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Knowledge Management Practice Strategies in Project-Based Organizations

Trenese LaShay McNealy
Walden University

Walden University

College of Management and Technology

This is to certify that the doctoral study by

Trenese McNealy

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Review Committee
Dr. Denise Land, Committee Chairperson, Doctor of Business Administration Faculty

Dr. Denise Gandy, Committee Member, Doctor of Business Administration Faculty

Dr. Charlotte Carlstrom, University Reviewer, Doctor of Business Administration Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2017

Abstract

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by

Trenese LaShay Gordon McNealy

MBA, University of Phoenix, 2007

BS, Georgia Southern University, 2006

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

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Abstract

Companies globally have lost profit each year because of the lack of intra-organizational knowledge sharing. The purpose of this descriptive, multiple case study was to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. Nine project management business leaders from 4 project-based organizations in metro Atlanta, Georgia completed individual Skype/phone semistructured interviews, and 5 project team members completed an in-person focus group discussion and an interview questionnaire. Knowledge management was the conceptual framework for this study, the basis for understanding the world around project management business leaders, and the implementation of knowledge management practice strategies for knowledge sharing. The individual interviews, focus group discussion, and interview questionnaire yielded the lived experiences of project management business leaders and the perceptions of project team members regarding knowledge sharing in their project-based organizations. The data were analyzed through data source triangulation and cross-case synthesis, which resulted in various themes such as communication, practices to overcome barriers, and a centralized resource center. The findings of this study may effect positive social change and the improvement of knowledge sharing by promoting the worth, dignity, and development of individuals, communities, organizations, cultures, or societies.

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Dedication

I would like to dedicate this research study to my family and friends. To my husband, Brian McNealy, there were many nights throughout the years where you would sit and stare at the back of my head while I was at the computer. Thank you, Brian, for your love and support throughout this process because this was a tough journey for you as well. To my sons, Bryce and Brayden McNealy, and my stepdaughter, Brielle McNealy, thank you because you all gave me the will to continue onward with my education. You all are my loves. To my parents, Ray and Mahalia Gordon, thank you for always pushing me to succeed in life and to strive for the best. To my sisters, Kaneetha Grant and Marcella Gordon, and my brother, Ray Gordon, Jr., thank you for your words of encouragement. To my sister-in-law, Kawanna Gordon, and brother-in-law, Gregory Grant, thank you for showing your support. To my niece, Kristy Gordon, and nephews, Ray Gordon, III and Giovanni Grant, Auntie loves you. To all my family and friends, thank you for understanding the sacrifices I had to make to complete my doctoral program. This has been a long, four-year process, but the wait is finally over!

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Section 1: Foundation of the Study

Throughout previous years, Fortune 500 companies globally have lost $31.5 billion annually because of the lack of knowledge sharing among employees (Babcock, 2004). Knowledge sharing needs the proper management through the implementation of knowledge management (Donate & de Pablo, 2015). Knowledge management is the process of using set values and methods to provide pertinent knowledgeable information to project teams (Lech, 2014). There has not been a focus on knowledge management for continuous learning by project managers (Michels, Grijó, Machado, & Selig, 2012). This lack of focus is a problem because knowledge transfer is imperative to innovation, competitive advantage, and organization sustainability (Donate & de Pablo, 2015; Filieri, McNally, O'Dwyer, & O'Malley, 2014).

Background of the Problem

In 2012, only 30% of global companies focused on knowledge management practice strategies for continuous learning by project managers (Michels et al., 2012). Many project managers lack the knowledge management skills needed to transfer knowledge or provide lessons learned from projects (Michels et al., 2012). The purpose of this qualitative, descriptive, multiple case study was to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. Project-based organizations are also project-oriented companies (Todorović, Mitrović, & Bjelica, 2013). There is a limit to the exchange of knowledge within some organizations because some organizational leaders lack the motivation to transfer knowledge in fear of not being the controller over the

knowledge (Fernandes, Ward, & Araújo, 2014). Also, some project team members lack the motivation to transfer knowledge beyond their project teams (Bartsch, Ebers, & Maurer, 2013). Knowledge sharing strategies may decrease the limitations of knowledge transfer and increase competitive advantage and organization sustainability (Alegre, Sengupta, & Lapiedra, 2013; Nonaka & Takeuchi, 1995; Peng, 2013); thus, senior management can benefit from this research study.

Problem Statement

A lack of knowledge management practice strategies limits the competitive advantage of an organization (Alegre et al., 2013; Donate & de Pablo, 2015). In 2012, 70% of global companies did not focus on knowledge management practices for projects and programs (Michels et al., 2012). The general business problem was a decrease in organizational knowledge due to the limitation of poor knowledge management practice strategies, for knowledge transfer, could decrease competitive advantage and organization sustainability. The specific business problem was some project management business leaders lacked the knowledge management practice strategies used to improve knowledge sharing in project-based organizations.

Purpose Statement

The purpose of this qualitative, descriptive, multiple case study was to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. The specific population group for this research study was project management business leaders who worked for four project-based organizations within the metropolitan areas of Atlanta, Georgia (metro

Atlanta) in the United States. Additionally, project team members from the project-based organizations participated in a focus group to provide their perspectives. The project team members were employees of project management business leaders. Knowledge sharing can lead to knowledge generation, organizational learning, and an increase in competitive advantage and organization sustainability (Moustaghfir & Schiuma, 2013); therefore, the research study may contribute to social change and influence business practices of project management business leaders. The establishment of communities of practice across the community (L. Lee, Reinicke, Sarkar, & Anderson, 2015) may consequently result from this study.

Nature of the Study

I used a qualitative research method for this study. A qualitative method was appropriate to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations within metro Atlanta. Because a qualitative method results in the understanding of a phenomenon (Pluye & Hong, 2014), a qualitative method was appropriate for this research study for researching the perceptions project management business leaders have about knowledge management practice strategies. Quantitative research methods are appropriate when measuring the impact of a phenomenon (Pluye & Hong, 2014). However, because the outcome of the research study did not involve statistical measures, a quantitative research method was not appropriate. Mixed methods research consists of a combination of both qualitative and quantitative approaches (Venkatesh, Brown, & Bala, 2013), which was not appropriate for this research study.

Qualitative research is beneficial to participants for self-reflecting and learning from their lived experiences (Moustakas, 1994). Project management business leaders of this research study benefited and provided valuable knowledge management practice strategies.

Qualitative research comprises numerous research techniques such as case study, phenomenology, ethnography, and narrative research (Zou, Sunindijo, & Dainty, 2014). Conducting a case study is a means for exploring the complex phenomena and lived experiences around a case (Yin, 2013b, 2014). A descriptive, multiple case study design was appropriate for this study because I explored project management business leaders in depth to address the research problem. The remaining qualitative approaches were not appropriate research designs because the focus and purpose of this research study did not coincide with the objective of the other research designs. Phenomenological research only focuses on the lived experience surrounding a phenomenon (Moustakas, 1994). Ethnography research involves researching the organizational culture of a work group (Zou et al., 2014). Narrative research requires full stories of the study participants (Zou et al., 2014). The case that I explored in this descriptive, multiple case study was the knowledge management practice strategies of project management business leaders, and the context was project-based organizations, specifically project teams in which knowledge sharing occurs.

Research Question

In this qualitative, descriptive, multiple case study, I focused on exploring the knowledge management practice strategies that project management business leaders use

to improve knowledge sharing in project-based organizations. When the research question around the study needs an in-depth description, a descriptive, multiple case study is appropriate (Yin, 2013b). For this study, an in-depth description of the knowledge management practice strategies was needed. The research question for this study was as follows: What knowledge management practice strategies do project management business leaders use to improve knowledge sharing in project-based organizations?

Interview and Focus Group Questions

There were 10 interview questions for data collection with project management business leaders and a focus group of project team members within project-based organizations (see Appendix E). The interview questions were the same for the project management business leaders and focus group.

1. How do you share your personal project experiences?
2. How do you share your technical project knowledge?
3. How does your organization share project knowledge?
4. How do you access useful knowledge within your organization?
5. What is the purpose of organizational briefings?
6. What is the purpose of project manager briefings?
7. What is the purpose of project team briefings?
8. If knowledge sharing barriers occur, how do you try to eliminate them?
9. If knowledge sharing barriers occur, how does your organization try to eliminate them?

10. What additional information would you like to add that I did not ask?

Conceptual Framework

Knowledge management was the conceptual framework for this study, the basis for understanding the world around project management business leaders, and the implementation of knowledge management practice strategies for knowledge sharing. Knowledge management is the process of disseminating knowledge throughout an entity to people at set times (Donate & de Pablo, 2015). Because knowledge management results from multiple academic and practitioner sources (O'Brien, 2015), there is no set theorist of the framework. However, knowledge management's first occurrence was in 1975 at Chaparral Steel, a U.S.-based company (Wiig, 1997). In the mid-1980s, knowledge management was a growing concern for organizational leaders because of wide-spread competition occurring worldwide (Wiig, 1997). Because of a 1989 survey, many Fortune 500 CEOs agreed that the success of an organization depends heavily upon knowledge and the successful exploitation of competitive knowledge assets (Wiig, 1997).

Wiig (1997) stated that knowledge management has two goals for organizations and individuals. The first goal of knowledge management is to bring out intelligence to reach success (Wiig, 1997). Knowledge is essential for innovation; therefore, the creation of knowledge will be a motive for continued success for organizations (Wiig, 1997). The second goal of knowledge management is to understand the value of knowledge assets (Wiig, 1997). The regeneration of knowledge assets should occur continuously (Wiig, 1997). The effective use of knowledge assets will result from the effective management of systematic, explicit, and deliberate knowledge (Wiig, 1997). There are many

organizations with various types of knowledge management strategies (Wiig, 1997); thus, the knowledge management framework was applicable to this research study to explore the knowledge management practice strategies project management business leaders use to improve knowledge sharing in project-based organizations.

Operational Definitions

Competitive advantage: Competitive advantage is the means of having more returns, capital performance, and expectations over competitors (Hakkak & Ghodsi, 2015).

Explicit knowledge: Explicit knowledge is knowledge that is easy to share from person to person (Li & Edwards, 2014; Nonaka & Takeuchi, 1995).

Knowledge management practices: Knowledge management practices are daily routines of organizations for exploiting the value of knowledge (Nelson & Winter, 1982; Zanzouri & Francois, 2013).

Knowledge sharing/transfer: Knowledge sharing/transfer is the trading of tacit and explicit knowledge between individuals to gain a better perspective on processes, procedures, and products whereby individuals can generate new knowledge (Peralta & Saldanha, 2014).

Project-based organizations: Project-based organizations are organizations with managers who can deliver and manage numerous projects or services for the use of internal or external customers (Pemsel & Wiewiora, 2013).

Project management: Project management is the process of creating knowledge for an organization from information all around (Akbar & Mandurah, 2014). Project

management is the process of using ones' knowledge to accomplish various activities by a set deadline (Lindgren, Packendorff, & Sergi, 2014).

Project-oriented companies: Project-oriented companies are organizations whose project activities derive from the consumer of the project (Todorović et al., 2013). Managers within project-oriented companies not only develop and implement projects for their organizations, but for various customers and external entities (Todorović et al., 2013).

Tacit knowledge: Tacit knowledge is knowledge that is hard to share because it derives directly from individuals' experiences (Li & Edwards, 2014; Nonaka & Takeuchi, 1995).

Assumptions, Limitations, and Delimitations

Assumptions, limitations, and delimitations are a way to describe any restrictions or hindrance to research. The limitation of this qualitative, descriptive, multiple case study population was project management business leaders with knowledge management experiences within project-based organizations. The purpose of this section was to define the assumptions, limitations, and delimitations of this research study.

Assumptions

Assumptions are a way to decrease bias and identify any prior actions that may inadvertently have an influence in research (Marshall & Rossman, 2014). There are various assumptions for this qualitative, descriptive, multiple case study. The first assumption was that the project-based organizations within this research study would exhibit some knowledge management practice strategy that project management business

leaders implemented throughout their organizations. The second assumption was that project management business leaders and project team members who participated in this research study would clearly describe their experiences around the knowledge management practice strategies for knowledge sharing within their organizations. The final assumption was that project management business leaders and project team members would be honest when answering the interview questions.

Limitations

Limitations are uncontrollable circumstances that will apply depending on the research criteria (Denscombe, 2013). Because of the research criteria for this qualitative, descriptive, multiple case study, there was a deliberate limit to the focus of this research study. This research study only pertained to the perceptions of project management business leaders and project team members; thus, there was a limitation on the views of other employees on the knowledge management practice strategies for knowledge sharing. The geographic location for this study was the metropolitan areas of Atlanta, Georgia. This location limited data from other project-based organizations in the United States because those organizations were not a part of the geographic location for this research study. The selection of project management business leaders occurred through the Project Manager Network, the Project Management Institute, and through project-based organizations. Thus, this limited the diversity of the project management business leaders who participated in the study. Many project-based organizations within metro Atlanta are a part of various industries. A potential weakness of this study was the focus on project management business leaders in project-based organizations in general and not

in a select industry. Each industry is different, so the overall perceptions of the project management business leaders varied by industry, which may limit the relevance of the findings to certain types of companies within those industries.

Delimitations

Delimitations are the controllable boundaries of research (Denscombe, 2013). There were various delimitations for this qualitative, descriptive, multiple case study. For instance, because the geographic location for this study was the metropolitan areas of Atlanta, Georgia, the research population had a delimitation to project management business leaders and a focus group of project team members in four metro Atlanta project-based organizations. The project management business leaders had a delimitation to two to three project management business leaders per organization; however, there were nine participants totaled, which was an increase to Marcella and Rowley's (2015) research study of eight participants. The focus group had a delimitation to one to two project team members per organization; however, there were five participants totaled. Focus groups can consist of 10-12 or five to six participants (Gebhardt et al., 2014). The data collection methods for this descriptive, multiple case study were semistructured, Skype/phone interviews, an in-person focus group discussion, and an interview questionnaire completed by the focus group; thus, other means for collecting valuable information from participants were not applicable. All project management business leaders and project team members had various projects they led or managed within their companies. Thus, the project management business leaders and project team members had a limitation to their specific job responsibilities in their project-based organizations.

The project management business leaders and project team members also had a limitation to how long they had been in their current positions. Project management business leaders of this study had a minimum of 2-3 years of experience to obtain responses from more experienced individuals. However, members of the focus group had a minimum of 1-2 years of experience working in their project-based organizations.

Significance of the Study

The purpose of this section is to explain the value, the contribution to effective business practice, and the positive social change of this qualitative, descriptive, multiple case study. Many research studies are meaningful to qualitative researchers (Taylor, Bogdan, & DeVault, 2015). The outcome of this research study will be meaningful to project management business leaders because the research contributed to the identification of knowledge management practice strategies for knowledge sharing in project-based organizations.

Contribution to Business Practice

The significance of this qualitative, descriptive, multiple case study was the knowledge management practice strategies for knowledge sharing. Knowledge management practices are made up of knowledge dissemination practice and knowledge storage practice (Villar, Alegre, & Pla-Barber, 2014). Knowledge dissemination practice is the process of disseminating knowledge internally within an organization and externally throughout an organization (Villar et al., 2014). Knowledge storage practice is the process of gathering and storing knowledge to uncover important information (Villar et al., 2014). This study may have a business/social impact because knowledge transfer is

critical for the competitive advantage of an organization (Donate & de Pablo, 2015). Project management business leaders must understand and implement the right business practice strategies for knowledge management (Peng, 2013). Knowledge sharing is important for the success of an organization (Witherspoon, Bergner, Cockrell, & Stone, 2013). The results of this study may contribute to an effective practice of business if project management business leaders can understand and implement knowledge management practice strategies for knowledge sharing. Knowledge sharing can lead to knowledge generation, organizational learning, and an increase in competitive advantage and organization sustainability (Moustaghfir & Schiuma, 2013); therefore, the research study may contribute to social change and influence business practices of project management business leaders.

Implications for Social Change

Organizational leaders and staff gain knowledge by employing the methods of prior experiences of management, shared stories, best practices, and superstition (Lyles, 2014). However, project managers will need to develop daily routines for using these methods (Lyles, 2014). There is a need for knowledge management for projects because without knowledge management, project managers may fail in the implementation of projects (Hornstein, 2015). The results of this study may contribute to a positive social change and the improvement of a business practice because project management business leaders can understand the knowledge management practice strategies that are necessary to share knowledge within their organizations. Project-based organizations should have effective strategies for sharing knowledge (Pemsel & Wiewiora, 2013).

The project management history centers on projects within the construction and engineering industries (Leal-Rodríguez, Roldán, Ariza-Montes, & Leal-Millán, 2014). However, today, there are many small to medium sized enterprises where managers practice project management (Leal-Rodríguez et al., 2014). Organizational leaders' in the 21st century can develop a structure for transferring knowledge and identifying any potential barriers that may limit the knowledge flow within their project-oriented companies to project managers and project teams (Lyles, 2014). Project managers can implement project knowledge management for managing project learning (Lech, 2014). Project knowledge management is knowledge project managers must obtain to complete their tasks (Lech, 2014). When organizational leaders can control the knowledge within, this will result in competitive advantage (Durmusoglu, Jacobs, Nayir, Khilji, & Wang, 2014).

As project management business leaders continue to transfer knowledge, this process may establish communities of practice within their project-based organizations and across various types of organizations within the community (L. Lee et al., 2015). Because project managers seldom have interactions with other project managers for learning, establishing communities of practice may be beneficial (L. Lee et al., 2015). Communities of practice can be an internal or external organizational mechanism for improving project management skills, knowledge sharing amongst project managers, and innovation (L. Lee et al., 2015). For instance, project management business leaders can join the Project Management Institute, which sponsors chapters within communities for sharing knowledge locally and globally (L. Lee et al., 2015). Through knowledge

sharing, the communities in which the project management business leaders' work can benefit because these leaders will be better equipped with the knowledge to answer questions and assist consumers.

A Review of the Professional and Academic Literature

The purpose of this qualitative, descriptive, multiple case study was to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. The purpose of this section is to provide readers with an analysis of previous scholarly research that supports the business problem based on the knowledge management framework. There are five categories on the topic of knowledge management practice strategies in project-based organizations: (a) knowledge transfer approaches, (b) knowledge management barriers, (c) knowledge management processes and resources, (d) knowledge learning methods, and (e) competitive advantage. The literature within these five categories, along with the conceptual framework of knowledge management, was the scholarly foundation of this study.

The initial search yielded about 13,300 results for scholarly sources that supported each category. I primarily used the Google Scholar research database for locating literature. Some of the search terms for the articles on knowledge management included *knowledge management for continuous learning by projects managers*, *knowledge management approaches for projects managers*, *project managers and knowledge transfer*, *project managers and project-based organizations*, *project learning by project managers*, *knowledge sharing in project-based organizations*, *barriers to knowledge*

sharing, *competitive advantage of knowledge sharing*, and *resources for knowledge management.* During the search process, I did not examine articles published earlier than 2013, except for seminal sources, to provide support from authors with the most recent scholarly work. There were 100 sources for the literature review section, and 93 of the articles were peer-reviewed journals articles with 91% of the sources being less than 5 years old.

