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# Knowledge Acquisition Processes: Understanding The Communication Event

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**KNOWLEDGE ACQUISITION PROCESSES: UNDERSTANDING THE  
COMMUNICATION EVENT**

by

**RICHARD J. ULREY JR.**

**DISSERTATION**

Submitted to the Graduate School

of Wayne State University,

Detroit, Michigan

in partial fulfillment of the requirements

for the degree of

**DOCTOR OF PHILOSOPHY**

2015

MAJOR: COMMUNICATION (Organizational)

Approved By:

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Advisor	Date
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## **DEDICATION**

*To my wife Colleen; my two daughters Ivy and Zoey; many family members;  
my supportive employer and many faithful coworkers without whom  
I would have never finished this research project.*

## ACKNOWLEDGMENTS

*I would like to express sincere appreciation to my committee chair, Dr. Donyale Padgett.*

*She encouraged me to persevere. Without her support this dissertation would not exist.*

*Next, I would like to thank my committee members, Dr. Fred Vultee, Dr. Denise Vultee,*

*and Dr. Thomas Naughton. They motivated me to reach higher and dig deeper.*

*Their criticism empowered me to find my true potential.*

*In addition, I would like to thank my graduate advisor, Dr. Pradeep Sopory. He helped me to*

*navigate university protocol. His recommendations were instrumental.*

## PREFACE

*For many years I was puzzled and intrigued by observations, patterns, and themes that I observed in the workplace about how individuals acquired knowledge. At some point, I realized my dual role as both a participant and an observer in this communication phenomenon. That realization is what motivated me to declare a personal stake in the mysteries of knowledge acquisition and I began to investigate this topic from an academic perspective.*

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## CHAPTER 1 – INTRODUCTION

Recently, organizational leaders have been challenged by economic and social changes. They have experienced competitive global economies, expanding digital technologies, and rapid policy changes. Many leaders have struggled to acquire the knowledge necessary to identify problems, formulate action plans, and execute them to achieve their business objectives. Some leaders have learned how to succeed during extremely turbulent times. These challenges are best illustrated by the Great Recession of 2008 and the recent explosion of social media in 2003. This research project is focused upon understanding the experiences of leaders, rather than making generalizations about them.

### **Background of the Problem**

Organizational leaders recently experienced sudden shifts in global supply and demand, staggering levels of government and corporate debt, a record number of bankruptcies around the world, and rapid market consolidations. According to Steve Schaefer (2011) at Forbes:

The Great Recession, triggered when the (U.S.) subprime mortgage market collapsed and pricked the housing bubble, sparked a wave of bankruptcies, including some bigger than U.S. courts had ever seen.” ... [the list included:] (1) Lehman Brothers ... (assets: \$691 billion) ... the largest corporate bankruptcy in U.S. history ... (2) Washington Mutual ... (assets: \$327.9 billion) ... the largest bank failure in U.S. history, ... (3) General Motors ... (assets: \$91 billion) ... kept alive thanks to [U.S.] government bailout loans, ... (4) CIT Group ... (assets: \$80.4 billion) ... [restructured] under the leadership of former Merrill Lynch and NYSE CEO John Thain, ... and (5) Chrysler ... (assets: \$39.3 billion) ... pushed into bankruptcy by the Obama Administration, which then enlisted Fiat and Sergio Marchionne to be partners in the effort to revive the car company. (p. 1).

This list of bankruptcies describes the economic conditions and its impact upon corporations.

The United States Great Recession of 2008 triggered the Great Recession in Asia from 2008 to 2011 and continued with the Eurozone Crisis from 2009 to 2012. According to the National Bureau of Economic Recovery, the US entered into a recession in 2008 (NBER Cycles,

