many reasons. Scholars often debate the knowing-how and knowing-that of procedures (Ghrab et al., 2017). Scholars from multiple disciplines has merged multiple sources for an applied ontology for knowledge sharing behaviors (Blanch et al., 2017; Chui & Gruninger, 2017; Ghrab et al., 2017; Lopez-Gil et al., 2016; Scheuermann, & Leukel, 2013). Fortunately, Army logisticians possess a defined ontology in *Army Logistics Readiness and Sustainability* (U.S. Department of the Army, 2018).

The Army has numerous educational opportunities for knowledge management for logisticians, which include formal schools, online portals, and command study groups. Business and institutional members can avail themselves to open educational resources (van Acker et al., 2014). Knowledge blindness can also occur in education (Maton, 2012). Education requires devotion of time and resources by the organization and members. Klarl (2014) argued that the diffusion of knowledge requires engagement of members as adopters. Clearly, Army leadership has engaged in knowledge diffusion, but the logisticians have not. Klarl further offered that technological diffusion does not equal knowledge adoption.

Minor Themes

The minor themes of this study consisted of holistic (Girard & Girard, 2015), sender/receiver (Tangaraja et al., 2015), and innovation (Nonaka & Takeuchi, 1995). Holistically, Army leadership has adopted knowledge management (Headquarters, Department of the Army, 2015, 2019c). Dayan et al. (2017) asserted that a comprehensive organizational approach in integrating knowledge management into a firm would result in success. Jagersma (2011) predicted that information logistics, not information technology, should serve as the focus of an organization. Ayala et al. (2017) noted that servitization, the goal of logisticians, served as the holistic approach for knowledge sharing.

The sender/receiver theme received treatment by Karnowski et al. (2017), who reviewed reasoned action of news sharing in social media. The action of knowledge sharing where interaction of two parties occurs relied on the judgment of each person sending and receiving (Hwang et al., 2018). The interaction of the individual in the organization also leads to knowledge donation and knowledge collection (Tangaraja et al., 2016). Currently, Army logisticians exist in a situation with internal obstacles to knowledge sharing (Saini et al., 2018).

The emergence of innovation as a theme caused surprise. Park and Gabbard (2018) concluded that current knowledge sharing practices in health and life science communities had limited effectiveness innovation. Tauscher et al. (2018) noted that standardization in knowledge sharing could spawn innovation in the marketplace. Therefore, logisticians engaged in innovation proved refreshing.

Limitations of the Study

This study followed the strictures for an explanatory case study guided by Yin (2014). The researcher, through early correspondence with the Army Logistics University had hoped for a cooperative and collaborative effort in producing this study. However, the leadership of the ALU had changed and as noted, the organizational leadership politely declined. The current pandemic COVID-19 also had a deleterious effect on my efforts. I did follow the prescribed protocols and exigencies given by research authors (Blaikie, 2010; Merriam, 1998; Patton, 2002; Stake, 1995; Willis et al., 2007; Yin, 2014).

Per the guidance provided by Janesick (2011), I collected audio recordings, pursued adequate engagement, created transcripts, and analyzed the data using abductive reasoning. I reduced researcher bias through member checks. The study remained aligned with the problem statement of why a lack of adoption of knowledge sharing has occurred within the ranks of Army logisticians. The positive social change consequences of this study align with the nine logistics responsibilities of the Army directed by *Title 10, USC.*

The major limitation of this study concerned access to the participants. The participants, deployed all over the world, required flexibility for time and resource. Fortunately, with the use of LinkedIn and the snowball method, I interviewed 11 participants. The abductive process allowed the participants to become coresearchers in this study. As noted from the results, the participants proved cooperative, engaging, and motivated in contributing to additional knowledge for the logistics community.