Knowledge Management Framework

Knowledge management is an intangible asset (de Bem, Coelho, & Dandolini, 2016). The success of an organization's procedures and initiatives depends on knowledge management (Castrogiovanni, Ribeiro-Soriano, Mas-Tur, & Roig-Tierno, 2016). Through knowledge management, knowledge can occur at any given moment in time, but this occurrence must be during the right moment with the appropriate individuals (Behrooz, 2016). Knowledge management is a framework that results in knowledge creation, acquisition, sharing, and reuse by organizations and the individuals within (O'Brien, 2015). Knowledge management is the act of reviewing organizational strategies on obtaining knowledge that results in successful outcomes (Swain & Lightfoot, 2016). Knowledge management is essential to managers, specifically within general and project-oriented organizations because without knowledge management, the future of these organizations is at risk (Abzari, Shahin, & Abasaltian, 2016). Knowledgeable project managers are in high demand for many organizations throughout the world (Stellingwerf & Zandhuis, 2013). Between 2010-2020, organizational leaders will spend over $12 trillion on projects each year (Stellingwerf & Zandhuis, 2013). Organizational leaders

must first understand the core requirements of knowledge management to implement successful knowledge management strategies (Al-Hakim & Hassan, 2016).

The core requirements of knowledge management are (a) the critical success factors of knowledge management, (b) knowledge management strategies, and (c) knowledge management processes (Al-Hakim & Hassan, 2016). The critical success factors of knowledge management include (a) human resource, (b) information technology, (c) leadership, (d) organizational learning, (e) organizational strategy, (f) organizational structure, and (g) organizational culture (Al-Hakim & Hassan, 2016). Knowledge management strategies are processes within organizations for transferring knowledge between people (Castrogiovanni et al., 2016). There are five basic knowledge management strategies that organizational leaders may use for conducting business: (a) knowledge strategy as business strategy, (b) intellectual asset management strategy, (c) personal knowledge asset responsibility strategy, (d) knowledge creation strategy, and (e) knowledge transfer strategy (Wiig, 1997).

Knowledge strategy as a business strategy is the generating, transferring, and regeneration of knowledge (Wiig, 1997). Intellectual asset management strategy is the focus of intellectual assets (Wiig, 1997). Personal knowledge asset responsibility strategy is the process of employees using the appropriate knowledge assets for their work areas (Wiig, 1997). Knowledge creation strategy is the process of learning from current knowledge to gain new knowledge (Wiig, 1997). Knowledge transfer strategy is the process of gaining and sharing knowledge (Wiig, 1997). Knowledge management processes consist of (a) utilization, (b) sharing, (c) storage, (d) organization, (e) creation,

and (f) codification (Al-Hakim & Hassan, 2016; Costa & Monteiro, 2016). Out of all the knowledge management processes, knowledge acquisition and knowledge sharing are the two most important processes (Costa & Monteiro, 2016). Many organizational leaders and individuals have pursued knowledge to increase results (Wiig, 1997). Between 1975 and 1997, knowledge management was growing rapidly within U.S. and international organizations (Wiig, 1997; see Table 1).

Table 1

A Knowledge Management Timeframe

Year	Knowledge management example
1975	As one of the first to adopt knowledge focused management, Chaparral Steel bases its internal organizational structure and corporate strategy to rely directly on explicit management of knowledge.
1980	Digital Equipment Corporation (DEC) installs the first large-scale knowledge-based system (XCON).
1981	Arthur D. Little starts the Applied Artificial Intelligence Center.
1986	The concept of 'Management of Knowledge: Perspectives of a New Opportunity' is introduced in a keynote address at a European management conference.
1987	The first knowledge management book is published in Europe. The first roundtable knowledge management conference Knowledge Assets into the 21st Century is hosted by DEC and the Technology Transfer Society at Purdue University.
1989	The Sloan Management Review publishes its first knowledge management-related article. Several Management consulting firms start internal and external efforts to manage knowledge. The International Knowledge Management Network is started in Europe. A survey of Fortune 50 CEOs' perspectives on knowledge management by Wiig is undertaken.

table continues

Year	Knowledge management example
1990	The Initiative for Managing Knowledge Assets (IMKA) commences. The first books on the learning organization are published in Europe and the U.S. by Garratt, Senge, and Savage.
1991	Skandia Insurance creates the position of Director of Intellectual Capital. The first Japanese book relating to knowledge management is published in the US. Fortune runs the first article on knowledge management. Harvard Business Review runs its first article on knowledge management.
1992	Steelcase and EDS co-sponsor a conference on Knowledge Productivity.
1993	In Europe, an important knowledge management article is published on "Corporate Knowledge Management." The first book explicitly dedicated to knowledge management is published.
1994	Several large consulting firms offer knowledge management services and start seminars for prospective clients on knowledge management. The International Knowledge Management Network expands its scope to include the Internet; publishes a knowledge management survey of 80 Dutch companies; and conducts a conference Knowledge Management for Executives. Université de Technologie de Compiègne (France) holds its first annual knowledge management conference. Knowledge Management Network and FAST Company magazine are founded in the U.S.
1995	The European ESPRIT programme includes explicit requests for knowledge management -related projects. American Productivity & Quality Center (APQC) and Arthur Andersen conduct the Knowledge Imperatives Symposium with over 300 attendees. Other knowledge management conferences and seminars are held in the U.S. and Europe. APQC initiates a multi-client knowledge management Consortium Benchmarking Study with 20 sponsors. The Knowledge Management Forum is started on the Internet. A few 'Chief Knowledge Officers' (or equivalent) are appointed.
1996	Several knowledge management conferences and seminars are held in Europe and the U.S. – organized by both general conference organizers and consulting organizations. Over one dozen large consulting organizations and many smaller ones offer knowledge management services to clients. Many companies are starting knowledge management

table continues

Year	Knowledge management example
	efforts – some with internal resources only, others with assistance by external organizations. The European Knowledge Management Association is started. The publication Knowledge Inc. is started. Many organizations appoint executives responsible for managing knowledge.
1997	Numerous knowledge management conferences are held in the U.S., Europe, Asia, Africa; several knowledge management journals are started and many case histories of successful knowledge management efforts and practices are reported. The European Union organizes a knowledge management conference. Knowledge management topics are frequent topics in management journals and multiple knowledge management-related books are published. Many more organizations appoint knowledge management executives.

Note. Adapted from Wiig, K. M. (1997). Knowledge management: An introduction and perspective. *Journal of Knowledge Management, 1*(1), pp.10-11. Copyright 1997 by Knowledge Research Institute, Inc. Reprinted with permission.

Until the 1990s, knowledge was an intangible asset for storing information (Walker, 2016). By the 2000s, 80% of the workforce focused on gaining knowledge, which was the dawn of the Knowledge Age (Dalkir & Liebowitz, 2011). The first knowledge management programs were also growing rapidly within universities (Dalkir & Liebowitz, 2011). Knowledge sharing is valuable for organizations (Werner, Dickson, & Hyde, 2015). Organizations within the Knowledge Age have employees who perform based on the best knowledge they obtain because individual knowledge enhances organizational knowledge (Dalkir & Liebowitz, 2011). The knowledge individuals bring to others within their organizations may lead to organizational wide knowledge, thus improving knowledge management (Z. Wang, Sharma, & Cao, 2016). Knowledge is continuing to occur within organizations because without knowledge, organizational

projects may fail (Hornstein, 2015). Also, organizations may fail to secure new business opportunities (Castrogiovanni et al., 2016).

Knowledge Transfer Approaches

Knowledge is essential to individuals and organizations (Nesbitt & Barton, 2014); however, several studies have illustrated how knowledge transfer is difficult within industries that focus on projects (Bosch-Sijtsema & Henriksson, 2014; Ding, Liu, & Song, 2013). Knowledge transfer is the method by which various sectors within an organization change due to the practices of one another (Argote & Ingram, 2000). Per Argote and Ingram (2000), identifying knowledge is more important than transferring knowledge. However, through the collaborative actions of organizational leaders, knowledge sharing can occur (Beckers, van der Voordt, & Dewulf, 2015). Knowledge sharing is important for the achievement of a sustainable competitive value (Abzari et al., 2016). Knowledge sharing is important for organizations because it is the act of passing along knowledge from one person to another to gain a better understanding of the information (S. Wang, Noe, & Wang, 2014). The creation of knowledge occurs through people and flows throughout organizations (Nieves & Haller, 2014; Zanzouri & Francois, 2013). The more knowledge people have, betters their chances of gaining new knowledge (Nieves & Haller, 2014). Managers will need to implement the right strategies for creating new knowledge, transferring this knowledge to others, and storing knowledge within their organizations (Villar et al., 2014).

The implementation of knowledge management within an organization consists of the use of explicit and tacit knowledge (Li & Edwards, 2014; Todorović, Petrović, Mihić,

Obradović, & Bushuyev, 2015). Tacit knowledge is knowledge that is hard to share because it derives directly from individuals' experiences (Nonaka & Takeuchi, 1995). On the contrary, explicit knowledge is knowledge that is easy to share from person to person (Nonaka & Takeuchi, 1995). As shown in Figure 1, there are four modes of knowledge conversion (Nonaka & Takeuchi, 1995). Without tacit knowledge and explicit knowledge, the creation of knowledge would not occur (Li & Edwards, 2014; Nonaka & Takeuchi, 1995); thus, I would not be able to illustrate the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations within this research.

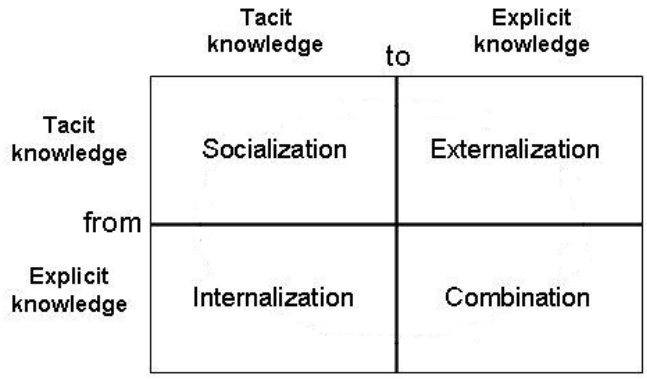

Figure 1. Four modes of knowledge conversion between tacit and explicit knowledge. Reproduced from *The knowledge-creating company: How Japanese companies create the dynamics of innovation,* by I. Nonaka and H. Takeuchi, 1995, p. 62. New York, NY: Oxford University Press. Copyright 1995 by Oxford University Press, Inc. Reprinted with permission.

Organizational knowledge creation occurs with the tacit knowledge of employees, as suggested by Nonaka and Takeuchi (1995). Per Nonaka and Takeuchi, as knowledge creation occurs within organizations, this can lead to a continuum spiral of knowledge (see Figure 2 and Figure 3).

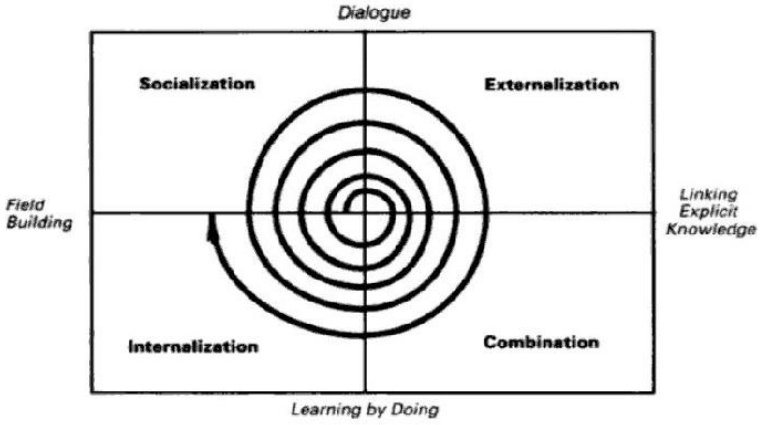

Figure 2. Organizational knowledge creation as a spiral of knowledge. Reproduced from *The knowledge-creating company: How Japanese companies create the dynamics of innovation,* by I. Nonaka and H. Takeuchi, 1995, p. 71. New York, NY: Oxford University Press. Copyright 1995 by Oxford University Press, Inc. Reprinted with permission.

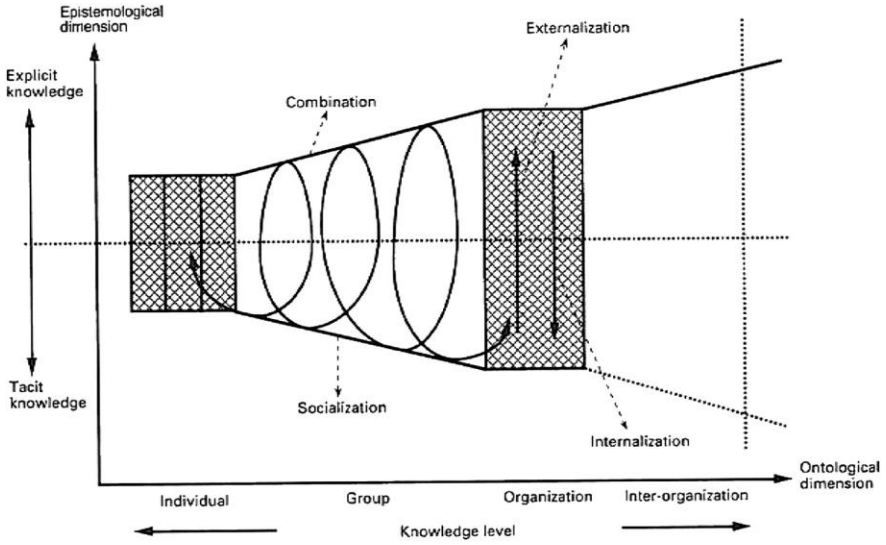

Figure 3. Spiral of organizational knowledge creation. Reproduced from *The knowledge-creating company: How Japanese companies create the dynamics of innovation,* by I. Nonaka and H. Takeuchi, 1995, p. 73. New York, NY: Oxford University Press. Copyright 1995 by Oxford University Press, Inc. Reprinted with permission.

Organizational leaders should establish strategies for effective knowledge management practices (Kim, Lee, Chun, & Benbasat, 2014). An effective approach for gathering and transferring knowledge are knowledge management systems (Dulipovici & Robey, 2013; S. Wang et al., 2014). Knowledge management systems are common systems within many organizations as a means for knowledge sharing (S. Wang et al., 2014). Knowledge management systems are information systems that drive knowledge sharing between employees to aid in the overall success of an organization (S. Wang et al., 2014). Knowledge management systems are significant to organizations because these systems result in the successful sharing of knowledge throughout organizations (S. Wang et al., 2014). Many organizational leaders use knowledge management systems within their organizations; however, most employees are not sharing knowledge within their organizations (S. Wang et al., 2014).

By using knowledge management systems, project managers have the support to create and share knowledge within their organizations (Dulipovici & Robey, 2013). Knowledge management systems also provide a gateway for knowledge sharing through media, thus allowing access to knowledge across an entire organization (Dulipovici & Robey, 2013). Also, people can create their own knowledge (Hamid, Waycott, Kurnia, & Chang, 2014) and establish meaning around shared knowledge (Holzweiss, Joyner, Fuller, Henderson, & Young, 2014). By using knowledge management systems, employees can collaborate and share knowledge with each other (O'Leary, 1998).

Another approach for knowledge sharing is an enterprise training system, which transfers the knowledge from trainers down to trainees (J. Zhao, Qi, & De Pablos, 2014).

Through the proper training, people can implement knowledge transfer throughout their companies (J. Zhao et al., 2014). People should learn to integrate their original knowledge with new knowledge to create new knowledge continuously (J. Zhao et al., 2014). People should have the expertise and training to carry out the roles and responsibilities for their positions through the knowledge they gain from within (Nesheim & Gressgård, 2014). A challenge project managers' experience is a lack of knowledge to make accurate decisions on projects (Oliveira, Rozenfeld, Phaal, & Probert, 2015). If organizational leaders implemented a knowledge learning structure, project managers could continuously learn from projects and transfer their knowledge to other projects (Bashouri & Duncan, 2014).

Organizational structures should have processes that require the interaction and participation of employees to obtain knowledge and share the information they learn throughout the entire company for the benefit of all employees (Bashouri & Duncan, 2014). As employees' exchange knowledge, this may result in new knowledge for the organization (Monks et al., 2016). Project managers who have a project management office within their companies also have the additional support for knowledge sharing (Müller, Glückler, & Aubry, 2013). A project management office is a unit within many project-based organizations that control the flow of knowledge and resources throughout projects and the organization (Pemsel & Wiewiora, 2013). The roles of a project management office are (a) serving, (b) controlling, and (c) collaborating (Müller et al., 2013). A project management office has a servicing role when operating as a service unit for supporting projects (Müller et al., 2013). A project management office has a

controlling role when operating as management units for projects (Müller et al., 2013). A project management office has a partnering role when operating in equality with other project management offices, project managers, and project teams (Müller et al., 2013).

Projects managers can promote knowledge sharing by incorporating a sense of teamwork rather than self-work (Ding, Ng, & Li, 2014). When project team members work as a team, the team members can better communicate with one another, thus establishing effective knowledge sharing practices (Ding et al., 2014). Knowledge management is important to project teams because it is the process of effectively gathering and distributing knowledge through a linkage between the project team members and their projects (Navimipour & Charband, 2016). Without knowledge sharing, activities would not exist where the distribution of knowledge would occur (Navimipour & Charband, 2016). As knowledge sharing occurs within project teams, this may positively impact team performances and innovation capabilities (Navimipour & Charband, 2016). Project team members can implement the best practices of their organizations when they share knowledge; thus, eliminating reoccurring errors within ongoing projects (Wen & Qiang, 2016).

Another approach for organizational leaders is to use performance management systems for knowledge learning and rewarding of individuals and teams' performances (Aguinis, Gottfredson, & Joo, 2013). In 2008, U.S. organizational leaders invested over $73 billion on software for knowledge management to improve organizational performance (Murphy & Hackbush, 2007). Knowledge sharing is an important factor when it comes to the performance of units (Argote & Fahrenkopf, 2016). As employees

move throughout departments within an organization, the knowledge employees gain from one unit can transfer to other employees within another unit (Argote & Fahrenkopf, 2016). From previous research, knowledge transfer is more likely to occur when the contributor and receiver of the knowledge both share comparable characteristics (Argote & Fahrenkopf, 2016). If there is no prior relationship between the contributor and receiver of the knowledge, this may hinder knowledge transfer (Argote & Fahrenkopf, 2016). Using performance management systems can help encourage teams to work together to share knowledge (Aguinis et al., 2013). When employees have incentives and rewards and are accountable for projects, they are more willing to share their knowledge (Hau, Kim, Lee, & Kim, 2013; S. Wang et al., 2014).

A final approach for knowledge sharing is using management control systems. Management control systems, through a network-based approach, play a significant role in knowledge transfer (Massaro, Pitts, Zanin, & Bardy, 2014). Management control is the process of implementing systems to direct the knowledge-behavior of employees (Massaro et al., 2014). If project management business leaders do not properly use management control systems, this may lead to knowledge barriers (Massaro et al., 2014). Knowledge management systems, enterprise training systems, knowledge learning structures, project management offices, teamwork practices, performance management systems, and management control systems are all important resolutions to the business problem as methods for increasing the competitive advantage and organization sustainability.

Knowledge Management Barriers

Knowledge sharing is an issue for many project-based organizations because there is no uniformity throughout the organizations, which causes *informational limbo* of knowledge (Almeida & Soares, 2014). Identifying barriers that may hinder the knowledge management process is vital for organizational leaders (Lotti Oliva, 2014). To implement successful knowledge management within an organization, organizational leaders most first determine the barriers that may prevent the successful implementation of knowledge management (Valmohammadi & Ghassemi, 2016). Per Mauss and Halls' (1954) gift-exchange theory, people transfer knowledge only for something in return. Knowledge sharing is a challenge in many organizations because some employees view knowledge as a controlling mechanism that is insignificant to others (Peralta & Saldanha, 2014). Pemsel and Wiewiora (2013) identified a limit to knowledge sharing because the central focus of many project managers is to provide great service and deliver on their projects promptly. There is also a limit to knowledge sharing when there are no clear directives (de Vries, Schepers, van Weele, & van der Valk, 2014). Knowledge sharing is not forcible within organizations (Sorakraikitikul & Siengthai, 2014). However, by sharing knowledge, employees will benefit because they will be more effective at their jobs due to the knowledge they gained (Peralta & Saldanha, 2014).