2010). According to the US Department of Labor, 8.8 million jobs were lost from February 2008 until February 2010 (Goodman and Mance, 2011). Gross Domestic Production decreased 5.1 percent (Elwell, 2013). Unemployment increased 5.3 percent from November 2007 (4.7 percent) to November 2009 (10 percent) (FRED Civilian Unemployment Rate (n.d.). The National Bureau of Economic Recovery marked the end of the recession in mid-2009 (NBER Cycles, 2010). This Great Recession of 2008 is known to be the worst since the Great Depression of the 1930s. The United States Great Recession quickly spread to Asia and affected most of the region. The Great Recession in Asia began in 2008 when at least 670,000 small and medium-size businesses in China closed, leaving five million people unemployed, and the Hong Kong economy slipped into a recession (Bezlova, 2009). In 2009 Japan exports declined for the first time in five years, and Samsung Electronics reported a decrease in sales for the first time since 1997 (Kihara, 2008). The Eurozone Crisis began in 2009 when the Greek government disclosed that the previous government underreported the budget deficit (Barber, 2009). Panic spread to several Euro-zone countries and the event developed into a European sovereign debt crisis when many banks requested a bailout (Taylor, 2010). Within a few years a global economic crisis developed.

The explosion of social media accelerated the transmission of these breaking news stories. This left leaders of organizations with a limited amount of time to respond and protect profit margins. An understanding of how leaders have embraced technology to acquire knowledge and achieve their objectives will help organizations to survive and thrive in a high tech economy.

According to Gordon Moore (1975), the speed and memory of computer technology is expected to double every two years. This technology trend became known as Moore's Law. His

prediction has continued to be true for more than 40 years. Roberts (2000) says that recent assessments indicate Moore's prediction is actually accelerating. Statistics put this sudden social change into a practical perspective. There are about 7 billion people in the world and about 350 million people (or 5 percent) are in North America. At this time 34 percent of the world population uses the Internet in the home, with 78 percent penetration in North America (InternetWorldStats.com, 2013). About 56 percent of American adults have a smartphone (PewInternet.org, 2013). Today over 4.2 billion use mobile devices to access social media sites (SocialMediaToday.com, 2013). This is a snapshot of current social media statistics: Facebook has over 1.1 billion users, You Tube has over 1 billion users, Twitter has over 500 million users, Google+ has over 500 million users, LinkedIn has over 238 million users, Instagram has over 130 million users, and Pinterest has over 70 million users (SocialMediaToday.com, 2013). This data supports the argument that rapid computer advancements are creating a social communication phenomenon where individuals have access to almost any product or service information at any time in any location. This individual empowerment is creating efficient economies for consumer goods and services.

During the previous twenty-five years several scholars (Brown & Duguid, 1991; Epple, Argote & Devadas, 1991; Huber, 1991; March, 1991; Simon, 1991; Augier, 2001; Easterby-Smith & Lyles, 2011; Gherardi, 2011; Hayes, 2011; Plaskoff, 2011; Taylor & Osland, 2011; Teece & Al-Alali, 2011; Van Wijk, Van Den, Bosch & Volberda, 2011; Von Krogh, 2011), consultants, and practitioners have searched for a conceptual foundation that connects what has been learned about knowledge acquisition (KA) and apply it in practical applications. While many of these research studies about KA have been quantitative (Chandler & Lyon, 2009; Grimpe & Kaiser, 2010; Jayasingam, Ansari & Jantan, 2010; Li, Liu & Liu, 2010; Li, Poppo &

Zhou, 2010; Li, Wei & Liu, 2010; Liao, Wu, Hu & Tsui, 2010; Lopez-Nicolas & Soto-Acosta, 2010; Magnier-Watanabe & Senoo, 2010; Parra-Requena, Molina-Morales & Garcia-Villaverde, 2010; Fletcher & Harris, 2012; Laursen, Masciarelli & Prencipe, 2012; Xu, Huang & Gao, 2012; Zhou & Li, 2012), fewer studies have been qualitative (Inkpen, 1998; Vavoula & Sharples, 2002; Chesser-Smyth, 2005; Dreyfus & Dreyfus, 2005; McKenna & Newton, 2008; Sun, 2010).

Most of these organizational learning (OL) research studies have examined KA as either an independent or a dependent variable. This research approach to understanding KA can be illustrated as a group of OL scholars sitting on a park bench observing the wind tumble empty cardboard boxes across a playground. In this example the boxes represent KA events and the wind represents the social and economic forces that are being exerted upon KA activities, and the KA forces that the boxes exert upon the objects they impact. In this illustration, only a few of the OL scholars sitting on the bench have decided to jump up and chase after the cardboard boxes tumbling in the wind to catch them and observe what is happening inside the box. A closer look and explanation about how communication elements function inside of KA events will enable academics to develop more practical models for understanding what has been learned about KA and how to apply it.