Recommendations

Pfeffer and Sutton (2000) noted that the optimal solutions for problems in an organization come from the members. The Army leadership pursued the correct approach by mandating knowledge management. However, mandates without the proper motivation do not always succeed. Blanch et al. (2017) along with Scheuermann and Leukel (2013) noted that the human component for success in knowledge sharing in an organization. The Army leadership should consider this study as the basis for sponsoring other future studies within the logistics community for resolving the issue of adoption of knowledge sharing.

Yin (2014) stated that an initial case study could serve as the foundation for multiple case studies that can provide comprehensive understanding of a phenomenon. I only peered at the logistics community. The problem may exist in other communities, like combat engineering and artillery. The Army may have a situation that could develop into a crisis. Although, I conducted a qualitative study, there did appear elements of quantitative with the introduction of percentage of participants in the development of codes and themes. I have interviewed logisticians that had supply chain, transportation, and fuel specialties.

The Army has sufficient resources for originating multiple future studies. First, a future study which would encompass a mixed method approach could collect data across the different specialties within the logistics community. Second, future studies at the basic, intermediate, and advanced levels of military schools could gauge the level of aptitude for knowledge sharing by students. Third, future research may consider an

immediate organization-wide quantitative approach for calculating the level of knowledge sharing throughout the Army. Other future research studies may emanate from these recommendations if the leadership of the Army desires complete implementation of knowledge management and knowledge sharing principles.

The following represents a list of paths recommended for the Army leadership regarding the adoption of knowledge sharing:

- Initiate knowledge management awareness at the earliest military occupational specialty school
- Ensure that the Army Logistics University curriculum includes knowledge management
- Increase awareness of the existence of the Army online education portals that teach knowledge sharing
- Require through command training programs that command study groups discuss the implications of knowledge sharing and logistics
- Increase the number of security clearances for pertinent knowledge sharing from the higher headquarters to using unit level
- The SSD (Structured Self-Development) program should contain knowledge sharing module
- The Army leadership should welcome unconventional analog aids, such as the Plexiglas notebook
- The Army should conduct collaborative command post exercises (CPX) that emphasize knowledge sharing

- Army logistics officers should place greater trust in noncommissioned officers by training them in the principles of knowledge management
- Formal schools at the company and field should teach a module on knowledge management with an emphasis on knowledge sharing
- The Army leadership should consider knowledge based rather than information-based solutions to knowledge management
- Army leadership should use explanatory qualitative case study as the basis for conducting a larger case study sponsored by the Army Logistics University.

Implications

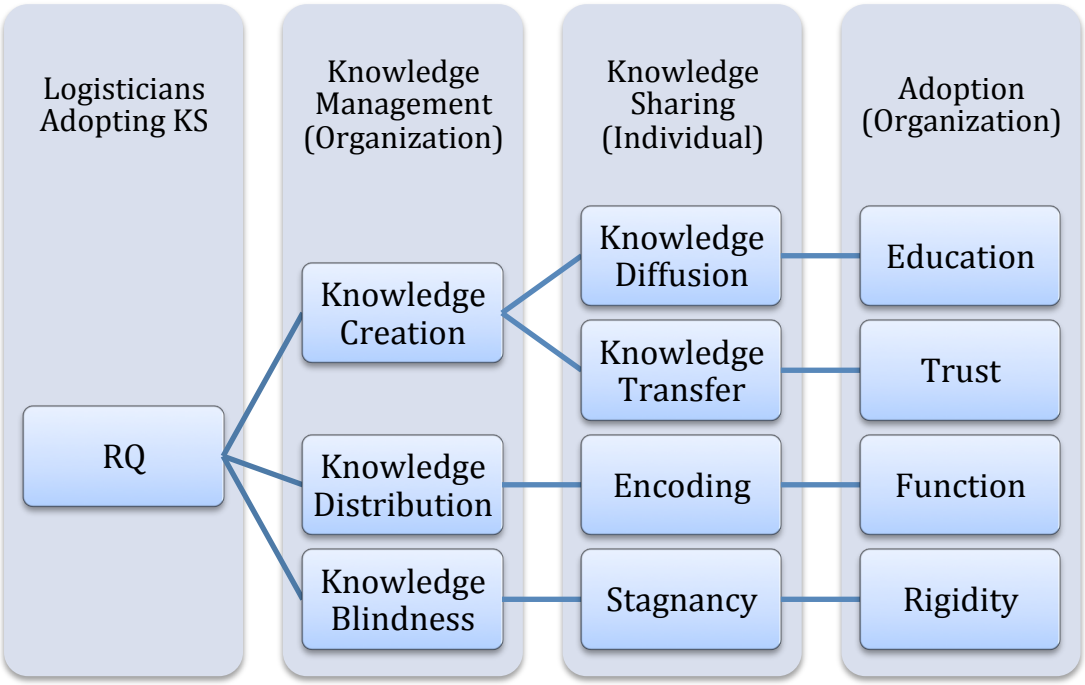
The study always had the goal of making a positive social change impact on the use of knowledge management and knowledge sharing by Army logisticians. As noted earlier, the U.S. Army has the duty of national security, with 9 of the 12 functions occurring under the purview of logistics. The greater the logistics function of the Army equals a greater impact on national security. Without national security, which most persons take for granted in these United States, the freedoms, and liberties that Americans enjoy will remain at risk. The social impact of Army knowledge sharing melded to logistics reinforces the ease of life, which our nation takes for granted.