Many project managers are not aware of the knowledge management abilities they can bring to their organization (Kelly, Edkins, Smyth, & Konstantinou, 2013). Without the ability to distinguish the importance of knowledge outside of a project, this can limit learning within project-based organizations (Bartsch et al., 2013). The attitudes

managers have toward learning can restrict knowledge management practices (Villar et al., 2014). Organizational leaders depend on reliable and efficient knowledge management practice strategies for achieving the goals and objectives of their companies (Ray, 2014). However, many barriers can prevent the implementation of knowledge management practice strategies such as (a) time, (b) organizational culture, (c) teamwork, (d) trust, (e) leadership, (f) lack of employee participation, and (g) lack of project learning resources (Ray, 2014; Waheed, Qureshi, Khan, & Hijazi, 2013). Time is a barrier to knowledge management because project managers have a limited amount of time to complete projects, thus restricting their ability to apply lessons learned for knowledge sharing (Pemsel & Wiewiora, 2013). Because many projects have a short-term cycle, as projects end, collective learning may end as well (Pemsel & Wiewiora, 2013). Temporary projects can create dynamic learning boundaries (Pemsel, Wiewiora, Müller, Aubry, & Brown, 2014).

Organizational leaders should sustain a knowledge sharing culture amongst staff and management (Tong, Tak, & Wong, 2015). However, due to the various cultural values within project-based organizations, it is becoming more difficult for knowledge sharing to occur between project teams (Wiewiora, Trigunarsyah, Murphy, & Coffey, 2013). The culture of an organization may have a determining factor on knowledge development within employees (Wiewiora et al., 2013). The behavior of a project team will depend on the shared cultural values of the team members (Jetu & Riedl, 2013). The cultural values of project team members can affect the outcome of projects (Jetu & Riedl, 2013). Thus, organizations should have a culture where employees are aware of the

organizational values, and the standards of behavior team members should portray (Tong et al., 2015). Establishing a culture where employees are willing to share their knowledge will rely on the leadership within the organization (Tong et al., 2015).

Many employees do not want to share their knowledge because of distrust and suspicion (Tong et al., 2015; Waheed et al., 2013). In some organizations, knowledge is a controlled mechanism where employees only reveal certain information for their benefits (Wiewiora, Murphy, Trigunarsyah, & Brown, 2014). People want to gain knowledge, but without organizational wide trust, knowledge sharing will not increase among employees (Waheed et al., 2013). Trust can occur within an organization as cognitive trust or affective trust (Swift & Hwang, 2013). Cognitive trust is logical trust involving an individual's experience and background (Swift & Hwang, 2013). Affective trust is emotional trust involving an individual's personality (Swift & Hwang, 2013). Through teamwork, employees can develop trust amongst each other (Waheed et al., 2013). However, employees should also be able to trust their leaders (Laufer, 2012). Project management requires effective leaders who will strategically implement the right processes and asks the right questions to achieve successful results (Laufer, 2012; McKinney, 2012). Organizational leaders should incorporate knowledge sharing into their business strategies; therefore, creating a knowledge sharing culture (Waheed et al., 2013). When people trust each other enough to share knowledge within their organization, this can lead to job satisfaction (Tong et al., 2015).

Knowledge hiding is another barrier to knowledge sharing (Peng, 2013). Knowledge hiding occurs within organizations when employees hide knowledge from others when needed (Peng, 2013). Knowledge hiding results from a psychological ownership employees have towards knowledge sharing (Peng, 2013). Some employees may believe the knowledge they create or obtain is their psychological property; therefore, they are unwilling to knowledge share (Peng, 2013). However, other employees are willing to share knowledge because they have a higher ownership towards their organization (Peng, 2013). By having a higher ownership, employees believe they are valuable to their organizations by the knowledge the employees bring (Peng, 2013). These barriers derived from five categories of knowledge barriers within project-based organizations: (a) individual barriers, (b) organizational barriers, (c) technological barriers, (d) contextual barriers, and (e) inter-project barriers (Akhavan, Reza Zahedi, & Hosein Hosein, 2014).

Barriers can negatively affect knowledge management if processes are not in place for improving knowledge barriers (Akhavan et al., 2014). Figure 4 and Table 2 illustrate the five dimensions of barriers to knowledge flow.

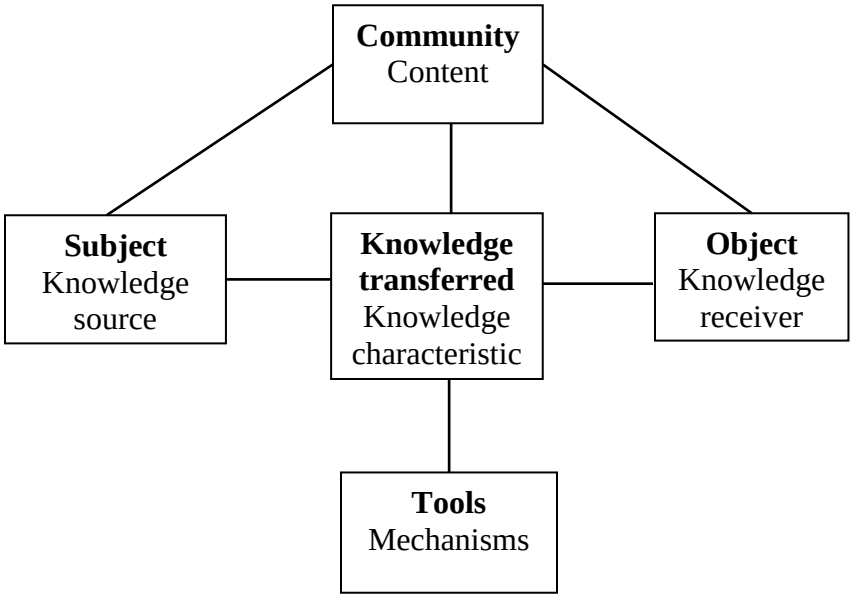

Figure 4. Five dimensions of barriers to knowledge flow. Adapted from "Exploring barriers to knowledge flow at different knowledge management maturity stages," by C. Lin, J. C. Wu, and D. C. Yen, 2012. *Information & Management, 49*, p. 11. Copyright 2011 by Elsevier B.V. Reprinted with permission.

Table 2

Five Dimensions of Barriers to Knowledge Flow

Dimension	Barriers to knowledge flow
Knowledge characteristics	Ambiguity Non-validated knowledge
Knowledge source knowledge	Unwilling to devote time and resources to sharing Fears about job security Low awareness and realization of knowledge sharing Not adequately rewarded Sense of self-worth Poor communication skills Lack of trust in people Knowledge receiver NIH syndrome Lack of absorptive capability Lack of retentive capacity Lack of trust in knowledge

table continues

Dimension	Barriers to knowledge flow
	Untrustworthiness
	Lack of contact time and interaction
	Differences in experience level (i.e. individual perceptions of approachability)
	Difficult relationships
	Lack of awareness
Contextual factors	Culture and cultural characteristics
	Organizational structure
	Poor physical work environment
	Lack of spaces to share
	Excessive size of business units
	Time and resource constraints
	Lack of organizational incentives
	Lack of leadership
	Lack of complete or standard regulations
	Lack of coordination between units
	Geographical dispersion
Context differentiation	Competitiveness
	Different languages
	Overly technical terminology
Mechanisms	Lack of tangible mechanisms such as telephones, conference rooms or computer networks
	Failure to develop a transactive memory system
	Lack of intangible mechanisms such as unscheduled meetings, informal seminars, or coffee break conversations
	Lack of integration of IT systems and processes
	Lack of compatibility among diverse IT systems
	Unrealistic expectations of employees and mismatches with individual needs
	Employees lack familiarity and experience with new IT systems
	Lack of training regarding new IT systems
	Lack of communication with employees about the advantages of the new system

Note. Adapted from "Exploring barriers to knowledge flow at different knowledge management maturity stages," by C. Lin, J. C. Wu, and D. C. Yen, 2012. *Information & Management, 49*, p. 12. Copyright 2011 by Elsevier B.V. Reprinted with permission.

The effective use of knowledge management within an organization depends on overcoming the barriers that may hinder the transfer of current knowledge (de Bem et al., 2016). Although barriers can prevent the flow of knowledge within an organization, there are three significant layers for improving knowledge management barriers within in project-based organizations (Akhavan et al., 2014). The first layer for improving barriers are (a) organizational policy, (b) organizational culture, and (c) organizational structure (Akhavan et al., 2014). The second layer includes (a) the support of the board of directors and project managers, (b) revising project goals, (c) technology, and (d) education (Akhavan et al., 2014). The final layer includes (a) systemic documenting, (b) pilot testing, (c) motivation, (d) being attentive towards R&D, (e) having a network of experts, and (f) evaluation (Akhavan et al., 2014). These layers form a conceptual framework for improving knowledge management barriers that project management business leaders can use within their project-based organizations (Akhavan et al., 2014).

Knowledge Management Processes and Resources

As knowledge flows throughout organizations, the process of transferring knowledge will depend on the culture of the organization (Wiewiora et al., 2013). Organizational leaders will need to have processes in place for the establishment of knowledge and learning to remain successful within their industries (Pemsel et al., 2014). Because knowledge management can result in a sustainable competitive advantage for organizations, organizational leaders should effectively use knowledge management processes for sharing knowledge (Miklosik & Zak, 2015). Knowledge management capability is the means for developing knowledge processes for transferring knowledge

(Pebrianto, 2013). There are four types of variables dimensions of knowledge management capability: (a) structural knowledge resource, (b) cultural knowledge resource, (c) human knowledge resource, and (d) technical knowledge resource (Pebrianto, 2013). Structural knowledge resource involves how employees work together to share existing knowledge and develop new knowledge (Pebrianto, 2013). Cultural knowledge resource involves how knowledge contributes to the success of an organization and the skills employees bring (Pebrianto, 2013). Human knowledge resource involves comprehending the tasks around a project (Pebrianto, 2013). Technical knowledge resource involves the adoption of resources that may contribute to the daily operation of an organizational use of knowledge (Pebrianto, 2013). Many organizations do not have the adequate resources to encourage project learning due to its size (Bartsch et al., 2013). However, through a project learning roadmap, leaders can successfully improve project learning because a project learning roadmap is a tool that can help with the lessons learned processes for projects (Carrillo, Ruikar, & Fuller, 2013).

ISO 21500:2012 (ISO 21500) and *PMBoK® 5 A Guide to the Project Management Body of Knowledge (PMBoK® Guide),* are two guides project managers can use to select the best processes and techniques to improve project management within their organizations (Varajão, Colomo-Palacios, & Silva, 2016). Through the implementation of *ISO 21500*, project managers will have a pocket guide of the standard, concepts, and processes of project management (Stellingwerf & Zandhuis, 2013). The *ISO 21500* is a guide that project managers can use to acquire project management knowledge and good practices (Stellingwerf & Zandhuis, 2013). Project managers can

use this guide regardless of their organization or project type (Varajão et al., 2016). Project managers can use the *PMBoK® Guide* to help project managers manage projects or understand project management concepts (Varajão et al., 2016). The *PMBoK® Guide* contains project management concepts and processes, the project management life cycle and project life cycle, and the global guidelines and standards that all project managers can use to manage their projects (Project Management Institute, 2013). However, project managers and their project teams should not be consistent with these standards and guidelines, but apply them based on the appropriateness of the projects (Project Management Institute, 2013). Finally, having a project management office can help with the alignment of project-based organizations and resources for knowledge (Pemsel & Wiewiora, 2013). Managers will need to review their knowledge resources to effectively manage knowledge (AF Ragab & Arisha, 2013).

Managing knowledge processes depends on the knowledge management strategy of an organization (Bosua & Venkitachalam, 2013). Knowledge management strategy derives from exploration and exploitation, where the selection of explicit and implicit choices occurs (Kushwaha & Rao, 2015). Aligning knowledge management strategy and knowledge management process can be an unsuccessful task for many organizations (Bosua & Venkitachalam, 2013). Implementing the right knowledge management processes can result in successful knowledge organizations (Kushwaha & Rao, 2015). The transformation of knowledge should occur between individuals across each function of an organization to transform current knowledge into new knowledge for organizational learning (Hsu, Chu, Lin, & Lo, 2014; Nieves & Haller, 2014). With projects come the

creation of new knowledge; however, there should be pre-conditions mechanisms to knowledge creation such as social dimensions, personal knowledge, and problem-solving capacities (Canonico, Söderlund, De Nito, & Mangia, 2013). In addition to the pre-conditions, there should be practices supporting knowledge creation (Canonico et al., 2013). Using the knowledge and experiences of employees can bring about positive changes to the current resources within organizations (Nieves & Haller, 2014). Gaining feedback from employees may motivate them to share knowledge because many employees are not sharing knowledge within their organizations (S. Wang et al., 2014). Through knowledge management, project team members can bring their knowledge to projects in which other team members can learn from (Reich, Gemino, & Sauer, 2014).

Knowledge Learning Methods

Effective learning results in knowledge creation (Nikooravesh, Parpoochi, & Davoudi, 2016). Learning is the process of obtaining knowledge from one's experience or through study (Nikooravesh et al., 2016). Establishing lesson learned practices are valuable to organizations because lessons learned results in a constant learning process (Love, Teo, Davidson, Cumming, & Morrison, 2016), and provide organizational leaders with the ability to learn from current knowledge for future successes (Chirumalla, 2016). Project learning takes place from the beginning of projects up until to the end of projects (Jugdev & Mathur, 2013). As project management business leaders obtain new knowledge, there should be a process implemented for housing and preserving the new knowledge for use by project team members (Leal-Rodríguez et al., 2014). Organizations will need to have a learning culture so employees can continuously learn and gain

knowledge (Werner et al., 2015). Organizational leaders can establish collaborative settings where employees can collaborate (Beckers et al., 2015) and discuss their opinions and ideas to bring about new knowledge as a team (Y.S. Wang, Li, Lin, & Shih, 2014).

Team-based learning is when team members come together to collectively share their own intelligence and discuss team activities for effective learning (Nikooravesh et al., 2016). Team members can learn from their experiences, develop new knowledge, and transfer this knowledge throughout their organization (Nikooravesh et al., 2016). The intra-organizational social capital of project teams is essential for project learning and innovation within project-based organizations (Bartsch et al., 2013). Through social capital, project managers can establish social ties between members within and outside the project teams for project learning (Bartsch et al., 2013). Human resource systems can motivate knowledge sharing; thus, motivating employees to learn (Monks et al., 2016). When individuals are learning from a situation, they will direct themselves to people who have experienced similar situations (Thorgersen, 2014). This process will allow people to gain perspective on the outcome of their situations (Thorgersen, 2014).

Project learning is important for project teams; however, organizational learning is a key factor for project-based organizations as a means of transferring knowledge throughout the entire organization to increase performance (Bartsch et al., 2013). Organizational leaders will need to use collaborative tools that can result in knowledge sharing for lessons learned and not knowledge hoarding (Rosa, Chaves, Oliveira, & Pedron, 2016). For learning to occur within organizations, there should be a means for

absorbing knowledge (Leal-Rodríguez et al., 2014). By absorbing knowledge, also known as absorptive capacity, organizational leaders can establish daily measures and procedures for assimilating, transforming, and exploiting knowledge, which can result in innovative practices (Leal-Rodríguez et al., 2014). Project teams can achieve learning through social interactions with one another (Sense, 2013). Employees will need to socialize with each another to remove knowledge within to capture knowledge (C. Hume & Hume, 2016). Projects can contribute to the knowledge of individuals, thus allowing individuals to learn from projects (Bartsch et al., 2013). The communications people have with each other results in learning and the transfer of knowledge (Rahman & Muktar, 2014).

Project management business leaders can apply learning techniques through personal interactions at team meetings to discuss the lessons learned (Carrillo et al., 2013). Lessons learned is a reflection on the positive or negative impact of lessons for knowledge management and organizational learning which can result in competitive advantage (Carrillo et al., 2013). There are four types of project learning: (a) population-to-project learning, (b) organization-to-project learning, (c) project-to-project learning, and (d) project-to-organization learning (Bartsch et al., 2013). Population-to-project is the process where learning occurs for individual projects (Bartsch et al., 2013). Organization-to-project learning is the process where the exploitation of new technology occurs for projects (Bartsch et al., 2013). Project-to-project learning is the process where project knowledge is available for other projects (Bartsch et al., 2013). Project-to-organization

learning is the process where project knowledge is available for an entire project-based organization (Bartsch et al., 2013).

When individuals within a firm perceive knowledge, the effect on the organization is small if someone leaves because the knowledge is still there through other individuals (Tortorella & Fogliatto, 2014). This practice results in organizational learning. Nieves and Haller (2014) defined two types of organizational learning that occur within companies: declarative organizational knowledge and procedural organizational knowledge. Declarative organizational knowledge derives from facts while procedural organizational knowledge derives from processes (Nieves & Haller, 2014). The more knowledge organizations can gain from their employees who are familiar with current roles and assignments, the better these organizations can gain opportunities that can positively influence their environment (Nieves & Haller, 2014). Learning allows the avoidance of future mistakes (Nesheim & Gressgård, 2014). Through knowledge management, organizations can effectively implement effective lessons learned processes for employees, thus potentially improving the organization and increasing its competitive advantage (An, Deng, Chao, & Bai, 2014).

Competitive Advantage

The driving force behind competitiveness within organizations is knowledge (Pemsel, Müller, & Söderlund, 2016). Knowledge management practice strategies positively influence organizational performance and increase the competitive advantage of an organization on a long-term basis (Delen, Zaim, Kuzey, & Zaim, 2013; Nesbitt & Barton, 2014; Villar et al., 2014). By having component project managers, organizations

can have ongoing project success (Hwang & Ng, 2013). Encompassing the right skills and knowledge for project management will make an effective project manager (Hwang & Ng, 2013). Not having the knowledge management skills for leveraging knowledge can cause a decrease in the competitive advantage of organizational sustainability (Peng, 2013). Some managers should adopt strategic processes to mitigate knowledge leakage to competitors and protect the competitive knowledge within the organization (Ahmad, Bosua, & Scheepers, 2014). Knowledge leakage is the process of leaking sensitive, company-wide information to other organizations (Ahmad et al., 2014). When knowledge leakage occurs, this may limit future knowledge sharing within an organization (Ahmad et al., 2014).

Knowledge management is an innovative source of competitive advantage within organizations (Miklosik & Zak, 2015); however, implementing knowledge management practices are not a requirement within organizations for creating sustainable competitive advantage (Alegre et al., 2013). The competitive advantage of an organization can result from various knowledge sharing practices (Sarala, Junni, Cooper, & Tarba, 2014). Internal knowledge transfer within firms will result in a competitive advantage; however, gaining external knowledge will also contribute to an organization's success (Colakoglu, Yamao, & Lepak, 2014). The performance of an organization will also influence its competitive advantage (Kim et al., 2014). Knowledge management processes aid in the generation of innovation (Costa & Monteiro, 2016). Knowledge management not only brings about innovative performance, but it increases the competitive advantage of an organization (Lee, Foo, Leong, & Ooi, 2016). Knowledge management increases

innovation within an organization; thus, improving the overall performance of the firm within the competitive market (Alegre et al., 2013). Through knowledge sharing, the creation of organizational knowledge may occur; thus, creating competitive organizational value (Sorakraikitikul & Siengthai, 2014).