### **Statement of the Problem**

We still have a limited understanding of how leaders experience and relate KA events to their business objectives. This challenge requires scholars to take a holistic dive into understanding the inner workings of KA events. The speed, agility and methods that leaders use to acquire knowledge, address social and economic challenges, solve problems and achieve business objectives are essential to organizational growth. A leader's ability to identify and adopt KA skills is essential for survival and success in the marketplace. As a dynamic high-tech

global economy continues to challenge leaders with achieving business objectives and organizations with increasing market share, scholars must continue to seek a better understanding of KA, develop conceptual foundations, teach the world how to apply them, and expand this body of knowledge.

### **Purpose of the Study**

Looking at KA events as a unit of analysis will enable academics to observe how communication variables are related to business objectives like discovering new business partners, technologies, and policies. The intention of this study is not to find what companies have done wrong, but rather to find what a successful corporation that has demonstrated progressive growth for more than forty years has done right.

The purpose of this research project is to understand how leaders within this company describe and experience KA events. Scholars must continue to open up areas of KA that have not yet been explored. Examining the communication elements within KA events using the traditional narrative prose method of telling a news story may enable scholars to dismantle and label the components of leaders' KA experience, behaviors, motives and interactions. Just like the six sides of a box define the space of the container, the six communication elements of narrative prose define the context of a KA event. This in-depth understanding of KA is needed by organizations, leaders, academia, scholars, and consultants to provide insights about how some leaders have learned to embrace the challenges associated with competitive global economies, expanding digital technologies, and rapid policy changes.

### **Importance of the Study**

The results of this project may be important to multiple communities. At the broadest level, they may benefit a community of leaders that is struggling to achieve organizational

objectives. As leaders continue to face day-to-day challenges with processing large amounts of information and quickly acquire knowledge, they may learn to identify and adopt essential KA skills that may assist them with leveraging KA events to their advantage. At the intermediate level, they may benefit a community of organizations that is struggling to compete and grow in the marketplace. As organizations encounter ongoing struggles with managing unexpected social and economic changes, they may learn how to develop a culture that enables them to perpetuate a cycle of successful management activities. At the narrowest level, they may benefit a community of scholars that is struggling to update a body of research about KA. As scholars investigate participants' behavior, they may learn how to develop conceptual foundations and models for understanding KA events. Each of these communities may gain an understanding about why communication elements are important to KA processes.

### **Nature of the Study**

This KA research project was inspired by the work of Vavoula and Sharples (2002). They gathered raw data to evaluate adult learning practices and experiences to develop a framework for designing a personal mobile software system to support lifelong learning. Vavoula and Sharples (2002) conducted structured interviews and reviewed diary entries describing adult learning experiences. Their results revealed that learning is mobile in terms of three different contexts: (1) space (workplace, home, and play), (2) life (work demands, self-improvement, and leisure time), and (3) time (different times of day, working days, and weekends) (Vavoula and Sharples, 2002). Vavoula and Sharples (2002) discovered that people learn at three operational levels: (1) at the lowest level, learning activities are discrete acts; (2) at the middle level, the acts are grouped together by thematic, spatial, and/or temporal proximity to form learning episodes; and (3) at the highest level, the episodes are grouped by objectives to



form learning projects. Their research concluded that learning activities can occur about anything, anywhere, and anytime (Vavoula and Sharples, 2002).

Following their example, this study combined multiple methods of analysis to answer a progressive series of research questions. It started with conducting semi-structured interviews to gather raw data about the recent KA experiences of leaders within an organization. Next it used constant comparison to identify concepts and make meaningful distinctions within the key elements of the KA experiences. The researcher decided to look for sub-categories within the primary categories of the KA event. Then he used thematic analysis to identify patterns from KA sub-categories within KA stories. Eventually this method disclosed themes from combinations of KA sub-categories in KA events. Finally the researcher decided to use descriptive analysis to identify relationships between the KA sub-categories and leaders' demographic characteristics. This method uncovered meaningful demographic behaviors of the leaders. He also used descriptive analysis to identify relationships between KA sub-categories and business objectives. This method discovered strategic behavior within the organization. Similar to Vavoula and Sharples (2002), the researcher's overall investigation utilized a combination of methods to answer the respective research questions and provided scholars and practitioners with a holistic understanding of why communication elements are important to KA events.