In the late 20th century, there existed a clamor regarding the Y2K bug existent in computer systems. Every computer with a calendar only had two digits for the year. When the calendars moved toward the year 2000, all computers would revert to the year 1900. However, diligent efforts by the technology community averted the potential disaster, by reprogramming legacy systems and migrating them to a four-digit platform.

However, because no disaster occurred, many persons voiced doubt regarding the initial clamor. The researcher posits that evolution through innovation can provide a greater social change than rectification. The adoption of knowledge management and knowledge sharing principles by the logisticians can represent proactive advancement. The figure below captures the development process from the research question as provided by the data.

Figure 7

Research Question Evolution



Note. This image reflects the culmination of this study from research question to possible adoption of knowledge sharing by the Army

Figure 7 begins with the research question, which has remained an unknown throughout the study. I infer that Army logisticians do not deliberately avoid knowledge sharing. In fact, the respondents have proven an active desire for participation in

knowledge creation, storage, distribution, and sharing. The leadership of the organization has not vociferously created the necessary processes for this adoption to occur among logisticians. In an instance of knowledge blindness, the Army leadership has exhibited the organizational attitude of: “we put it out there.” This attitude has the implication that every person should comply.

The implications of this study have noted that adherence to regulations by logistics leadership appears selective regarding knowledge sharing. The responsibility for knowledge sharing has fallen on the individual logistician to diffuse, transfer, encode, or remain stagnant regarding knowledge sharing. The leadership of organization needs further attention to formal education, engender trust, establish function, and discard rigidity. The findings from the data indicate a lack of specific direction from the Army and logistics leadership. I will address certain specific implications that the Army should consider.

Security Clearance Trap

The researcher, fortunately, has a background in security clearance as a Facility Security Officer. The term facility means location, which can encompass an office, laboratory, or business. In the context of security, the facility security officer consists of administrative duties not a physical security guard. Participant D of the study stated a significant situation regarding the allocation of security clearances. The level of clearance held by team members prevented knowledge sharing. The participant found that in certain situations sharing of critical knowledge could not occur because the other person did not have the proper clearance.

This situation arose because of the limits in assigning clearances to individuals. The Army has a limited number of clearances that it could assign to individuals. If an individual has not had the opportunity to use an assigned clearance, the Army will downgrade that person. Downgrading clearance can occur quickly, however upgrading sometimes requires a laborious bureaucratic exercise that requires justification of the upgrade.