In summary, for organizations to continue to have a competitive advantage, organizational leaders would need to create valuable knowledge (McIver, Lengnick-Hall, Lengnick-Hall, & Ramachandran, 2013) because the creation of knowledge can result in innovation (Canonico et al., 2013; see Figure 5).

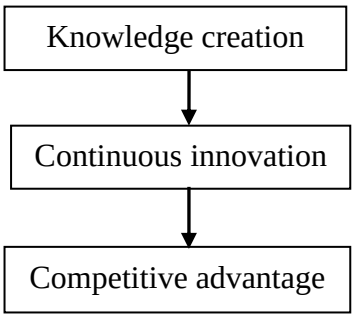

Figure 5. A diagram showing the result of organizational knowledge creation. Adapted from *The knowledge-creating company: How Japanese companies create the dynamics of innovation*, by I. Nonaka and H. Takeuchi, 1995, p. 6. New York, NY: Oxford University Press. Copyright 1995 by Oxford University Press, Inc. Reprinted with permission.

The establishment of knowledge management processes and resources can result in the transfer of new knowledge throughout an organization (Villar et al., 2014). However, there are barriers to knowledge management (Lotti Oliva, 2014). As knowledge flows from projects, individuals can continuously learn from projects (Bartsch et al., 2013). The research question, method and design, and the conceptual framework of knowledge management were appropriate for this qualitative, descriptive, multiple case study. These elements correlated together for the exploration of the knowledge management practice

strategies that project management business leaders use to improve knowledge sharing in project-based organizations within metro Atlanta.

Transition

This qualitative, descriptive, multiple case study involved exploring the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. The use of a descriptive, multiple case study was appropriate for this research study to research and gain the perspectives of project management business leaders within their organizations. Also, the research method and research design were appropriate for gaining the perspectives of project team members. The implementation of the knowledge management conceptual framework was the basis for understanding these observations. The research study will contribute to an effective practice of business if project management business leaders can understand and implement knowledge management practice strategies for knowledge sharing, which was evident in the literature review. The literature review contained a detailed analysis of the knowledge management framework, along with five additional categories: (a) knowledge transfer approaches, (b) knowledge management barriers, (c) knowledge management processes and resources, (d) knowledge learning methods, and (e) competitive advantage.

The next section of this research study, Section 2, includes important details of the project such as the participants, further insights into the Nature of the Study within Section 1, the data collection and analysis, and the reliability and validity of the data. The purpose of this section was to understand fully the steps for interviewing participants,

collecting and organizing data, and interpreting data for analysis. The last section, Section 3, includes the findings and recommendations of the research problem. The purpose of this final section was to present the findings from the data collection, provide recommendations to the research problem, and explain how the findings and recommendations can improve project-based organizations and contribute to social change.

Section 2: The Project

Previous research on knowledge sharing has focused on knowledge transfer approaches throughout various organizations (Aguinis et al., 2013; J. Zhao et al., 2014). The purpose of this qualitative, descriptive, multiple case study was to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. When people are willing to communicate their knowledge, others can gain more insights into needed information (Werner et al., 2015). Section 2 includes specifics on the project participants and population, along with the justification for using the selected research methodology and design, and data collection techniques.

Purpose Statement

The purpose of this qualitative, descriptive, multiple case study was to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. The specific population group for this research study was project management business leaders who worked for four project-based organizations within the metropolitan areas of Atlanta, Georgia (metro Atlanta) in the United States. Additionally, project team members from the project-based organizations participated in a focus group to provide their perspectives. The project team members were employees of project management business leaders. Knowledge sharing can lead to knowledge generation, organizational learning, and an increase in competitive advantage and organization sustainability (Moustaghfir & Schiuma, 2013); therefore, the research study may contribute to social change and influence business practices of project

management business leaders. The establishment of communities of practice across the community (L. Lee et al., 2015) may consequently result from this study.

Role of the Researcher

My role in this descriptive, multiple case study was to understand the actual case, to collect, organize, and analyze data, and to strengthen the reliability and validity of the data. I followed the data collection process outlined by Yin (2013a, 2013b). The data collection process for this descriptive, multiple case study did not occur until approval from the Walden University's Institutional Review Board (IRB). Walden University's approval number for this study was 12-28-16-0447532. By securing this approval, IRB confirmed my plan for mitigating any issues outside of the ethical standards of this descriptive, multiple case study when I obtained human subjects as participants based on the Belmont Report. The Belmont Report is a guide for the protection of humans when conducting research (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, The, 1978). I prepared research procedures for the data collection and conclusion process and followed the interview protocols when interviewing participants (see Appendices C & D). Having an interview protocol limits any potential omission when interviewing participants because there is a guide for the interview (Boehm & Hogan, 2014).

The most important step of the interview protocol is the informed consent form. All research participants should sign and submit an informed consent form before beginning interviews (Cummings, Zagrodney, & Day, 2015). All participants of this descriptive, multiple case study had up to 3 days prior to the scheduled interview to sign

and receive a copy of their signed informed consent form. The informed consent form was comprehensible to the participants because there was a separate informed consent form for the project management business leaders and a separate informed consent form for the project team members of the focus group (see Appendix G). After the collection of the signed informed consent forms, participants completed semistructured interviews through Skype/phone interviews based on the interview questions (see Appendix E). Various authors such as Gamo-Sanchez and Cegarra-Navarro (2015) and Werner et al. (2015) conducted semistructured interviews for their knowledge management and knowledge transfer research. The collection of additional data occurred through an interview questionnaire that was completed by the focus group participants (see Appendix E). The project team members completed the interview questionnaire at the start of the focus group discussion. After the completion of the data analysis, member checking occurs to provide participants the opportunity to review the interpretation of the data for any discrepancies and to validate the data (Benes, Mazerolle, & Bowman, 2014), which occurred for this study.

There should be no researcher bias when conducting interviews with participants and analyzing data (Yin, 2013b). I was the program manager for a nonprofit organization in the metro Atlanta area. Because the focus of this descriptive, multiple case study was on project management business leaders and project-based organizations in metro Atlanta, there was a potential for researcher bias during the interaction with the study participants. By having some of the same shared experiences as the study participants, I did not involve my prior experiences in this descriptive, multiple case study. Self-

involvement should not occur when conducting research (Berger, 2015). To mitigate this bias, no prior relationships occurred between the participants, the project-based organizations, and myself. There were no leading questions or omission of data for this study. During the interview process, there should be no leading questions that could cause participants to provide expected responses (Roulston & Shelton, 2015). During the data analysis process, there should be no omission of data because this could sway the results of the research (Roulston & Shelton, 2015). Per Yin (2013b), to counteract bias, the incorporation of previous research data collections techniques needed to occur within this descriptive, multiple case study. When interacting with participants, using previous data techniques rather than personal feelings and experiences, will mitigate personal bias (Berger, 2015). Finally, I implemented bracketing to mitigate researcher bias during the data collection and analysis process. Bracketing is a methodological device for establishing validity in the research, so the findings are accurate to the participants (Chan, Fung, & Chien, 2013). I achieved bracketing through the reflexivity activity of putting away my own knowledge throughout the research process. Reflexivity is an activity where researchers think about potential influences around their research study (Chan et al., 2013). By becoming aware of ones' personal "values, interests, perceptions, and thoughts," any prejudgments that may occur within the research are limited (Chan et al., 2013, p. 3).

Participants

The population for this descriptive, multiple case study were project management business leaders within project-based organizations. Therefore, the eligibility criterion

was for participants to be project management business leaders in their project-based organizations. Participants had experience with knowledge management practice strategies for improving knowledge sharing in their project-based organizations. Participants meeting this criterion aligned with the research question. The term *project management business leaders*, referred to project managers, project directors, and senior project managers. Using project management business leaders for this study was important because the project management business leaders provided their experiences about the knowledge management practice strategies they implemented for knowledge sharing within their project teams.

Additional participants for this descriptive, multiple case study included a focus group of project team members. The term *project team members*, referred to project team leaders, project coordinators, and project employees. The eligibility criteria for participants within the focus group were project team members who had worked for or with project management business leaders. The focus group consisted of one to two project team members per organization, totaling five focus group participants. The project team members had experience with knowledge management practice strategies for improving knowledge sharing and project learning in their project-based organizations.

The sampling technique for obtaining the participants was a purposeful sample with no race or gender restrictions. Conducting purposive samples guarantee participants are knowledgeable and meet the criterion of the research topic (Yin, 2013b). Project management business leaders of this study had a minimum of 2-3 years of experience,

and I was, therefore, able to obtain responses from more experienced individuals. However, members of the focus group had a minimum of 1-2 years of experience working in their project-based organizations. There was no age requirement for participants. During Verburg, Bosch-Sijtsema, and Vartiainen's (2013) research study, there was no age limit for project managers. In Razmerita, Kirchner, and Nielsen's (2016) research study, the level of experience was less than 5 years of experience. The recruitment of project management business leaders and project team members occurred through the Project Manager Network, the Project Management Institute, and through project-based organizations. The recruitment process occurred in a non-coercive manner to avoid the use of participants with whom I had prior relationship. The Project Manager Network is a social media group with over 700,000 members (LinkedIn, 2015). The Project Manager Network provides access to project managers worldwide (iMedia Ventures, LLC, 2013).

The Project Management Institute is a professional membership organization with members of project, program, or portfolio management backgrounds (Project Management Institute, 2015). The Project Management Institute has voluminous Chapters worldwide with over 2.9 million members (Project Management Institute, 2015). For this descriptive, multiple case study, the selection of participants through the Project Management Institute occurred through the Project Management Institute Atlanta Chapter. The Project Management Institute Atlanta Chapter has over 4,000 members throughout metro Atlanta (Project Management Institute Atlanta Chapter, 2015). Through e-mail communication, I requested permission from both public social media groups to

contact its members for this descriptive, multiple case study (see Appendix F). I contacted members directly through their online group member profiles to request their participation in this descriptive, multiple case study. All participants from the public social media groups remained confidential. Securing a letter of cooperation from participating organizations is a requirement before contacting participants (Begna, Assegid, Kassahun, & Gerbaba, 2013); however, because I was not using the project-based organizations to contact the participants or obtain any private data from the project-based organizations, there was no need for a letter of cooperation. I could initially contact participants directly via e-mail. After I obtained IRB approval, an invitation e-mail went out to all potential participants to request their participation in the research (see Appendix H).

During the participants' recruitment process, I searched for project management business leaders and project team members who worked for the same project-based organizations within metro Atlanta, Georgia. Both social media groups included a list of their members' names, photos, geographical regions, job titles and industries, and link to send a direct message to the members. Engaging in this method was beneficial because I already had a predetermined list of project team members whom I contacted when it was time to conduct the interview with the focus group. All interviews with the project management business leaders occurred before the focus group. The focus group participants had the opportunity to review a summary of the project management business leaders' responses and provide their perspectives. I did not inform the participants' employers (project-based organizations) of their participation in the study. There was no

identification of the project management business leaders within the summary to maintain their privacy, and the names of the participants' employers remained confidential. The Project Manager Network and the Project Management Institute social media groups were good methods for obtaining study participants who worked for project-based organizations and establishing a working relationship with the participants.

Having a working relationship with research participants involves being respectful and maintaining ethical obligations (Jarvik et al., 2014). Although there were no prior personal relationships with the participants of this descriptive, multiple case study, having a working relationship with the participants helped them remain comfortable throughout the interview process. Gamo-Sanchez and Cegarra-Navarro (2015) followed up with potential participants before their interviews and provided participants with valuable details of the research study, thus building a working relationship with participants. I engaged participants by following up with them at least two days before the interview to ensure they had all the details they needed prior to beginning the interview. Once the interview was complete, participants had one day to call or e-mail me with any additional information on knowledge management that was relevant to this descriptive, multiple case study.

Research Method and Design

There are three different types of research methods for scholarly writing: (a) qualitative, (b) quantitative, and (c) mixed methods (Zou et al., 2014). The appropriate research method for this research study was a qualitative method. The purpose of this

section was to provide a justification for using a qualitative research method and a case study research design for this descriptive, multiple study.

Research Method

Qualitative research was appropriate for this research study because qualitative research is a method that can involve observing participants and obtaining their experience on a phenomenon (Zou et al., 2014). The definition of experience is the involvement in various activities, which results in knowledge and the establishment of constant learning by individuals (Roth & Jornet, 2014). Critics have argued how qualitative researchers are opinionated (Zou et al., 2014); however, qualitative researchers find the importance in observing a case to interpret the meaning around the observation (Stake, 1995). Quantitative and mixed methods research were not appropriate for this research study because the purpose was to explore the knowledge management practice strategies that project management business leaders use to improve knowledge. A quantitative research method allows researchers to use various data collection tools such as surveys and experiments for testing hypotheses to determine the relationships between variables (Bölte, 2014).

This research study did not require testing hypotheses; therefore, quantitative was not appropriate. The focus of quantitative research is on hard data such as the statistical analysis of numbers (Zou et al., 2014). Quantitative research also comes with various criticisms such as the objectivity of the study (Zou et al., 2014). Mixed methods research was not appropriate for this research study either because mixed methods research is the combination of both research methods for comparing the similarities and contrasting the

differences of the results (Venkatesh et al., 2013; Zou et al., 2014). There are criticisms of mixed methods research such as the findings of qualitative and quantitative research may yield different results (Zou et al., 2014). However, by using mixed method research, researchers can compare the similarities and contrast the differences in the characteristics of the phenomenon and use various approaches for analyzing their statistical findings (Venkatesh et al., 2013).

Research Design

The research design for this research study was a descriptive, multiple case study. Case study research is a common, but challenging method (Yin, 2013b). Many researchers have used case study research design to explore knowledge management practice strategies for improving knowledge sharing within organizations. For instance, Gamo-Sanchez and Cegarra-Navarro (2015) conducted a study to explore the knowledge process management practices within the engineering and maintenance department of a Spanish airport. In another example, Donate and de Pablo (2015) researched the leadership roles of developing knowledge management practices for innovation in technology firms. However, existing research on knowledge management practice strategies did not fully explore implementing the knowledge management practice strategies of project management business leaders in project-based organizations.

The remaining research designs were not appropriate because of the focus and purpose of this descriptive, multiple case study did not coincide with the objective of the other research designs. Phenomenological research only focuses on the lived experience surrounding a phenomenon (Moustakas, 1994). Ethnography research involves

researching the organizational culture of a work group and narrative research requires full stories of the study participants (Zou et al., 2014). Case study was chosen over other qualitative designs because the purpose of this research study was not only to explore the knowledge management practice strategies of project management business leaders, but also to determine if these strategies improve knowledge sharing in project-based organizations. Conducting a case study is a means of exploring the complex phenomena and lived experiences around a case (Yin, 2013b, 2014). A case study is a research design for providing specific details of a complex phenomenon in its actual setting (Yin, 2013a).

For a case study, the phenomenon is the case under investigation (Yin, 2013a). The case for this research study was descriptive and pertained to the knowledge management practice strategies project management business leaders use to improve knowledge sharing in project-based organizations. A descriptive case study describes the phenomenon around the case in real-life situations (Yin, 2014). The descriptive, multiple case study revolved around four project-based organizations in metro Atlanta until data saturation occurred. When there is no new data, this results in no new themes; thus, allowing data saturation to occur (Fusch & Ness, 2015).

During the interview process, Skype/phone interviews occurred with two to three project management business leaders per organization, totaling nine participants. The focus group discussion occurred in-person with one to two project team members per project-based organization, totaling five focus group participants. The initial coding of the data revealed reoccurring themes from the participants to reach saturation. If data

saturation did not occur during the initial coding, further interviews would have occurred continuously with participants to reach data saturation (Akbar & Mandurah, 2014).

Population and Sampling

The population for this descriptive, multiple case study was project management business leaders, who worked for four project-based organizations within the metropolitan areas of Atlanta, Georgia (metro Atlanta). The sampling technique for the population was a purposeful sample. Morley, Cormican, and Folan (2015) used purposeful sampling to gain as much information on their research topic. Conducting a purposeful sample of participants within an organization eliminates all other individuals from the research who will not go through the interview process (Lalor et al., 2013). This sampling technique provides the opportunity for experienced participants to complete the interview process (Yin, 2013b). The purpose of this descriptive, multiple case study was to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. Thus, the sample population group had knowledge management and knowledge sharing experiences. Participants who were project management business leaders were currently or had previously held a position as a project manager, project director, or senior project manager. Participants of the focus group were currently or had previously been a project team member (i.e. project team leader, project coordinator, or project employee) of a project management business leader.

All participants of this research study originated from four project-based organizations. This study had two to three project management business leaders per

organization, totaling nine participants for the interview process. Additionally, there were one to two project team members per organization, totaling five focus group participants. The relationship between the project management business leaders and the project managers was a working relationship. The project team members worked for project management business leaders within the four project-based organizations to gain their perspectives. Two of the project team members had a working relationship as well because they worked for the same project-based organization, but this working relationship was not a requirement. A multiple case study was appropriate to compare the similarities and contrast the differences of a case within multiple organizations (Yin, 2013b). The goal was to interview the participants and analyze the data to achieve saturation. Lech (2014) interviewed participants until reaching data saturation. I interviewed some of the project management business leaders from each project-based organization to generate reoccurring themes to reach data saturation. I obtained participants from large project-based organizations to have enough project management business leaders for data saturation. Wiewiora et al. (2013) also conducted their research study with four large project-based organizations.

To maintain the privacy of the interviews, the interview settings for the project management business leaders occurred through a Skype/phone interview to give participants an opportunity to speak about their knowledge management and knowledge sharing experiences in a one-on-one private setting. Mitra and Buzzanell (2017) used the same process when they interviewed their study participants. The interview setting for the focus group occurred within an off-site location at a hotel meeting boardroom in metro

Atlanta, Georgia. The focus group occurred in a prescheduled in-person group discussion for participants who worked for project management business leaders. The focus group contained participants from each of the four project-based organizations. Carrillo et al. (2013) conducted in-person interviews with their focus group. Before beginning the focus group discussion, all participants answered the interview questions by completing the questionnaire (see Appendix E). After completing the interview questionnaire, all participants provided their perspectives regarding the project management business leaders' responses to the interview questions.

Ethical Research

All participants of this descriptive, multiple case study completed and signed a copy of the informed consent form (see Appendix G). An informed consent form provides participants with background details of the research such as the purpose, procedures, payments, privacy, the withdrawal process, any potential risks or benefits of the research study, and a statement of consent (Cummings et al., 2015). An invitational e-mail went out to all potential participants, via e-mail from their Project Manager Network and Project Management Institute profiles, to request their participation in the research (see Appendix H). Participants who agreed to participate provided their personal contact information and received the informed consent form via their e-mail account. An introductory e-mail did not accompany the informed consent form since the form had all the significant details regarding the research study. Participants had the opportunity to print and review the form, ask any questions they had, or direct their questions to the Walden University representative, Dr. Leilani Endicott. Once the participants signed the

informed consent form, they scanned and e-mailed their forms back to my Walden University e-mail address located on the informed consent form by their interview date. Once I signed the informed consent form, I provided all participants with a copy of the signed informed consent form to keep for their records.

During a voluntary study, participants have the right to withdraw from the study (Cummings et al., 2015). Participation in this descriptive, multiple case study was voluntary. All participants had the option to withdraw from this study if they desired. Participants could notify me of their desire to withdraw by sending a notification to my Walden University e-mail address or contacting my personal mobile phone number located on the informed consent form. Any participant who withdrew would have his or her data removed and shredded to eliminate any prior information from being within the study results.