### **Assumptions**

As a holistic study, this research project makes a series of assumptions as given. First, this study assumes the participants are telling the truth. Second, it assumes each participant's perception of reality is different from another participant's perception of reality. Third, this project assumes that both the interviewer and the interviewee mutually influence each other

through their conversation. Fourth, this research places less importance upon making generalizations from the sample and assumes more importance upon understanding the experiences of the participants. Fifth, it assumes that processes are not necessarily linear, and an effect may loop back and become a cause. Finally, this study assumes it is better to gather facts and infer meanings from observations using an inductive approach.

### **Definition of Terms**

The following terms are defined to assure a common understanding of the concepts among the researcher and readers of the study.

**Organizational learning** is the process of creating, storing, and transferring knowledge; it includes four constructs: knowledge acquisition, information distribution, information interpretation, and organizational memory (Huber, 1991).

**Knowledge acquisition** is the process of gathering, understanding, and organizing information; it includes five sub-processes: congenital learning, experimental learning, vicarious learning, grafting and searching (Huber, 1991).

**Congenital learning** is inherited knowledge existing at the organization's birth provided from its founders (Huber, 1991).

**Experimental learning** is experience from feedback, self-appraisals, and adaptability (Huber, 1991).

**Vicarious learning** is observing other groups, imitation, and mimicry (Huber, 1991).

**Grafting** is obtaining new members and attachment to others for quick learning (Huber, 1991).

**Searching** is exploration by focused seeking, scanning, and performance monitoring (Huber, 1991).

**Dependent KA research** studies KA as a dependent variable being examined within organizations.

**Independent KA research** studies KA as an independent variable being examined within organizations.

**Holistic KA research** studies the psychological, physical, and social KA experiences of individuals during unique events.

**Purposive sampling** is the intentional selection of participants who have direct experience with the particular practice that is problematic and are knowledgeable about it, like leaders.

**Leaders** are people with authority who inspire, guide, direct, influence, or command others, like executives, managers, consultants, and teachers, as observed in organizations.

**Organizations** are groups of people with a particular purpose, like a business, society, or association.

**Events** are circumstances or occurrences that represent an important activity described by traditional elements, like who, what, where, when, why, and how, as observed in communication literature (Vavoula & Sharples, 2002).

**Categories** are groups of items that possess common qualities or characteristics, like relationships, subjects, times, locations, reasons, and channels, as observed in interviews.

**Themes** are ideas or topics that are expanded upon in discussion or composition, like policy, context, power, teams, and performance monitoring, as observed in KA literature (Chesser-Smyth, 2005; McKenna & Newton, 2008; Sun, 2010).

**Objectives** are efforts or actions that are intended to be obtained, achieved, or completed, like goals or targets, like business partners, technologies and policies observed by leaders.

The preceding terms and examples illustrate the details about how these concepts will be applied in the study.

### **Theoretical Framework**

This study makes extensive reference to the KA experiences of leaders in a successful organization. It acknowledges the role of these leaders as actors within the organization's network, and recognizes actor-network theory (ANT). The origin of ANT is attributed to the work of Latour (1996), Callon and Blackwell (2007), and Law (2009), who use it to describe actors as instrumental parts of a social network. According to Law (2007), ANT is actually a "material-semiotic" method of analysis that describes the relationship between objects and concepts, rather than a theory (p. 141). ANT seeks to describe the relationships (connections)

between actors (nodes) in an organization (network) (Law, 2009). Callon and Blackwell (2007) agree that ANT is not a theory. Law (2009) suggests that ANT is descriptive, not foundational. According to Law (2009), ANT “is better understood as a toolkit for telling interesting stories about, and interfering in, those relations” (p. 141-42). Latour (1996) concurs with the intent of ANT, stating, “It was devised as a reaction to the often too global concepts like those of institutions, organizations, states and nations, adding to them a more realistic and smaller set of associations” (p. 369). This research project sits at the intersection of ANT and OL theory, in the sense that it has utilized ANT as a theoretical foundation for advancing our understanding of Huber’s (1991) KA sub-processes by investigating communication elements and the relationships between leaders both inside and outside of the organization’s network.