The logistician, who has the duty of disseminating knowledge, must exercise great care in sharing information only to those who have a need to know. However, the term "need to know" forms a double edge sword if the recipient does that "needs to know" or does not have the proper clearance. That situation can create duress on the logistician especially in a joint operation where the counterpart, a member from another service does not possess the appropriate clearance. The logisticians cannot exercise any discretion in this matter, at the forfeit of career and future. The repercussions for mission success require serious attention by the Department of Defense.

Knowledge Management Specialty Officer Trap

The study has found that the Army does train officers in knowledge management and knowledge sharing. This training occurs online and at formal schools. The Army has a three-week designated resident Knowledge Management Qualification Course at U.S. Army Training and Doctrine Command Combined Arms Center (CAC) at Fort Leavenworth, Kansas. The graduates of this course receive the designation of Knowledge Management Officer (KMO). Per the data provided by participants, the Army leadership has experimented with installation of this person within the special and general staffs.

The Army leadership, like executives of many systemized organizations seeks the logical insertion of a new technique or technician. Despite the regimentation existent in the Army, the implementation of the KMO has incurred some growing pains. The Communications (S-6; G-6) have initially borne the responsibility for this KMO because of a misunderstood implication with data analytics. However, depending on the orientation or familiarity of the commander with knowledge management, the KMO may report directly to the chief of staff.

The specialty officer trap stems from designating the KMO as responsible for knowledge sharing throughout the command. Some of the participants noted that they experienced no responsibility of knowledge management because the command had a KMO. The participant that had KMO designation approached the job as a trainer of knowledge management for the organization. The reader can readily note the conflicts arising from these circumstances because *Mission Command*, while holding them responsible, currently allows commanders on the approach to knowledge management.

Per the data obtained during this study, formal training opportunities as a designated KMO remain a premium. I recommend that the Army continue training of personnel in knowledge management principles at all formal schools and online. The KMO designate should serve directly under the operations officer or chief of staff with the purpose of training and reinforcing knowledge management principles at every unit or higher staff.

Trends in Knowledge Management and Knowledge Sharing

The business world has embraced knowledge management in addressing trends in thinking, products, and technology that affect knowledge sharing. The commercial industry has online publications at www.kmworld.com that the reader can readily access. The site provides white papers, best practice essays, and latest trends in knowledge infrastructure. The commercial industry appears to have engaged in the use of artificial intelligence for state-of-the-art knowledge management.

Conclusions

The leadership of the Army has moved in the proper direction for development of knowledge sharing. The logistics community needs to find a way of adopting knowledge sharing as part of professional performance. This explanatory case study has followed the linear-analytic and theory-building structures (Yin, 2014). I posit that the Army has a problem, known, but not formally acknowledged. Second, the Army community of logisticians has taken a taciturn approach to resolving this situation. This situation remains akin to the trite situation of the "elephant in the room" that no one wishes to acknowledge.

The study has explained the gap and the problem asked by the research question still exists. This study relates to the academic, business, and military. Logistics coupled with knowledge management can provide the epistemological commitment that can enhance the mission of the Army in securing the defense of the nation. I posit that a more expansive multiple case or mixed-method study using social organization theory could improve on the findings of this study. The logisticians interviewed share the desire for

making mission accomplishment the goal of the community. The leadership of the logistics community must ponder on retaining this introverted response to knowledge sharing or lead the way in embracing the impactful social changing proactive principles of *Mission Command.* This study may support positive social change because of the national security implications of an organizational-wide knowledge management and knowledge sharing implementation plan by the Army Logistics Branch.