Refreshments were provided during the in-person focus group discussion; however, this was not an incentive to participate in the descriptive, multiple case study. There were no incentives for participants of this research study. The lack of incentives removes any motivating factors around the participants' responses (Cummings et al., 2015). Many researchers do not offer participants incentives for participating in their research (Bilbo, Bigelow, Rybkowski, & Kamranzadeh, 2014; van der Hoorn, 2015). Instead, by participating in the study and through review of the summary results, participants had the benefit of better understanding the knowledge management practice strategies that project management business leaders use to improve better knowledge sharing in their project-based organizations.

Participants and organizations must remain confidential (Cummings et al., 2015). All participants and organizations of this research study remained confidential, and participants only listed their names on the informed consent form. To keep the participants and organizations confidential, the project management business leaders' numeric number and the alphabetical letter for their organization were listed on the interview transcripts. The project team members received and listed their numeric number and the alphabetical letter for their organization on the interview questionnaire. The project team members' numeric numbers were also listed on the focus group discussion transcript; the alphabetical letters were not. To protect the identity of their research participants, Trimble, Nava, and McFarlane (2013) used numeric numbers to identify their participants. All participants of this descriptive, multiple case study received their own numeric number for this descriptive, multiple case study to maintain their identity. Also, Matthew and Barron (2015) and Verburg et al. (2013) used alphabetical letters as identifying factors to protect the identity of participants. Participants also received the alphabetical letters A, B, C, or D to identify their project-based organization throughout the study. No other individual reviewed the participants signed informed consent forms to keep all participants' names confidential.

To maintain the ethical protection of the research participants, I scanned, uploaded, and saved all research data into an electronic file on my password-protected computer at my home. Mc Veigh et al. (2014) used a password-protected computer to upload and save their research data so no one could have access to the hardcopy files. Also, Forge (2014) shredded the hardcopies of participants' data to keep their

information safe. Therefore, any hardcopies of participants' data for this descriptive, multiple case study went through a shredding process to keep everything secured on the electronic file. To keep all data safe and to protect the rights of the research participants, the storage of the electronic file will occur for 5 years. The final doctoral manuscript includes the Walden IRB approval number 12-28-16-0447532. The doctoral manuscript does not include the names or any other identifiable information of individuals or organizations to maintain the confidentiality of the research participants and their employers. For the member checking process, all participants received a preliminary summary of the findings so they could review the study results. Providing a summary of results to research participants allows them to provide their feedback regarding the data (Lucassen et al., 2015). Participants had two days to review the summary of results and provide any feedback they had. The participants received a final summary of the findings via e-mail to read the results of the study. There were no community partners for this research study; therefore, no organization received a final summary of the findings.

Data Collection Instruments

The data collection instruments for this descriptive, multiple case study included me as the primary data collection instrument, semistructured, Skype/phone interviews, an in-person focus group discussion, and an interview questionnaire completed by the focus group participants. The goal for the data collection instruments was to gain as much data from project management business leaders and focus group participants to identify the knowledge management practice strategies for improving knowledge sharing in project-based organizations. For this study, there was a standard interview protocol for collecting

data from project management business leaders (see Appendix C). Also, there was a standard interview protocol for collecting data from the focus group participants (see Appendix D).

The interview protocol has ground rules for the interview process when interviewing participants (Brubacher, Poole, & Dickinson, 2015). Having an interview protocol can ensure the validation of the interview content; thus, eliminating any unnecessary information (Spangler, Sroufe, Madia, & Singadivakkam, 2014). During the semistructured interviews with project management business leaders, I participated by using the interview questions to identify the knowledge management practice strategies for improving knowledge sharing and project learning in project-based organizations (see Appendix E). During the focus group discussion, project team members reviewed these strategies and provided their perceptions based on current and past experiences within their project-based organizations. Backlund, Chronéer, and Sundqvist (2015) conducted a similar process with their research study. The focus group discussions provided an opportunity for project team members to react to the project management business leaders' responses and provide their responses to the interview questions. Carpenter, Duygulu, Montgomery, and Rapp (2014) had the same occurrence with their research study. The duration of the interviews depended on how long it took the participants to respond to the interview questions. However, I asked for 30 to 45 minutes of the project management business leaders' time and 45 to 60 minutes of the focus group's time to conduct the interviews.

Before conducting the interviews with the project management business leaders and focus group, everyone received a copy of the interview questions to have in advance (see Appendix E). Hanley, Fileborn, Larcombe, Henry, and Powell (2015) also provided their interview questions in advance to participants. Like Farrell, Nayfack, Smith, and Wohlstetter's (2014) research study, participants had the opportunity to provide relevant public company documents to confirm their responses; however, no documents were provided for this study. Reliability and validity of the data can occur through member checking (D. Zhao, Zuo, & Deng, 2015). I enhanced the reliability and validity of the data collection instrument and process by implementing member checking with the participants. If the data interpretation and analysis does not yield reliable and valid data results, research study participants should have the opportunity to provide a better clarification of their responses from the initial interviews (Carlson, 2010). Because there were reliable and valid data results, participants did not have to provide further clarification. Participants can view the interview protocol, focus group protocol, and interview questions in the appendices section of this research study. A list of the appendices is within the Table of Contents for easy accessibility.

Data Collection Technique

Data collection is a learning process for setting the standards for acquiring future data (Marshall & Rossman, 2014). Before beginning interviews for a research study, a pilot study may occur to validate the data collection instrument (D. Zhao et al., 2015). Conducting a pilot study is also a way of ensuring the achievement of accurate data during the actual research study (Morley et al., 2015). However, for this descriptive,

multiple case study, a pilot study did not occur due to the design of the study. The data collection techniques for this descriptive, multiple case study were semistructured, Skype/phone interviews, an in-person focus group discussion, and an interview questionnaire completed by the focus group participants. For the semistructured, Skype/phone interviews and in-person focus group discussion, all participants received a copy of the interview questions in advance (see Appendix E). Participants received the interview questions with the informed consent form. The interview settings for the project management business leaders occurred through a Skype/phone interview to give participants an opportunity to speak about their knowledge management and knowledge sharing experiences in a one-on-one private setting. The interview setting for the focus group occurred within an off-site location at a hotel meeting boardroom in metro Atlanta, Georgia. The focus group occurred in a prescheduled in-person group discussion for participants who worked for project management business leaders. During the interviews and focus group, all participants responded to the interview questions. After the completion of the interviews and focus group discussion, member checking occurred so participants could review their interview responses for the validation and interpretation of the data.

There were audio recordings and handwritten notes of all the interviews. During the Skype/phone interviews and in-person focus group, audio recordings occurred on a computerized sound recording device. During Gamo-Sanchez and Cegarra-Navarro (2015) interview process, they taped recorded their interviews, developed detailed notes after the interviews, and transcribed the participants' recordings word for word. The same

process occurred during this descriptive, multiple case study because by using a recording device and taking notes; this helped eliminate any missing information from the interviews. There was no onsite supervision during the interviews. However, interviews with the selected project management business leaders and project team members did not occur until proper approval from the Walden University's IRB. Research participants should receive the informed consent form before starting the interview (Hosseini et al., 2015). All participants of this study received the informed consent form to sign and return via e-mail prior to the scheduled interview.

There were advantages and disadvantages to the data collection techniques. The advantages of the data collection techniques were being able to see the participants' reactions when conducting the Skype interviews and focus group discussion, discussing the responses as a group during the focus group, and having the interview questionnaire as proof of the knowledge management practice strategies. The first disadvantage was participants withdrawing from the research study upon receipt of the informed consent form. To limit this disadvantage, I engaged participants by answering any questions they had and by following up with them at least two days prior to the interview to ensure they have all the details they need prior to beginning the interview. However, there are fewer disadvantages when it comes to conducting focus group discussion interviews because of the social cohesion perception participants have (Carey & Asbury, 2016). The second disadvantage was receiving limited or no responses to question #10 on the interview questionnaire. Z. Wang, Wang, and Liang (2014) had to remove the invalid responses they received from participants' questionnaires. To limit this disadvantage, the project

team members had to verbally communicate their response to question #10 during the focus group discussion. The third disadvantage is project management business leaders not wanting to conduct a Skype interview. To limit this disadvantage, project management business leaders had the choice to conduct a phone interview instead.

After the conclusion of the data analysis and interpretation, through member checking, participants should have the opportunity to check the data analysis and the interpretation of the data for validation (Loufrani-Fedida & Missonier, 2015), which occurred in this study. The objective of member checking was to ensure the interpretation and analysis of the data were accurate enough to yield the data results for identifying the knowledge management practice strategies for improving knowledge sharing in project-based organizations (Carlson, 2010). Through member checking, I learned that the data collection techniques for this descriptive, multiple case study resulted in adequate data from participants.

Data Organization Technique

Data organization is necessary when it comes time to review and fathom the raw data (Garcia-Mila, Marti, Gilabert, & Castells, 2014). Because of the various data collection instruments and techniques for this descriptive, multiple case study, there were different methods for organizing the data. As Gamo-Sanchez and Cegarra-Navarro (2015) did in their research studies, all interviews had audio recordings of the participants to keep track of the data. As Trimble et al. (2013) did in their research study, all participants received a numeric number to identify themselves for this study. Also, as Matthew and Barron (2015) and Verburg et al.'s (2013) did in their research studies,

participants received the alphabetical letters A, B, C, or D to identify their project-based organization throughout this study.

Any data the participants provided such as the interview questionnaire went into the numeric number and alphabetical letter cataloging system by each project-based organization. Notes taken during the interviews also went into the cataloging system and a research journal. Gustavsson, Gremyr, and Kenne Sarenmalm (2016) used a research journal when taking notes during participants' interviews, which gave them the opportunity to review the key points from their interviews. I scanned, uploaded, and had all raw data into an electronic file on my password-protected computer at my home to eliminate any hardcopies as Mc Veigh et al. (2014) did in their research study. I did not share identifiable data with anyone else; thus, there were no confidentiality agreements for this research. After the interviews were completed, I saved the audio recordings as an MP3 file, then uploaded each file into the Transcribe app to manually transcribe the participants' responses from the recordings. I saved the transcriptions onto a Microsoft Word document, then saved the MP3 files into an electronic file on my password-protected computer for 5 years. Also, member checking occurred so the focus group participants could review the interpretation of the data for accuracy. Keeping the original recordings provided an opportunity to re-listen to the interview recordings once the transcriptions were completed to analyze the data for new information. Revsbæk and Tanggaard (2015) re-listened to their recordings as a way of remembering and visualizing the interviews.

Data Analysis

There is no meaning to data until data construction occurs for the data analysis (Schreier, 2012). The data analysis processes for this descriptive, multiple case study were data source triangulation and cross-case synthesis. Data source triangulation is the process of obtaining data from various sources such as individuals and groups during separate interviews or surveys to gather their perspectives regarding the phenomenon (Carter, Bryant-Lukosius, DiCenso, Blythe, & Neville, 2014). Through in-depth interviews with individuals and a focus group of participants, data source triangulation resulted in a better understanding of the phenomenon (Carter et al., 2014). The completion of data source triangulation for this research study occurred through individual interviews with project management business leaders and a focus group discussion and interview questionnaire with project team members from the project-based organizations. When conducting a case study, data analysis can also occur through five analytic techniques: (a) pattern matching, (b) explanation building, (c) time-series analysis, (d) logic model, and (e) cross-case synthesis (Yin, 2013b). Cross-case synthesis was the only technique for analyzing multiple case studies; whereas, the remaining four techniques can apply to both single and multiple case studies (Yin, 2013b). Cross-case synthesis is the process of analyzing and comparing individual data from multiple cases (Yin, 2013b). The completion of cross-case synthesis for this research study occurred through the inclusion of all evidence, rival interpretations, significant points, and my experience. Regardless of the analytic techniques or process, the data analysis must be of high quality (Yin, 2013b).

Through the process of data analysis, data coding can occur to categorize data into themes that can unlock a solution (Pierre & Jackson, 2014). However, for this research study, the data analysis only resulted in categories and themes of the various knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. There was no recommendation of a solution because of this research study. For the data analysis, categories that reoccurred throughout the data collection came from participants' interview transcripts and questionnaires. As mentioned in Bärenfänger, Otto, and Österle (2014) and Yin's (2013b) research, all raw data of this research study also went into an organized case study database, which included a Microsoft Excel spreadsheet, interview transcripts, audio recordings, narratives, interview notes, and observations. After identifying the categories from the data collection, I inputted each category into a Microsoft Excel spreadsheet to organize the data for analysis, as Fitzroy, Weisbrod, and Stein (2014) and Gordon et al. (2014) did in their research. For data source triangulation, the case study database should have the narratives of the interview questions (Katamba et al., 2014). The case study database for this research study had the narratives of the interview questions that the project management business leaders and project team members answered during the initial interviews. Participants of the individual and focus group interviews answered the same interview questions (see Appendix E).

The key themes should be the focus of the data analysis process (M. A. Lee, Hagood, Kingsley, & Hare, 2014). I correlated the key themes with the literature review by categorizing the reoccurring themes into the five categories of (a) knowledge transfer

approaches, (b) knowledge management barriers, (c) knowledge management processes and resources, (d) knowledge learning methods, and (e) competitive advantage, along with the conceptual framework of knowledge management. I continued to add any new research studies to the literature review based on the five categories, conceptual framework, and reoccurring themes. If any data overlapped within the categories, I compared the similarities and contrasted the differences within the categories to bring about reliable data results.

Reliability and Validity

Reliability

The original term for reliability and validity was trustworthiness, which Lincoln and Guba (1985) used to develop the evaluation criteria of qualitative data. The evaluation criterion includes four alternative assessments for trustworthiness: (a) dependability, (b) credibility, (c) transferability, and (d) confirmability (Lincoln & Guba, 1985). Dependability refers to the consistency of data among researchers and how data results will be similar with other researchers regardless of the study (Hays, Wood, Dahl, & Kirk-Jenkins, 2016). Credibility refers to the accurately of the outcomes surrounding the research (Hays et al., 2016). Transferability refers to the generalizability of the results to other participants or situations (Hays et al., 2016). Confirmability refers to the interpretation of participants' perceptions without the bias of the researcher (Hays et al., 2016). To ensure dependability of the data for this descriptive, multiple case study, member checking and triangulation occurred (Carter et al., 2014). Reliability can also

happen through the organization of data within a case study database (Chang, Jiang, Klein, & Wang, 2014).

A case study database may help to ensure the reliability of data results because of the evidence from multiple sources for data triangulation (Yin, 2013b). Also, reliability can happen through a case study protocol (Akbar & Mandurah, 2014; Chang et al., 2014). The case study protocol, which is also known as the interview protocol, may help to ensure reliability because as researchers follow the methods within the protocol, researchers will have the same outcomes (Basten, Michalik, & Yigit, 2015; Chang et al., 2014).

Validity

Credibility, transferability, and confirmability are non-measurable evaluation criterion for qualitative data (Lincoln & Guba, 1985). However, each of the three criteria can ensure the validity of the data. Credibility can ensure validity through triangulation and member checking (Carter et al., 2014). Triangulation ensures the validity of the data when presenting the data results (Fusch & Ness, 2015). Through the method of data triangulation, data saturation can occur (Fusch & Ness, 2015). Member checking ensures the validity of the data when participants can provide feedback regarding the interpretation of the data and the findings of the research (Burda, van den Akker, van der Horst, Lemmens, & Knottnerus, 2016). Each of these methods may allow for the transferability of information to readers and for future research (Elo et al., 2014). Confirmability of the data may also occur for comparing the data between participants (Elo et al., 2014). Unfortunately, credibility, transferability, and confirmability may not

result from the data if data saturation does not occur. Interviews occurred continuously until there were no new themes during the interview process to ensure that data saturation occurred within this qualitative, descriptive, multiple case study (Vieru & Rivard, 2014). For the validity of the data, readers should have a clear understanding of the data results creation process, the data analysis, and the conclusion of the data results (Elo et al., 2014; Schreier, 2012).

Transition and Summary

The purpose of this qualitative, descriptive, multiple case study was to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. The multiple case study sites were four project-based organizations in metro Atlanta. Participants were project management business leaders and a focus group of project team members. My role in this research study was to understand the actual case, to collect, organize, and analyze data, and to strengthen the reliability and validity of the data. The assurance of reliability and validity was through member checking, data source triangulation, cross-case synthesis, a case study database, and a case study protocol. The last section, Section 3, comprises of the findings and recommendations of the research project.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative, descriptive, multiple case study was to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. The purpose of this final section is to present the findings from the data collection, provide recommendations to the research problem, and explain how the findings and recommendations can improve project-based organizations and contribute to social change. The findings from this research study resulted in the six key themes of (a) communication, (b) practices to overcome barriers, (c) centralized resource center, (d) training and development, (e) technology, and (f) informational briefings. I correlated the key themes with the literature review by categorizing the reoccurring themes into the five categories of (a) knowledge transfer approaches, (b) knowledge management barriers, (c) knowledge management processes and resources, (d) knowledge learning methods, and (e) competitive advantage, along with the conceptual framework of knowledge management.

Presentation of the Findings

The research question for this study was as follows: What knowledge management practice strategies do project management business leaders use to improve knowledge sharing in project-based organizations? The findings from the data analysis resulted in the key themes of (a) communication, (b) practices to overcome barriers, (c) centralized resource center, (d) training and development, (e) technology, and (f) informational briefings, which allowed me to answer the research question. The data

collection for this qualitative, descriptive, multiple case study consisted of individual Skype/phone semistructured interviews with nine project management business leaders, an in-person focus group discussion with five project team members, and an interview questionnaire completed by the focus group members.

All participants of this research study were employees of project-based organizations in metro Atlanta, Georgia. All participants provided their perspectives regarding the knowledge management practice strategies that are used to improve knowledge sharing in their project-based organizations. The individual interviews with the project management business leaders and the focus group discussion with the project team members resulted in many patterns that led to the six key themes. All the themes were consistent with findings from existing literature on knowledge management for effective business practice.

The first theme, communication, provides project managers, project team members, and organizational leaders with simple methods for transferring knowledge within their project-based organizations, which was also evident in Lin et al. (2012) and Rahman and Muktar's (2014) research. The second theme, practices to overcome barriers, provides organizational leaders with processes for improving knowledge barriers, which was also evident in Akhavan et al. (2014) and de Bem et al.'s (2016) research. The third theme, centralized resource center, is a source for knowledge storage within organizations, which was also evident in Villar et al. (2014) and Walker's (2016) research. The fourth theme, training and development, provides organizational leaders with various method for training and developing their project managers and project team

members, which was also evident in Lin et al. (2012), Nesheim and Gressgård (2014), and J. Zhao et al.'s (2014) research. The fifth theme, technology, provides ways for an organization to have a competitive advantage over other organizations, which was also evident in Delen et al. (2013), Nesbitt and Barton (2014), and Villar et al.'s (2014) research. The sixth theme, informational briefings, provides project managers, project team members, and organizational leaders with knowledge sharing mechanisms for improving knowledge management within their organizations, which was also evident in Almeida and Soares (2014), Carrillo et al. (2013), and Navimipour and Charband's (2016) research.