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Appendix A: Participant Information Sheet

Participants Information Sheet

Unit #	Last Name	First	Grade	Experience in years	Member ✓ yy/mm/dd
1	Doe	John	Captain	5	
2	Doe	John	Captain	5	
3	Doe	John	Captain	5	
4	Doe	John	Captain	5	
5	Doe	John	Captain	5	
6	Doe	John	Captain	5	
7	Doe	John	Captain	5	
8	Doe	John	Captain	5	
9	Doe	John	Captain	5	
10	Doe	John	Captain	5	
11	Doe	John	Captain	5	
12	Doe	John	Captain	5	
13	Doe	John	Captain	5	
14	Doe	John	Captain	5	
15	Doe	John	Captain	5	
16	Doe	John	Captain	5	
17	Doe	John	Captain	5	
18	Doe	John	Captain	5	
19	Doe	John	Captain	5	
20	Doe	John	Captain	5	

Appendix B: Letter of Consent with IRB Certification

Explanatory Case Study for An Inquiry into the Challenges of Adopting Knowledge Sharing and Logistics Within the United States Army

CONSENT FORM

You are invited to take part in a research study about: An Inquiry into the Challenges of Adopting Knowledge Sharing and Logistics Within the United States Army. The researcher is inviting experienced Army professionals in the field of logistics to participate in the study. I obtained your name/contact info via The US Army Logistics Corps Officers on LinkedIn. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

This study is being conducted by a researcher named Johnny F. Charles, who is a doctoral student at Walden University. You might already know the researcher as a retired Marine Corps logistician, but this study is separate from that role.

Background Information:

The purpose of this study is to seek an explanation, through an explanatory qualitative case study, to understand why there are challenges in Knowledge Sharing (KS) among Army logistics officers.

Procedures:

If you agree to be in this study, you will be asked to participate in a 45-minute, audio-recorded video or voice call interview consisting of five questions to provide your experience regarding logistics and knowledge sharing. You will receive contact from the

interviewer, in the near future, for minor clarifications, as part of the "member checking" procedure. This process will occur via email, voice, or video call.

Please do not offer, nor will I ask, any personal, or sensitive information. Please remember that no "right" or "wrong" answers exist for this study.

Here are some sample questions:

- Please tell me in your own words, what knowledge management should mean to a logistician.
- Please provide a scenario, whether exercise or theater of operations, that you experienced; where logistics and knowledge sharing played an important role in the mission?

Voluntary Nature of the Study:

This study is voluntary. If you decide to be in the study now, you can still change your mind later. You may stop at any time. The researcher will follow up with all volunteers to let them know whether or not they were selected for the study.

Risks and Benefits of Being in the Study:

Being in this type of study involves some risk of the minor discomforts that can be encountered in daily life, such as fatigue or stress. Being in this study would not pose risk to your safety or wellbeing.

The study has the potential of benefitting the logistics community at large, in the Army, and other armed services in using and understanding knowledge management principles, specifically, knowledge sharing.

Payment: The researcher will not provide payment to participants. The researcher appeals to the professionalism of each participant in contributing to the enrichment of logistics.

Reports coming out of this study will not share the identities of individual participants. Details that might identify participants, such as the location of the study, also will not be shared. The interview protocol will respect the anonymity of the respondents by assigning a number from 1 through 20 for each interviewee. I will prepare twenty index cards with the contact information of each volunteer on the ruled sided of the card. I will place the cards in alphabetical order. Then I will shuffle the index cards with the blank side facing me. I will randomly place a number from 1 through 20 on the back of each card. I will record the name of participants in the Participant Information Sheet.

Privacy:

I will print out the sheet and enter the participant information by hand. The participant information sheet will not have the names in alphabetical order, only the numerical order from the index cards. The participation information sheet will serve as a checklist for double-checking that the researcher has contacted all individuals during the member checking process. The member check column will have the date of completing the member check. Entering the date will prevent a random mark from misleading the researcher that the completion of this step has occurred. On completion of member checking, the researcher will delete all contact information of participants.

Once the member checks have completed, the researcher will shred of all personal information. Once transcription has occurred, the researcher will delete any and all recordings of conversation with participants. The folio, field notes, and documents that do not have personal information will remain the only source material. At completion of data collection, in the follow-up phase, I will shred the index cards and the participant information sheet. The raw data on record will only depict the participants by number only.