Table 3

Project Management Business Leaders' Interview Patterns and Themes

Categories	Pattern	Theme
Knowledge transfer approaches	Verbal communication Leverage past experiences Routine meetings Talk to other project managers Talk to peers across the organization E-mail distributions Relationship-building and networking Discuss what has worked before or currently	Communication
Knowledge management barriers	Be receptive to make changes Leadership ensure people are aware Briefings to help solution problems Talk about some of the issues Increase knowledge sharing Meetings to discover inconsistencies Get to the right people If people are not clear, attempt to clarify Understand the barriers	Practices to overcome barriers

table continues

Categories	Pattern	Theme
	Minimize the amount of change in project	
Knowledge management processes and resources	PMO office How-to-videos Project document repository SharePoint site Project reports Storage of documents Projects or phase specific document	Centralized resource center
Knowledge learning methods	Self-learning and self-development Lunch-and-learns Coaching and mentoring Guidance Classroom training and e-learning Formal training classes One-on-one training Lessons learned Certification and PMP	Training and development
Competitive advantage	Leverage technology Improve some of the efficiencies Leverage more real-time information Project managers familiar with new technology Social Media Virtual Technology Revamp current processes with technology	Technology
Knowledge management	Inform about a key program Share project changes A forum for information sharing Get the proper organizational support Keep alignment with other initiatives Share cross-cutting information Update project status information Address issues and mitigate risks Plan projects, benefits, timeline, and budget	Informational briefings

Table 4

Project Team Members' Focus Group Discussion Patterns and Themes

Categories	Pattern	Theme
Knowledge transfer approaches	Verbal communication Open communication Routine meetings Team building exercises Group collaborations E-mail distributions Individual encounters Culture of transparency	Communication
Knowledge management barriers	Incorporate everyone's ideas Share open dialogue Briefings to help solution problems Discuss the situation Meetings to discover inconsistencies Get people the exact information needed Make sure everyone understands Open platform for questions and answers	Practices to overcome barriers
Knowledge management processes and resources	Shared drive Archives Manuals SharePoint site Intranet site Documented resources Databases	Centralized resource center
Knowledge learning methods	Coaching and mentoring Online research Education classes Learn-as-you-go Interest groups Demonstrations	Training and development
Competitive advantage	Consistency within the organization Consistency with the people Social media	Technology

table continues

Categories	Pattern	Theme
	Virtual Technology	
	Offer insight on ways to improve efforts	
Knowledge management	Inform about a key program	Informational briefings
	Get everyone on the same page	
	Provide project status, feedback, and progress	
	Get the proper upper management support	
	Keep alignment with organization	
	Share knowledge, information, and valuable updates	
	Understand how the pieces fit together	
	Track deadlines and monitor budgets	

Theme 1: Communication

The first knowledge management practice strategy that project management business leaders use is communication. All 14 participants mentioned communication when they answered the interview questions (see Table 5). Interview question 1 had the most frequencies of communication by participants with a total use of 12 frequencies. Interview questions 6, 7, and 10 had the least frequencies of communication by participants with a total use of three frequencies.

Table 5

Frequency of Communication

Participants	Questions	Frequencies
Participant 1	1-4, 8-9	6
Participant 2	7	1
Participant 3	1-3, 5, 8	5

table continues

Participants	Questions	Frequencies
Participant 4	2-3, 5-6	4
Participant 5	1-6	6
Participant 6	1-2	2
Participant 7	1-2, 9	3
Participant 8	1-3, 5, 9	4
Participant 9	1, 4-7, 10	6
Participant 10	1, 3, 8	3
Participant 11	1-2, 8-9	4
Participant 12	1, 8	2
Participant 13	1, 3, 8-10	5
Participant 14	1-4, 7-10	8

The communications that people have with each other results in learning and the transfer of knowledge (Rahman & Muktar, 2014). Project management business leaders and project team members from the four project-based organizations stressed the importance of communication within their organization through various techniques they use for knowledge sharing. The project management business leaders built relationships with their counterparts and used this relationship to network with others. Participant 5 stated, “It is key to build networks with people. So, I think it is important to build bridges and network, that you leverage those networks to access input.” Relationship building and networking within organizations can occur through seminars or conferences for

employees (Al Saifi, Dillon, & McQueen, 2016). When organizations have seminars and conferences, this gives employees an opportunity to practice communicating and sharing knowledge (Al Saifi et al., 2016). The project business leaders also practiced verbal communication daily by speaking from layman's terms and having personal interactions with their project teams so their project team members could understand the knowledge transfer. Participant 4 stated, "One of the most important things is that personal interaction while they are doing the job." When project management business leaders and project team members have personal interactions with each other, effective learning can occur (Al Saifi et al., 2016).

To obtain the knowledge needed to complete projects, the project management business leaders leveraged past and present experiences, talked to other project managers or peers across their organizations, discussed what worked before or what they knew to work currently, used project documents to access important details, and spoke from experiences when sharing knowledge to their project teams. The four project-based organizations also have routine weekly or monthly project management meetings, individual or group meetings, project team meetings, kickoff meetings, after-action meetings, annual meetings, and technical discussion. Project management business leaders and project team member used these meetings to access relevant information, share knowledge, and obtain updates and clarity regarding their projects. E-mails were also an important method for knowledge sharing among the project management business leaders and the project team members. Participant 3 stated, "We have an e-mail distribution list; and so, if there are some little things that come up in between, which

there always are daily, we will send out questions on that, and help each other out that way." Through emails and personal interactions, people can share their project knowledge to others (Ragsdell, Espinet, & Norris, 2014). The project management business leaders have built a culture at their project-based organizations in which communication is essential for knowledge sharing. The culture of an organization will influence knowledge management (Tong et al., 2015). When project team members work as a team, the team members can better communicate with one another, thus establishing effective knowledge sharing practices (Ding et al., 2014).

Theme 2: Practices to Overcome Barriers

The second knowledge management practice strategy that project management business leaders use are practices to overcome barriers. All 14 participants mentioned practices to overcome barriers when they answered the interview questions (see Table 6). Interview question 8 had the most frequencies of practices to overcome barriers by the participants with a total use of 14 frequencies. Interview questions 1-7 had the least frequencies of practices to overcome barriers by the participants with a total use of zero frequencies.

Table 6

Frequency of Practices to Overcome Barriers

Participants	Questions	Frequencies
Participant 1	8-10	3

table continues

Participants	Questions	Frequencies
Participant 2	8, 10	2
Participant 3	8-9	2
Participant 4	8-9	2
Participant 5	8-10	3
Participant 6	8, 10	2
Participant 7	8-9	2
Participant 8	8- 9	2
Participant 9	8-9	2
Participant 10	8- 9	2
Participant 11	8	1
Participant 12	8-9	2
Participant 13	8-9	2
Participant 14	8-9	2

Barriers can prevent the flow of knowledge within an organization (Akhavan et al., 2014). There were various practices the project management business leaders used to overcome knowledge sharing barriers within their project-based organizations. The project management business leaders opened various lines of communication with their project team members to increase knowledge sharing, understood the barriers that were being put in place, talked about some of the issues, resolved issues together as a team instead of individually, listened to their project team members' suggestions and concerns,

and were receptive to make changes. Participant 1 stated, “At the core of any organization is communication. And, so, if my employees feel like they're not getting the information they need to do their job, I will ask, what is your preferred method of communication?”

The project management business leaders also held monthly meetings and briefings to get to the right people within their project-based organizations, tie the work into people’s everyday work experience, discover any inconsistencies with projects, understand the problem and the barriers that were being put in place, and work to have resolutions to fix the problems. Project management business leaders will need to understand the root cause of the problem before attempting to solve it (Al Saifi et al., 2016). Participant 4 stated, “Well, first it’s trying to get to the root cause of what the barrier is, not the symptoms, but what's really causing the problem that you're having.” Participant 12 stated, “We typically work for solutions as a team to determine ways to best alleviate whatever barriers.” From my observation, the project management business leaders will need to ensure their project team members are aware of the barriers, and if their project team members do not understand, the project management business leaders should help them understand, and use other technical resources to minimize the amount of change in that project.

The effective use of knowledge management within an organization depends on overcoming the barriers that may hinder the transfer of current knowledge (de Bem et al., 2016). Organizational leaders should provide clarification to their employees and confirm that people are cognizant of the barriers (Moon & Lee, 2014). Participant 5 stated, “I

think that it's really important that if people are not clear, you attempt to clarify for them. Some leadership in a large organization have to ensure the people are aware." Project management business leaders and project team members should research the standards of best practices within their organizations for knowledge sharing and knowledge education. If no standards exist, then project management business leaders and project team members should research the industry's best practices for knowledge sharing, and copy those practices within their projects (Safarzyńska & van den Bergh, 2017). The project management business leaders at the four project-based organizations attempt to limit the number of barriers that prevent knowledge sharing by helping to solution problems. The project management business leaders built a culture in which they can educate their project team members and help the members understand the problem. By understanding the problems, project management business leaders and project team members can work together to find solutions to the knowledge sharing barriers that exist.

Theme 3: Centralized Resource Center

The third knowledge management practice strategy that project management business leaders use is a centralized resource center. Twelve participants mentioned a centralized resource center when they answered the interview questions (see Table 7). Interview question 3 had the most frequencies of a centralized resource center by the participants with a total use of 10 frequencies. Interview questions 5, 7-8, and 10 had the least frequencies of a centralized resource center by the participants with a total use of zero frequencies. Two project management business leaders did not discuss a centralized resource center during their interviews.

Table 7

Frequency of a Centralized Resource Center

Participants	Questions	Frequencies
Participant 1	0	0
Participant 2	2-4, 9	4
Participant 3	3-4, 9	3
Participant 4	3-4, 9	3
Participant 5	0	0
Participant 6	1	1
Participant 7	3-4	2
Participant 8	4, 7	2
Participant 9	2-3	2
Participant 10	1, 3-4	3
Participant 11	4	1
Participant 12	3	1
Participant 13	3	1
Participant 14	3-4	2

Knowledge management practices comprise of knowledge dissemination practice and knowledge storage practice (Villar et al., 2014). The knowledge dissemination practice and the knowledge storage practice the project management business leaders used is a centralized resource center. The centralized resource center is a knowledge database, project document repository for storing organizational resources and documents

in which everyone can access for knowledge sharing. The creation of databases and repositories occurs through a knowledge management system for establishing knowledge (Tyagi, Cai, Yang, & Chambers, 2015). The project management business leaders housed their centralized resource center within an online website such as SharePoint or through their project management office. Participant 4 stated, "We have a SharePoint site where we have all kinds of tools and template." Within the centralized resource center, the project management business leaders stored project reports, online resources, projects or phase specific documents, project data, processes, references, common documents, how-to-videos, templates, and many other resources that helped with knowledge sharing.

By having a centralized database and repository, project management business leaders and project team members could have access to everything they need to know regarding a project. Participant 9 stated, "It makes it very easy for people, and they only need to know one thing, go to the resource center because we have it chronologically laid out based upon what you are trying to do." The benefit of creating a repository is learning becomes greater within organizations that have large amounts of information and knowledge to share (Kim, Mukhopadhyay, & Kraut, 2016).

Many organizations do not have the adequate resources to encourage project learning due to its size (Bartsch et al., 2013). Through the centralized resource center, the project management business leaders attempt to access knowledge for their project learning and attempt to share knowledge throughout their organizations so others can learn as well. Project management business leaders in project-based organizations should leverage knowledge from project materials, share this knowledge across their

organizations via a centralized resource center, and encourage their project team members to talk to their peers to learn from their knowledge.

Theme 4: Training and Development

The fourth knowledge management practice strategy that project management business leaders use is training and development. Thirteen participants mentioned training and development when they answered the interview questions (see Table 8). Interview question 2 had the most frequencies of training and development by the participants with a total use of six frequencies. Interview question 6 had the least frequencies of training and development by the participants with a total use of zero frequencies. One project management business leader did not discuss training and development during the interview.

Table 8

Frequency of Training and Development

Participants	Questions	Frequencies
Participant 1	3, 5	2
Participant 2	1, 3	2
Participant 3	5, 9-10	3
Participant 4	1-3	3
Participant 5	2, 10	2
Participant 6	0	0
Participant 7	5, 7, 9	3

table continues

Participants	Questions	Frequencies
Participant 8	2-3, 8	3
Participant 9	5	1
Participant 10	2	1
Participant 11	5	1
Participant 12	4	1
Participant 13	1-2, 4	3
Participant 14	2, 5	2

Through the proper training, people can implement knowledge transfer throughout their companies (J. Zhao et al., 2014). Project management business leaders can apply learning techniques through personal interactions at team meetings to discuss the lessons learned (Carrillo et al., 2013). The project management business leaders and their organizational leaders implemented many training methods for knowledge sharing such as classroom training, formal training classes, e-learning, one-on-one training, and technical project training. The project management business leaders and project team members received guidance and knowledge from their project-based organizations through lunch-and-learns, coaching and mentoring, and lessons learned. During lessons learned, project management business leaders scheduled time with their project team members to discuss the successes or failures that occurred with their projects, and implemented steps to alleviate any issues from reoccurring in the future.

Self-learning and self-development were also encouraged by the project management business leaders and their organizational leaders. Project managers were encouraged to complete the Project Management Professional (PMP) certification, other project management certifications, or training, while project team members were encouraged to complete training. Participant 4 stated, "We talk about the options out there for self-development on whether is getting a master's degree in project management or a certification and PMP, or taking classes, etc." Employees are the greatest assets of organizations, so organizational leaders should provide training to increase knowledge with their employees and bring about positive changes within their organization (Tyagi et al., 2015). Through training, project team members can gain the knowledge and skills they need to perform various activities; thus, increasing their flexibility, capability, and value within their organization (Tyagi, et al., 2015).

Project management business leaders and project team members also shared knowledge by leveraging learning from others, by using templates, and by using the best practices from previous projects. Project management business leaders should constantly find ways to share knowledge and experiences with their project teams. The culture of an organization may have a determining factor on knowledge development within employees (Wiewiora et al., 2013). The project management business leaders built a culture within their project-based organizations in which everyone can obtain the proper training and development to acquire and share knowledge. Project team members can acquire new knowledge about a project through the training they gain from their project management business leaders or through classes they complete.

Theme 5: Technology

The fifth knowledge management practice strategy that project management business leaders use is technology. Twelve participants mentioned technology when they answered the interview questions (see Table 9). Interview question 10 had the most frequencies of technology by the participants with a total use of six frequencies. Interview questions 1 and 7 had the least frequencies of technology by the participants with a total use of zero frequencies. Two project management business leader did not discuss technology during their interviews.

Table 9

Frequency of Technology

Participants	Questions	Frequencies
Participant 1	5, 8, 10	3
Participant 2	10	1
Participant 3	10	1
Participant 4	0	0
Participant 5	0	0
Participant 6	5, 8, 10	3
Participant 7	6, 10	2
Participant 8	2	1
Participant 9	10	1
Participant 10	4	1

table continues

Participants	Questions	Frequencies
Participant 11	9	1
Participant 12	4	1
Participant 13	3-4	2
Participant 14	4-5	2

Although the participants did not discuss competitive advantage, they did provide various ways their organizations have advanced with knowledge sharing practices, and one method was technology. Knowledge management practice strategies positively influence organizational performance and increase the competitive advantage of an organization on a long-term basis (Delen et al., 2013; Nesbitt & Barton, 2014; Villar et al., 2014). Organizations that have a competitive advantage over other organizations have better communication practices for knowledge sharing, have better practices for knowledge management, can leverage technology, and have project managers who are aware of the new technology. Technology is important for knowledge management (Razmerita et al., 2016). By using technology, employees can share knowledge throughout their organizations (Razmerita et al., 2016). Participant 9 stated, "The skills of project management are best transferred by the environment that leverages technology by a project manager who knows how to use it." When organizations have practices for leveraging technology, this can result in better communication and management of knowledge (Razmerita, Kirchner, & Nabeth, 2014). Participant 9 also stated, "For example, people don't read, so the better organization are those that leverages more real-

time information. Maybe, it's YouTube, maybe SharePoint, maybe it's Tweeting, maybe Snap Chat." The use of social media is a technology project management business leaders can use to manage and share knowledge (Razmerita et al., 2014). Other social media such as Facebook, LinkedIn, blogs, or video sharing can be used for networking and relationship building to enable knowledge sharing via communities of practices (Razmerita et al., 2014).

Technology innovation is one of the critical success factors of knowledge management (Al-Hakim & Hassan, 2016). Knowledge management is an innovative source of competitive advantage within organizations (Miklosik & Zak, 2015). Therefore, organizational leaders should constantly seek different ways of communication via technology. Participant 8 stated, "We are 90% virtual in the IT world; so, they are always looking for technology to try to help with knowledge sharing and knowledge overall in the job." Because of knowledge sharing throughout the project-based organizations, the project management business leaders and project team members leveraged more real-time information, produced the same level of work in a shorter amount of time, improved some of the efficiencies, and used processes to better move their project-based organization to maturity and gain a competitive advantage because they had the necessary details to complete their projects. The project management business leaders built a culture within their project-based organizations in which everyone can use technology for knowledge sharing; thus, gaining a competitive advantage. When organizational leaders can control the knowledge within, this will result in competitive advantage (Durmusoglu et al., 2014).

Theme 6: Informational Briefings

The final knowledge management practice strategy that project management business leaders use is informational briefings. All 14 participants mentioned informational briefings when they answered the interview questions (see Table 10). Interview questions 5-7 had the most frequencies of informational briefings by the participants with a total use of 14 frequencies. Interview questions 1-4 and 10 had the least frequencies of informational briefings by the participants with a total use of zero frequencies.

Table 10

Frequency of Informational Briefings

Participants	Interview Questions	Frequencies
Participant 1	5-7	3
Participant 2	5-7, 9	4
Participant 3	5- 8	4
Participant 4	5-7	3
Participant 5	5-8	4
Participant 6	5-7	3
Participant 7	5-7	3
Participant 8	5-7	3
Participant 9	5-7	3
Participant 10	5-7	3

table continues

Participants	Interview Questions	Frequencies
Participant 11	5-7	3
Participant 12	5-7	3
Participant 13	5-7	3
Participant 14	5-7	3

Informational briefings within the project-based organizations occurred as organizational briefings, project manager's briefings, or project team briefings. Project management business leaders held informational briefings to brief everyone on past, present, and future projects. Informational briefings tie into the conceptual framework of knowledge management because these briefings are a forum for information sharing between project managers, project team members, and organizational leaders. Participant 1 stated, "The purpose of informational briefing is to provide exactly that, information to a body of people, or one-on-one, or however many your audience maybe. It is to inform them about a key program or a key initiative that we're undertaking." Through project briefings, project team members can share knowledge regarding their past project experiences so others can avoid issues with their current projects (Tyagi et al., 2015). Project team members with more experience can share knowledge regarding past project details such as technical issues, cost, time, or the quality of their projects so inexperienced project team members can learn and prepare for current projects (Tyagi, Agrawal, Yang, & Ying, 2017). Informational briefings also provide an opportunity for

project teams to share cross-cutting information with everyone so each team member is aware of any decision that may impact their area.

Informational briefings were used within the four project-based organizations to provide updates or changes to projects, allowed the project management business leaders and project team members to become aware of other organizational initiatives, and aided in the proper organizational support for project management business leaders and project team members to complete their projects successfully. Participant 7 stated, "They're often used to roll out new processes that are being implemented, to share information with everyone at one time, and used for updating project status information." Informational briefings were also used to obtain directions for the organization, directions for the project managers, and directions for the project team members. The benefits of these briefings are project team members can obtain knowledge from more experienced team members and apply this knowledge to future projects (Tyagi et al., 2017). Participant 2 stated, "The benefit is it helps me better plan my projects." During the informational briefings, the project management business leaders also discussed the benefits, risks, timeline, and budget of their projects, shared knowledge regarding the issues or concerns they were having with their projects, and mitigated any risks that occurred throughout the project life cycle. The project management business leaders built a culture within their project-based organizations in which informational briefings occur for the distribution of information to organizational leaders, other project managers, and project team members.

Tie to Conceptual Framework

The conceptual framework of knowledge management ties to all six knowledge management practice strategies because each strategy results from knowledge management. Knowledge management is the process of disseminating knowledge throughout an entity to people at set times (Donate & de Pablo, 2015). The knowledge management practice strategies of (a) communication, (b) practices to overcome barriers, (c) centralized resource center, (d) training and development, (e) technology, and (f) informational briefings can result in the gathering and distribution of knowledge throughout project-based organizations. Knowledge management is important to project management business leaders because this process helps project managers stop mistakes from reoccurring in future projects (Grover & Froese, 2016). Knowledge management is important to project teams because it is the process of effectively gathering and distributing knowledge through a linkage between the project team members and their projects (Navimipour & Charband, 2016). Knowledge is an important benefit because it results in ongoing advancements of organizations and the people within (Grover & Froese, 2016). By implementing knowledge management practice strategies, project management business leaders will have better strategies for managing knowledge within their project-based organizations.

Applications to Professional Practice

The findings of this qualitative, descriptive, multiple case study apply to the professional practice of business because of the knowledge management practice strategies the project management business leaders and project team members

implemented within the four project-based organizations. Knowledge management is a framework that results in knowledge creation, acquisition, sharing, and reuse by organizations and the individuals within (O'Brien, 2015). Through knowledge management, organizational leaders, project management business leaders, and project team members could open their organizations to past, present, and future knowledge. Research has proven that knowledge is a science (Hutchinson, 2011). If organizational leaders, project management business leaders, and project team members are not careful with implementing their knowledge management practices and the execution of those practices, this may result in the ultimate failure of projects (Gal & Hadas, 2015). The findings are relevant for improving knowledge sharing in project-based organizations. By implementing the knowledge management practice strategies of (a) communication, (b) practices to overcome barriers, (c) centralized resource center, (d) training and development, (e) technology, and (f) informational briefings, project-based organizations will have better strategies for transferring knowledge for the betterment of the organization.

The findings are helpful to project management business leaders attempting to establish a knowledge sharing culture within their organizations. Communication was the central knowledge management practice strategy implemented by the project management business leaders of this research study. The project management business leaders incorporated weekly individual and group meetings with their project teams to communicate knowledge. Project management business leaders within other organizations should apply weekly meetings with their project teams to provide

opportunities for knowledge sharing between the project managers and team members. The project management business leaders incorporated open communication and dialogue to discuss and eliminate barriers within their organizations. Communication is key in eliminating knowledge sharing barriers within organizations (Lawn, Delany, Sweet, Battersby, & Skinner, 2015). Project management business leaders should have an open platform for questions and answers within their organizations. Organizational leaders should create a culture in which project management business leaders and project team members expect and accept questions to help eliminate knowledge sharing barriers.

Open communication results in tacit knowledge transfer between individuals (Tyagi et al., 2017). Having an open communication policy within organizations could help eliminate knowledge sharing barriers because employees would be more acceptable at sharing their individual experiences. The project management business leaders incorporated shared repositories and databases for project team members to communicate information. By having shared repositories and databases within organizations, employees could have better opportunities to access all internal information (Tyagi et al., 2017). To access useful knowledge, project management business leaders and project team members should archive everything within a knowledge management system as a prerequisite to knowledge management (Tyagi et al., 2015). However, the knowledge stored within the computerized knowledge management systems will need updating if the system is not of an advanced technology (Tyagi et al., 2015). The project management business leaders incorporated training, technology, and informative briefings. These practices should be implemented within organizations to increase knowledge, effectively

communicate knowledge with individuals, and share knowledge with organizational leaders, other project managers, and project team members.

Implications for Social Change

This study is of value to business/social impact because knowledge transfer is critical for the competitive advantage of an organization (Donate & de Pablo, 2015). Implementing knowledge management practice strategies provides tangible improvements to project management business leaders, project team members, and their project-based organizations. Many organizations do not focus on knowledge management practices for projects and programs (Michels et al., 2012). Many project managers lack the knowledge management skills needed to transfer knowledge or provide lessons learned from projects (Michels et al., 2012). However, the results of this study provided evidence that project management business leaders can create a culture within their project-based organizations that encourages knowledge sharing. As project management business leaders continue to transfer knowledge, this process may establish communities of practice within their project-based organizations and across various types of organizations within the community (L. Lee et al., 2015). Project management business leaders throughout the community could come together to share their knowledge with each other; thus, creating value for their organizations and improving knowledge sharing throughout society (L. Lee et al., 2015). Communities of practice can result in external knowledge sharing throughout society and the improvement of project management skills (L. Lee et al., 2015).

The results of this study may contribute to a positive social change and the improvement of a business practice because project management business leaders can understand the knowledge management practice strategies that are necessary to share knowledge within their organizations. By using these knowledge management practice strategies, project management business leaders could positively change the knowledge sharing process in their project-based organizations throughout society. Through the implementation of communication methods such as leveraging past experiences, project management business leaders and project team members could learn from the past experiences of each other to accomplish the goals and objectives they need to achieve. Not only can people learn from the internal work experiences that occurred within their organization, but they can also learn from the past work experiences of external sources (Al Saifi et al., 2016). Project management business leaders will need to understand the root cause of the problem before attempting to solve it (Al Saifi et al., 2016). Project management business leaders could create a culture that encourages knowledge sharing through the implementation of practices that prevent knowledge sharing barriers from occurring. Project management business leaders could create a culture that encourages knowledge sharing through the establishment of a centralized resource center. When there are no repositories within organizations in which project team members can access internal information, project team members may have a harder time documenting lessons learned from past projects to apply towards future projects (Tyagi et al., 2017). Project-based organizations could have a central depository that categorizes all internal and external projects, progress data, and completed projects so project management business

leaders, project team members, and organizational leaders can readily access this information to gain knowledge.

Project management business leaders could create a culture that encourages knowledge sharing through the training and development of project managers and project team members to receive new knowledge. Project management business leaders could create a culture that encourages knowledge sharing through the implementation of new technology. Project management business leaders could create a culture that encourages knowledge sharing through the conduction of informational briefings. Project management business leaders could implement briefings as an opportunity to interact with their project team members, provide clarity regarding projects, understand the directives of the project managers, and understand the concerns of the project team members. As new knowledge occurs, organizations could experience growth and a sustainable competitive advantage (Tyagi et al., 2017). The successful implementation of the knowledge management practice strategies could lead to these positive social changes with project management business leaders and their organizations. The results of this study may effect positive social change and the improvement of knowledge sharing by promoting the worth, dignity, and development of individuals, communities, organizations, cultures, or societies.

Recommendations for Action

Based on the results of this study, I am recommending actions to achieve knowledge sharing within project-based organizations that include: (a) implementing communication processes for daily knowledge sharing, (b) implementing practices to

overcome knowledge sharing barriers, (c) establishing a centralized resource center, (d) incorporating training and development among all employees, (e) implementing new technology, and (f) conducting informational briefings to share knowledge. Organizational leaders and project management business leaders must establish a culture in which networking and relationship building are evident throughout their organizations so all employees can effectively communicate and share knowledge. By networking, project team members could have more confidence in presenting their ideas and understanding the solutions needed to resolve any issues; thus, improving job performance and the successful implementation of projects (Tyagi et al., 2017). Project management business leaders and project team members must always have open, two-way communication which each other to share project knowledge and discuss any potential barriers. Effective knowledge sharing requires open, two-way communication (Lawn et al., 2015).

Organizational leaders must establish a project document repository or a shared drive, website, or database within their project-based organizations in which project management business leaders and project team members can have access to all the information required to successfully plan and implement their projects throughout the entire project lifecycle (Tyagi et al., 2017). Organizational leaders must establish training and developmental sessions or workshops that project management business leaders and project team members can use to increase their knowledge and leverage learning from others. People should have the expertise and training to carry out the roles and responsibilities for their positions through the knowledge they gain from within (Nesheim

& Gressgård, 2014). Organizational leaders, project management business leaders, and project team members must continually improve their efficiencies and processes of knowledge sharing to increase the competitive advantage of their project-based organizations. Through the effective use of different knowledge sources, employees could increase the competitive advantage of their organizations (Kotabe & Kothari, 2016). Organizational leaders must provide organizational support to their project management business leaders, and project management business leaders must provide project support to their project team members. This support will aid project management business leaders and project team members in effectively delivering key programs and initiatives; thus, keeping alignment with the overall goals, missions, and objectives of the organization. The support top management provides employees can positively impact the knowledge sharing process within organizations (Hussein, Singh, Farouk, & Sohal, 2016).

Project management business leaders, project team members, and organizational leaders of project-based organizations should pay attention to the knowledge management practice strategies that are used for knowledge sharing and implement these strategies within their organizations if none exist. Walden University will publish this study within the ProQuest/UMI Dissertation database for university access. Project management business leaders will not be able to access the database unless they have a ProQuest account; however, students who are interested in studying knowledge management practices strategies will be able to obtain this information. I plan to

disseminate the results by submitting the study findings to my research study participants and research journals for publication and public access.

Recommendations for Further Research

The purpose of this qualitative, descriptive, multiple case study was to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. The results of this study indicated six knowledge management practice strategies that project management business leaders used for knowledge sharing. Project team members also provided their perspectives on the knowledge management practice strategies, so the recommendations for further study include using the perspectives of organizational leaders regarding the knowledge management practice strategies. Researchers should limit the recruitment process through the organization itself, to have cooperation from the organization, rather than recruiting through the Project Manager Network and the Project Management Institute. Researchers should also consider expanding into non-project-based organizations and other geographic locations outside of metro Atlanta, Georgia. Researchers can also limit the participants to a single industry instead of leaving it open to all types of project-based organizations. Researchers may also input the findings into a quantitative study to measure the effectiveness of the knowledge management practice strategies. By measuring the effectiveness of the knowledge management practice strategies, researchers can determine which strategy is most effective in influencing knowledge sharing in project-based organizations.

Reflections

Being a program manager for a nonprofit organization for 7 years, there were many times when knowledge sharing did not occur for programs and projects I managed. Sometimes, my program team and I were not notified of new programs or projects until it was time to implement them. There was also a limit to knowledge sharing between departments within the organization. Because of this experience, I wanted to know if other program managers within the nonprofit industry were having difficulty with obtaining knowledge from their organizations. If so, what processes were they using to gain the knowledge they needed to complete their programs and projects successfully. During the DBA, Doctoral Study process, I decided to shift my focus to project management business leaders within project-based organizations. I had a preconceived idea that project management business leaders had to obtain knowledge on their own because they did not have the support of their organizational leaders, and there were no strategies the project management business leaders could use to obtain and share knowledge. However, after completing my research, I found that many project management business leaders have various strategies in place for obtaining knowledge and transferring knowledge to their project teams within project-based organizations.

The findings from this study had a positive impact on the study participants because they could self-reflect and learn from their lived experiences. During the interviews, the participants gave thought to knowledge management and the best practices of their organizations. The project management business leaders provided data regarding their strategies for obtaining knowledge within their project-based

organizations, strategies for transferring knowledge to their project teams, strategies for preventing knowledge barriers, and strategies that are directly implemented by their organizational leaders. The focus group discussion was a great learning experience for the project team members because they gained information from each other they could take back to their organizations. The project team members also validated the project management business leaders' responses. After completing this research study, I could fully understand the purpose of knowledge management and the strategies that are needed to share knowledge throughout a project-based organization.

Conclusion

In conclusion, I identified six knowledge management practice strategies for knowledge sharing in project-based organizations: (a) communication, (b) practices to overcome barriers, (c) centralized resource center, (d) training and development, (e) technology, and (f) informational briefings. The findings from this study supported the literature review, which included the five categories of (a) knowledge transfer approaches, (b) knowledge management barriers, (c) knowledge management processes and resources, (d) knowledge learning methods, and (e) competitive advantage, along with the conceptual framework of knowledge management. The data collection occurred through individual Skype/phone semistructured interviews with project management business leaders, an in-person focus group discussion with project team members, and an interview questionnaire completed by the focus group. For my case study database, I used a Microsoft Excel spreadsheet that included all raw data from the interview transcripts,

audio recordings, narratives, interview notes, and observations to identify the emerging patterns and themes.

Selection of the participants resulted from a purposeful sample of project management business leaders from four project-based organizations in metro Atlanta, Georgia. Additional participants included a focus group of project team members. Nine project management business leaders and five project team members were selected, and each participant provided in-depth details regarding their lived experiences and strategies on knowledge sharing. The project team members also validated the responses of the project management business leaders. The research question for this study was: What knowledge management practice strategies do project management business leaders use to improve knowledge sharing in project-based organizations? The recommendation was for project management business leaders, project team members, and organizational leaders of project-based organizations to pay attention to the knowledge management practice strategies that are used for knowledge sharing and implement these strategies within their organizations if none exist. Knowledge management is necessary for organizations when delivering valuable information within. Organizational leaders must build a culture where project management business leaders are free to use their knowledge management strategies to transfer knowledge to their project team members for successful project outcomes; thus, increasing the competitive advantage of the overall organization.

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Appendix A: Permission to Use Figures 1, 2, 3, and 5

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Trenese McNealy [redacted]

FW: Academic Permissions Request Form
3 messages

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To: [redacted]

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Sent: 11 January 2015 17:54
To: Academic Permissions
Subject: Academic Permissions Request Form

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A_Z_lastname	McNealy
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D_Z_PhoneNo	[redacted]
D_Z_country	USA
E_Z_FaxNo	
F_Z_Email	[redacted]
F_Z_VATnumber	
G_Z_TheirTitle	Organizational Integration of Knowledge Management for Continuous Learning by Project Managers
H_Z_Author	Trenese McNealy
H_Z_Publisher	Walden University
I_Z_Covers	Unspecified
I_Z_PrintRunHard	0
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K_Z_Notes	I am a doctoral student seeking permission to use two figures for my doctoral proposal from the following book: Nonaka, I., & Takeuchi, H. (1995). The knowledge-creating company: How Japanese companies create the dynamics of innovation. New York: Oxford University Press. I previously obtained permission to use Figure. 3-3. Spiral of knowledge creation. p. 62 and Figure. 3-5. Spiral of organizational knowledge creation. p. 72, but I listed the wrong page numbers. In addition, I wanted to add another figure too, so I am resubmitting my request.
L_Z_Media1	text
M_Z_Author1	Ikujirō Nonaka and Hirotaka Takeuchi
M_Z_Title1	The knowledge-creating company: How Japanese companies create the dynamics of innovation.
M_Z_editedby1	
N_Z_Material1	Figure 3-2. Four modes of knowledge conversion. P. 62 Figure 3-3. Knowledge spiral. P. 71
O_Z_ISBN1	
O_Z_OUPpubDate1	1995
P_Z_Media2	text
Q_Z_Author2	Ikujirō Nonaka and Hirotaka Takeuchi
Q_Z_Title2	The knowledge-creating company: How Japanese companies create the dynamics of innovation.
Q_Z_editedby2	
R_Z_Material2	Figure. 3-5. Spiral of organizational knowledge creation. P. 73
S_Z_ISBN2	
S_Z_OUPpubDate2	1995
T_Z_Media3	text
U_Z_Author3	Ikujirō Nonaka and Hirotaka Takeuchi

U_Z_Title3	The knowledge-creating company: How Japanese companies create the dynamics of innovation.
U_Z_editedby3	
V_Z_ISBN3	
V_Z_Material3	The figure is shown on p. 6. There is no figure number and no name. I will name the figure "Organizational knowledge creation".
V_Z_OUPpubDate3	1995
W_Z_Additional	I will not be able to incorporate the four figures into my doctoral proposal without prior permission.
subject	
view	submitform

Trenese McNea Mon, Jan 12, 2015 at 8:22 PM
Draft To: Academic Permissions

Thank you for granting me the permission!

Trenese McNealy
[Quoted text hidden]

Trenese McNe Mon, Jan 12, 2015 at 8:23 PM
To: Academic Permissions

Thank you for granting me the permission!

Trenese McNealy

On Mon, Jan 12, 2015 at 6:15 AM, Academic Permissions < wrote:
[Quoted text hidden]

Appendix B: Permission to use Figure 4 and Tables 1 & 2

Gmail by Google

Trenese McNealy [redacted]

Permission to Alter/Adapt Material
3 messages

Trenese McNealy [redacted] Thu, Dec 4, 2014 at 1:37 PM
To: [redacted]

Sent by: Trenese McNealy

Organization Type: Academic

Full email address: [redacted]

Telephone number: [redacted]

Country: [redacted]

Details:

I am a doctoral student seeking permission to alter the name of a table and figure and adapt a figure for my doctoral proposal from the following article:

Lin, C., Wu, J. C., & Yen, D. C. (2012). Exploring barriers to knowledge flow at different knowledge management maturity stages. Information & Management, 49(1), 10-23. doi:10.1016/j.im.2011.11.001

My doctoral proposal title: Organizational Integration of Knowledge Management for Continuous Learning by Project Managers

Table number: Table 1

Title of table: Relevant determinants of knowledge flow found in the literature.

Page number of table: Pg 12

New Title Name: Five dimensions of barriers to knowledge flow.

Figure number: Figure 1

Title of figure: A revised CHAT Model applied to knowledge flow.

Page number of table: Pg 11

New Title Name: Five dimensions of barriers to knowledge flow.

For your convenience, I have attached the table and figure I would like to input into my doctoral study. I have already obtained permission to use the original table and figure, but will not be able to incorporate the altered/adapted table and figure into my doctoral proposal without prior permission.

Thank you,

Trenese McNealy

Table and Figure Images - T_McNealy.doc
57K

Samantray, Banita (ELS-CHN) [redacted] Fri, Dec 5, 2014 at 2:18 AM
To: Trenese McNealy [redacted]

ELSEVIER

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Regards

Banita Samantray

Global Rights Department

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Tel: [redacted]

E-mail: [redacted]

From: Trenese McNealy [mai [redacted]
Sent: Friday, December 05, 2014 12:08 AM
To: Rights and Permissions (ELS)
Subject: Permission to Alter/Adapt Material

[Quoted text hidden]

Trenese McNealy · [redacted] Sun, Dec 7, 2014 at 11:21 AM
To: "Samantray, Banita [redacted]

Thank you for the confirmation!

Trenese McNealy
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Gmail

Trenese McNealy <trenese.mcnealy@waldenu.edu>

Permission Request - Trenese McNealy

4 messages

Trenese McNealy
To: pe

Mon, Aug 8, 2016 at 2:07 PM

Hello,

My name is Trenese McNealy and I am currently completing my Doctorate of Business Administration in Project Management at Walden University. My research topic is *Knowledge management practice strategies to improve knowledge sharing in project-based organizations.*

I am requesting permission to use the knowledge management related developments examples on pages 10-11 under the section entitled, *A Partial Knowledge Management Time-line.* The author and article are listed below for your convenience.

Wiig, K. M. (1997). Knowledge management: An introduction and perspective. *Journal of Knowledge Management, 1*(1), pp.10-11. Copyright 1997 by Knowledge Research Institute, Inc. Reprinted with permission.

Thank you,

Trenese McNealy

Trenese McNealy
To:

Mon, Aug 8, 2016 at 2:09 PM

As a follow-up to my previous message, I will list the knowledge management related developments examples within a table by year.

Trenese McNealy

Chris Tutt
To:

Tue, Aug 9, 2016 at 5:47 AM

Hi Trenese

Thank you for your email.

Please allow me to introduce myself, my name is Chris Tutt and I am the Rights Executive here at Emerald.

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Please note that should you wish to republish the content elsewhere (i.e. for commercial purposes/in a journal, etc.), you will need to clear permission once more.

I wish you the best of luck with your research.