Once again, the researcher will not retain any personal information. This process will ensure that neither I nor someone else can identify the participants through alphabetical order at the end of the study. No person looking at the raw data should have the ability to identify the participants by name. Further, the researcher will not quote any specific person. The researcher will likely make the following statement regarding participants: “Professional Army logisticians participating in this study have noted…” or words to that effect. At no time will the researcher refer to identifiable markers such as military rank, gender, or years of service in any statement during documentation of the study. The researcher will paraphrase all comments.

The confidentiality and autonomy of the participants will remain paramount. Although, the study has noted a variety in the military grades and positions of logisticians, in this study, I do not seek nor have an interest in the different feedback according to demographics existent in the logistics community.

The resulting data will not provide attribution to grade or rank of the participants. The researcher will not use your personal information for any purpose outside of this

research project. Data will be kept secure by researcher. Data will be kept for a period of at least 5 years, as required by the university.

The researcher will make a posting on LinkedIn regarding completion of the study. Participants who wish to know the results of the study may inquire Pro-Quest by the title of the study and the name of the researcher. The researcher will not send the final study to participants, as such action would violate the principle of preserving the personal information of the participants. Further, the researcher will not have maintained personal information pertaining to this study.

Contacts and Questions:

You may ask any questions you have now. Or if you have questions later, you may contact the researcher via email at johnny.charles@waldenu.edu or 407-252-0110. If you want to talk privately about your rights as a participant, you can call the Research Participant Advocate at my university at 612-312-1210. Walden University's approval number for this study is # A00263904, and it expires on **May 28, 2021.**

The researcher will give you a copy of this form to keep

Obtaining Your Consent

If you feel you understand the study well enough to make a decision about it, please indicate your consent by stating "I consent" via email.

Appendix C: Interview Protocol and Research Questions

The interview protocol consisted of a conversational approach with the participants. The interviewees received the questions ahead of time. The researcher understood this audience as persons who resented pitfall or trapping situations. Therefore, the interviewer took every possible step in making the participants comfortable with the process. Measuring stress levels had no pertinence to data gathering. The researcher explained a request for candid responses and respect of confidentiality. Each participant agreed and understood.

The research questions noted below served as a guide for maintaining both the interviewer and participant on the subject. However, if the participant offered information pertinent to the dialogue, the researcher would encourage this discourse. The interviews occurred remotely with participants located globally using FreeConferenceCall.com. Before engaging the interview, I asked the participants to spell out any anachronyms and explain any specific military jargon terms used. During the interview, I made contemporaneous notes in composition notebook. As the participants spoke, I continuously reminded them of explaining acronyms. These handwritten notes became part of the data analysis for recalling salient points made by the participants. I attained two types of triangulations. First, data triangulation happened through the interviews, contemporaneous notes, and use of Army directives. Second, methodical triangulation through adequate engagement, member checks, and recognition of researcher bias.

The researcher remained flexible to participant time zone. The interview questions follow:

1. After providing the commanding officer the logistics brief, has the commanding officer ever responded: “Alright Log O, what does that mean” or words to that effect?
   a. What sort of briefing instructions have you received before providing the logistics update?
   b. How did you resolve any concerns the commanding officer had with your brief?
2. Has the commanding officer, XO, or Operations Officer asked you to elaborate on the status of logistics?
   c. How did the nature of the mission of the unit affect your briefing?
   d. How did the logistics capability affect the nature of the mission?
3. What understanding do you have regarding logistics and knowledge sharing?
   c. Do you believe that a distinction exists between knowledge sharing and knowledge distribution?
   d. If so, why? If not, should we have one? Please elaborate.
4. Please tell me in your own words, what knowledge sharing should mean to a logistician.
   c. What do you think of the instructions that the Army has promulgated regarding knowledge sharing?
   d. How has knowledge sharing changed your approach to briefing logistics capabilities?

e. Please provide a scenario, whether exercise or theater of operations, that you experienced