Kind Regards,

Chris Tutt

Appendix C: Interview Protocol

This interview protocol is only for project management business leaders

Date: _____ **Interviewer:** Trenese McNealy

Participant #: _____ **Organization (A, B, C, or D):** ___

Instructions for the Interview:

1. Obtain the signed Informed Consent Form from the participant.
2. Provide the participant with his or her numeric identifiable number and his or her organizational alphabetical letter.
3. Audio record the Skype/phone interview.
4. Review the purpose of the research study with the participant.
5. Stick to the interview questions and have the participant elaborate or his or her responses.
6. Include probing comments or questions if the participant is not clear or detailed in his or her response.
7. Take notes into an observation notebook during the interview.
8. Inform the participant that the interview transcript is forthcoming for him or her to check and validate the responses.
9. Thank the participant for his or her participation in the research study.

Appendix D: Focus Group Interview Protocol

This interview protocol is only for focus group participants

Date: _____ **Interviewer:** Trenese McNealy

Focus Group #: _____ **Organization (A, B, C, or D):** ___

Instructions for the Interview:

1. Obtain the signed Informed Consent Form from all participants prior to the focus group interview.
2. Provide the focus group with a numeric identifiable number and its organizational alphabetical letter.
3. Audio record the focus group interview.
4. Review the purpose of the research study with the focus group.
5. Have participants complete the interview questionnaire to provide their responses.
6. Review the interview responses from the project management business leaders from each specific project-based organization.
7. Allow participants to provide their perceptions to the project management business leaders responses based on their current and past experiences.
8. Include probing comments or questions if the participants are not clear or detailed in their response.
9. Take notes into an observation notebook during the interview.
10. Inform the focus group that the interview transcript is forthcoming for participants to check and validate the responses.
11. Thank the participants for their participation in the research study.

Appendix E: Interview Questions

Date: _____ **Interviewer:** Trenese McNealy

Participant #: _____ **Organization (A, B, C, or D):** ___

Please answer the following questions candidly:

1. How do you share your personal project experiences?
2. How do you share your technical project knowledge?
3. How does your organization share project knowledge?
4. How do you access useful knowledge within your organization?
5. What is the purpose of organizational briefings?
6. What is the purpose of project manager briefings?
7. What is the purpose of project team briefings?
8. If knowledge sharing barriers occur, how do you try to eliminate them?
9. If knowledge sharing barriers occur, how does your organization try to eliminate them?
10. What additional information would you like to add that I did not ask?

Interview Questionnaire (Focus Group)

Date: _____ **Interviewer:** Trenese McNealy

Participant #: _____ **Organization (A, B, C, or D):** ___

Please answer the following questions candidly:

1. How do you share your personal project experiences?

_____

_____

_____

2. How do you share your technical project knowledge?

_____

_____

_____

3. How does your organization share project knowledge?

_____

_____

_____

4. How do you access useful knowledge within your organization?

_____

_____

_____

5. What is the purpose of organizational briefings?

_____

6. **What is the purpose of project manager briefings?**

7. **What is the purpose of project team briefings?**

8. **If knowledge sharing barriers occur, how do you try to eliminate them?**

9. **If knowledge sharing barriers occur, how does your organization try to eliminate them?**

10. **What additional information would you like to add that I did not ask?**

Appendix F: Permission to Use Participants from the Social Media Groups

Project Manager Network

Gmail by Google

Trenese McNealy <trenese.mcnealy@waldenu.edu>

Fwd: I want to advertise on ProjectManagers.net
4 messages

David Ranno <david@projectmanagers.net> Mon, Dec 14, 2015 at 8:49 AM
To: trenese.mcnealy@waldenu.edu

Hi Trenese

Thanks for your inquiry. My name is David Ranno, Sr Account Executive here at Projectmanagers.net. Unfortunately we dont give access to third parties to contact our group members. If your looking to contact the entire network, we can assist as we offer paid programs to reach the entire network.

Thanks

.....
Regards,
David Ranno
860-321-7618 Direct
Account Executive
www.Projectmanagers.net

---------- Forwarded message ----------
From: **Miles Jennings** <miles@projectmanagers.net>
Date: Mon, Dec 14, 2015 at 8:30 AM
Subject: Fwd: I want to advertise on ProjectManagers.net
To: David Ranno <david@projectmanagers.net>

---------- Forwarded message ----------
From: **ProjectManagers Contact Form** <trenese.mcnealy@waldenu.edu>
Date: Sun, Dec 13, 2015 at 7:22 PM
Subject: I want to advertise on ProjectManagers.net
To: miles@projectmanagers.net

From: Trenese McNealy
Email: trenese.mcnealy@waldenu.edu

Topic: I want to advertise on ProjectManagers.net

Comments:
Good Afternoon,

I wanted to follow-up on my previously submitted emails regarding the contact information of the person who would authorize approval to contact certain project managers who are members of this network. The members must work for project based organizations within the metropolitan areas of Atlanta, GA to be participants for my research study. Can you please direct me to the appropriate individual to whom I can send my formal request?

Trenese McNealy, MBA

--
Miles Jennings
(408) 657-8008

Trenese McNealy <trenese.mcnealy@waldenu.edu> Mon, Dec 14, 2015 at 4:04 PM
To: David Ranno <david@projectmanagers.net>

Good Afternoon Mr. Ranno,

Thank you for following up with me. To clarify, I am looking to interview project managers and project team members within the Metropolitan Areas of Atlanta, Georgia for my doctoral research study. I wanted to know if prior approval was needed to contact members within the group? I am already a member of the Project Manager Network LinkedIn Group as a current program manager of a nonprofit organization, but I was not sure if I would need prior approval to message some of the members within the group to request their participation in my research study. I am currently completing my Doctorate of Business Administration in Project Management at Walden University, and my research topic is "Strategies to improve knowledge sharing in project-based organizations".

Please advise if prior approval is needed or not needed to contact some of the members within my Project Manager Network LinkedIn Group. If prior approval is needed, whom would I submit my approval request letter to?

Thank you,

Trenese McNealy, MBA
[Quoted text hidden]

David Ranno <david@projectmanagers.net> Mon, Dec 14, 2015 at 5:15 PM
To: Trenese McNealy <trenese.mcnealy@waldenu.edu>

Trenese

Thanks for clarification. No approval needed. Feel free to reach out to the members as needed.

Thanks
Dave

[Quoted text hidden]

Trenese McNealy <trenese.mcnealy@waldenu.edu> Tue, Dec 15, 2015 at 1:48 PM
To: David Ranno <david@projectmanagers.net>

Great; thank you so much!

Trenese McNealy
[Quoted text hidden]

Project Management Institute

Gmail by Google

Trenese McNealy <trenese.mcnealy@waldenu.edu>

Seeking Approval to Contact Members for Research Study
3 messages

Trenese McNealy <trenese.mcnealy@waldenu.edu> Tue, Dec 15, 2015 at 2:07 PM
To: chair@pmiatlanta.org

Good Afternoon,

I am looking to interview project managers and project team members within the Metropolitan Areas of Atlanta, Georgia for my doctoral research study. I wanted to know if prior approval was needed to contact members within the group? I am already a member of the Project Management Institute as a current project management student, and I have linked up with the Atlanta Chapter.

My Member ID: 2826554

I was not sure if I would need prior approval to message some of the members within the project management community group to request their participation in my research study. I am currently completing my Doctorate of Business Administration in Project Management at Walden University, and my research topic is "Strategies to improve knowledge sharing in project-based organizations".

Please advise if prior approval is needed or not needed to contact some of the members within my project management community group. If prior approval is needed, whom would I submit my approval request letter to?

Thank you,

Trenese McNealy, MBA

Laura Davidson <chair@pmiatlanta.org> Thu, Dec 17, 2015 at 9:47 PM
To: Trenese McNealy <trenese.mcnealy@waldenu.edu>
Cc: Public Relations <publicrelations@pmiatlanta.org>

Hi Trenese,

Thank you for asking about this.

Feel free to join our chapter LinkedIn group and post your request.

Happy Holidays and good luck with your survey.

Laura Davidson, PMP, PMI-RMP
Chair, Project Management Institute
Atlanta Chapter

Volunteers don't just do the work -- they make everything happen!

For information about volunteer opportunities contact: volunteer@pmiatlanta.org

"If your actions inspire others to dream more, learn more, do more and become more, you are a leader." J Q Adams

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From: "Trenese McNealy" <trenese.mcnealy@waldenu.edu>
To: chair@pmiatlanta.org
Sent: Tuesday, December 15, 2015 2:07:49 PM
Subject: Seeking Approval to Contact Members for Research Study
[Quoted text hidden]

Trenese McNealy <trenese.mcnealy@waldenu.edu> Fri, Dec 18, 2015 at 2:15 PM
To: Laura Davidson <chair@pmiatlanta.org>

Thank you Ms. Davidson for your reply. I selected the function to start following the chapter LinkedIn group, but I did not see a function to join the group and post my request. However, following the group will help because I can see everyone within the network and contact select members for my research study once I receive IRB approval.

Thank you for your assistance!

Trenese McNealy
[Quoted text hidden]

Appendix G: Informed Consent Form

INFORMED CONSENT FORM (PROJECT MANAGEMENT BUSINESS LEADERS)

You are invited to take part in a research study of exploring the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. The researcher is seeking *leaders* who fit the criteria to take part in an *interview*. The researcher is inviting project management business leaders (i.e. project managers, project directors, and project senior managers) who work for project-based organizations within the metropolitan areas of Atlanta, Georgia (metro Atlanta) to be in the study. Project management business leaders must have a minimum of 2-3 years of experience to obtain responses from more experienced individuals.

The project management business leaders will consist of nine participants from four project-based organizations. All participants will have experience with knowledge management practice strategies for improving knowledge sharing in their project-based organizations. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

Researcher, Trenese McNealy, a doctoral student at Walden University, is conducting this study. The researcher is a member of the Project Manager Network and the Project Management Institute Atlanta Chapter LinkedIn social media groups. However, her role as researcher is separate from her role as a member of the social media groups.

Background Information:
The purpose of this study is to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. To maintain the privacy of the interviews, the interview setting for the project management business leaders will occur through a Skype/phone interview to give participants an opportunity to speak about their knowledge management and knowledge sharing experiences in a one-on-one private setting.

The interview duration will depend on how long it takes the participants to respond to the questions. However, I am asking for 30 to 45 minutes of the project management business leaders' time to complete the interview. The collection of additional data will occur through the gathering of public company documents that demonstrate the knowledge management practice strategies of project management business leaders. Participants can provide the relevant public company documents to the researcher via e-mail.

Procedures:
If you agree to be in this study, you will:

- Acknowledge that you are of the age of 18 or older
- Acknowledge that you can read and understand the English language
- Complete an interview that will consist of 10 interview questions
- Complete this interview via a Skype/phone interview with the researcher
- Attend the interview at the scheduled date and time
- Agree to an interview audio recording so the researcher can create an interview transcript

- If applicable, provide any relevant public company document via e-mail
- For member checking, review the preliminary summary of the findings to validate and determine any discrepancies in the interpretation of the data by the researcher

Participants will receive the interview questions via e-mail with the informed consent form. Here are some sample questions:

1. How do you share your personal project experiences?
2. How do you share your technical project knowledge?
3. How does your organization share project knowledge?

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision if you choose to be in the study or not. No one at Walden University will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time by notifying the researcher via e-mail at [insert e-mail] or via phone at [insert phone number]. You can also stop in the middle of the interview without any advanced notice.

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 stress or becoming upset. Being in this study would not pose risk to your safety or wellbeing.

Participants will have the benefit of better understanding the knowledge management practice strategies that project management business leaders use to improve better knowledge sharing in their project-based organizations.

Payment:
There will be no incentives for participants of this research study. This study is voluntary. Interviews will be scheduled at the convenience of the participants. The project management business leaders will complete a semistructured interview via Skype/phone.

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. **In addition, the researcher will not include your name, organization, or anything else that could identify you in the study reports.** The researcher will not inform participants' employers of their participation in the study. All participants will remain confidential. The researcher is not a mandated reporter. The sharing of illegal activity is very unlikely for this research study. The researcher will redirect the conversation away from such disclosure if the researcher sense it appearing. **Participants <u>will not</u> be asked to waive legal rights.** However, although, not applicable to this research study, if the research might reveal criminal activities that the researcher feels obligated to report such as child/elder abuse, bribery, extortion, fraud, racketeering, larceny, and murder, the researcher will have a duty to report your personal information to local authorities. The participation in criminal activities will limit my ability to maintain your confidentiality. All participants of the focus group must keep what is said in the group private.

Data will be kept secure by a password-protected computer at the researcher's home. All paper documents will be uploaded to an electronic file and the hardcopies will be shredded. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Alternatively, if you have questions later, you may contact the researcher via e-mail at [insert e-mail]. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. She can be reached at 1-800-925-3368 ext. 312-1210 from within the USA, 001-612-312-1210 from outside the USA, or via e-mail at irb@waldenu.edu. Walden University's approval number for this study is 12-28-16-0447532 and it expires on December 27, 2017.

The researcher will provide you with a copy of this form to keep once the participant and the researcher sign it.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to decide about my involvement. By signing below, I understand that I am agreeing to the terms described above.

Printed Name of Participant _____

Date of consent _____

Participant's Signature _____

Researcher's Signature _____

INFORMED CONSENT FORM (FOCUS GROUP)

You are invited to take part in a research study of exploring the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. The researcher is seeking *team members* who fit the criteria to take part in a focus group. The researcher is inviting project team members (i.e. project leaders, project coordinators, and project employees) who work for project management business leaders. Members of the focus group must have a minimum of 1-2 years of experience working in their project-based organizations.

The focus group will consist of six focus group participants from four project-based organizations. All participants will have experience with knowledge management practice strategies for improving knowledge sharing in their project-based organizations. This form is part of a process called "informed consent" to allow you to understand this study before deciding whether to take part.

Researcher, Trenese McNealy, a doctoral student at Walden University, is conducting this study. The researcher is a member of the Project Manager Network and the Project Management Institute Atlanta Chapter LinkedIn social media groups. However, her role as researcher is separate from her role as a member of the social media groups.

Background Information:
The purpose of this study is to explore the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. To maintain the privacy of the interviews, the interview setting for the focus group will occur within an off-site location such as a hotel meeting boardroom in metro Atlanta, Georgia. The focus group will occur in a prescheduled in-person group discussion for participants who work for project management business leaders.

The interview duration will depend on how long it takes the participants to respond to the questions. However, I am asking for 45 to 60 minutes of the focus group's time to complete the interview. The collection of additional data will occur through the gathering of public company documents that demonstrate the knowledge management practice strategies of project management business leaders.

Procedures:
If you agree to be in this study, you will:

- Acknowledge that you are of the age of 18 or older
- Acknowledge that you can read and understand the English language
- Complete an interview that will consist of 10 interview questions
- Complete this interview via an in-person focus group process with the researcher
- Attend the interview at the scheduled date and time
- Agree to an interview audio recording so the researcher can create an interview transcript
- The focus group participates must keep what is said in the group private
- For member checking, review the preliminary summary of the findings to validate and determine any discrepancies in the interpretation of the data by the researcher

Participants will receive the interview questions via e-mail with the informed consent form. Here are some sample questions:

4. How do you share your personal project experiences?
5. How do you share your technical project knowledge?
6. How does your organization share project knowledge?

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision if you choose to be in the study or not. No one at Walden University will treat you differently if you decide not to be in the study. If you decide to join the study now, you can still change your mind later. You may stop at any time by notifying the researcher via e-mail at [insert e-mail] or via phone at [insert phone number]. You can also stop in the middle of the interview without any advanced notice.

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 stress or becoming upset. Being in this study would not pose risk to your safety or wellbeing.

Participants will have the benefit of better understanding the knowledge management practice strategies that project management business leaders use to improve better knowledge sharing in their project-based organizations.

Payment:
There will be no incentives for participants of this research study. This study is voluntary. Interviews will be scheduled at the convenience of the participants. The project team members will complete the interview within an in-person focus group.

Privacy:
Any information you provide will be kept confidential. The researcher will not use your personal information for any purposes outside of this research project. **In addition, the researcher will not include your name, organization, or anything else that could identify you in the study reports.** The researcher will not inform participants' employers of their participation in the study. All participants will remain confidential. The researcher is not a mandated reporter. The sharing of illegal activity is very unlikely for this research study. The researcher will redirect the conversation away from such disclosure if the researcher sense it appearing. **Participants <u>will not</u> be asked to waive legal rights.** However, although, not applicable to this research study, if the research might reveal criminal activities that the researcher feels obligated to report such as child/elder abuse, bribery, extortion, fraud, racketeering, larceny, and murder, the researcher will have a duty to report your personal information to local authorities. The participation in criminal activities will limit my ability to maintain your confidentiality. All participants of the focus group must keep what is said in the group private.

Data will be kept secure by a password-protected computer at the researcher's home. All paper documents will be uploaded to an electronic file and the hardcopies will be shredded. Data will be kept for a period of at least 5 years, as required by the university.

Contacts and Questions:
You may ask any questions you have now. Alternatively, if you have questions later, you may contact the researcher via e-mail at [insert e-mail]. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. She is the Walden University representative who can discuss this with you. She can be reached at 1-800-925-3368 ext. 312-1210 from within the USA, 001-612-312-1210 from outside the USA, or via e-mail at irb@waldenu.edu. Walden University's approval number for this study is 12-28-16-0447532 and it expires on December 27, 2017.

The researcher will provide you with a copy of this form to keep once the participant and the researcher sign it.

Statement of Consent:

I have read the above information and I feel I understand the study well enough to decide about my involvement. By signing below, I understand that I am agreeing to the terms described above.

Printed Name of Participant _____

Date of consent _____

Participant's Signature _____

Researcher's Signature _____

Appendix H: Invitational E-mail

Hello,

My name is Trenese McNealy, a doctoral student at Walden University. I am sending this message to invite you to take part in a research study of exploring the knowledge management practice strategies that project management business leaders use to improve knowledge sharing in project-based organizations. I am seeking *leaders* who fit the criteria to take part in an *interview*. I am inviting project management business leaders (i.e. project managers, project directors, and senior project managers) who work for project-based organizations within the metropolitan areas of Atlanta, Georgia (metro Atlanta) to be in the study. In addition, I am seeking *team members* who fit the criteria to take part in a focus group. I am inviting project team members (i.e. project team leaders, project coordinators, and project employees) who work for project management business leaders.

Project management business leaders must have a minimum of 2-3 years of experience to obtain responses from more experienced individuals. Members of the focus group must have a minimum of 1-2 years of experience working in their project-based organizations. All participants and their organizations will remain confidential throughout this research study. To maintain the privacy of the interviews, the interview settings for the project management business leaders will occur through a Skype/phone interview to give participants an opportunity to speak about their knowledge management and knowledge sharing experiences in a one-on-one private setting. The interview setting for the focus group will occur within an off-site location such as a hotel meeting boardroom in metro Atlanta, Georgia. The focus group will occur in a prescheduled in-person group discussion for participants who work for project management business leaders.

If you would like to participate in this study and meet the above criteria, please e-mail me and I will send you the informed consent form to review and sign, along with a copy of the interview questions to review in advance. **All Project Management Business Leaders' interviews will occur between January 24, 2017 - March 4, 2017 via a Skype/phone interview.** Interviews can occur between 7:00PM - 9:00PM Monday – Friday, 12:00N – 7:00PM Saturday, or 3:00PM – 7:00PM Sunday. Please provide your available date and time to schedule the interview with myself, the researcher. **The Project Team Members' interview will be held as an in-person focus group interview on Saturday, March 25, 2017 at 11:00AM in metro Atlanta, GA.**

Please let me know if you have any questions.

Thank you,

Trenese McNealy, MBA
[Insert e-mail]
[Insert phone number]