This research project will also utilize Huber’s (1991) Organizational Learning (OL) model as the theoretical framework and critical lens to evaluate the experiences of leaders within an organization. Huber’s (1991) model explored four constructs of OL: knowledge acquisition (KA), information distribution, information interpretation, and organizational memory. KA is the broadest construct and includes five subcomponents: congenital learning, experimental learning, vicarious learning, grafting, and searching (Huber, 1991). Within the construct of KA, Huber (1991) argues that experimentation and searching have been thoroughly investigated. Little is understood about grafting, vicarious learning and congenital learning. Information distribution is relatively well understood. What still needs to be explored is how those with information can quickly find those who need it (Huber, 1991). Information interpretation also includes subcomponents like cognitive maps and framing, media richness, information overload, and unlearning. These subcomponents are considered organizational rather than individual, but require empirical study to be advanced any further (Huber, 1991). Organizational memory

comprises information storage, retrieval, and computer-based memory that needs a comprehensive systematic analysis by those interested in decision making (Huber, 1991). Huber's (1991) study of existing research and processes concludes there is neither a consensus about organizational learning nor an understanding about how it should be evaluated. He makes a practical suggestion to seek, describe, interpret, and evaluate specific communication processes of KA like grafting, vicarious learning, and congenital learning (Huber, 1991). Huber's (1991) OL model, and specifically his KA sub-processes, will also serve as the conceptual foundation for this study.

### **Organization of the Study**

Chapter 1 introduces a conceptual overview of the research project. Chapter 2 presents a literature review of KA from its popularity in the early 1990s to the present day. Chapter 3 provides a detailed explanation of the holistic methods and procedures used during the research project. Chapter 4 discusses multiple types of data analysis used in the study. Finally, Chapter 5 concludes with summarizing the key findings and interprets the results of the study.

## **CHAPTER 2 – LITERATURE REVIEW**

This literature review is organized into sections that include a theoretical orientation; a discussion of research on the topic, including a review of key elements in KA events; a discussion of research on the method; a synthesis of research findings; and a critique of previous research. Finally, it provides an overview of the KA literature in support of the research questions designed for this project.

### **Review of the Theoretical Orientation**

In early 1991 James G. March and Richard M. Cyert were honored in a special issue of *Organization Science* and popularized organizational learning (OL). They had co-authored the

first general theory of OL in 1963, which claimed that over time organizations can learn and knowledge is capable of being stored (Cyert and March, 1963). This philosophy became known as the Carnegie tradition (Easterby-Smith and Lyles, 2011). The 1991 special issue included articles by Epple, Argote and Devadas (1991), March (1991), Huber (1991), Simon (1991), and Brown and Duguid (1991). Most of these scholars followed the Carnegie tradition, which emphasized the “efficient use of knowledge in organizations, while recognizing that there are substantial (largely human) antecedents” (Easterby-Smith & Lyles, 2011, p. 12). Brown and Duguid (1991) suggested an alternative theoretical approach, contrary to the Carnegie tradition, that emphasized “social processes of organizational learning are pre-eminent” (Easterby-Smith & Lyles, 2011, p. 12). For over twenty years this distinction in OL theory has remained a philosophical gap.

More recently, the Carnegie tradition supports the works of Van Wijk, Van Den Bosch, and Volberda (2011), and Teece and Al-Alali (2011). Similarly, the Alternative tradition supports the recent works of Hayes (2011), Gherardi (2011), Taylor and Osland (2011), Von Krogh (2011), and Plaskoff (2011). This review of OL theory agrees with Easterby-Smith and Lyles’ (2011) suggestions and traces the research stream of articles that follow the Carnegie tradition, and then it examines more articles that follow the Alternative tradition. Finally, it discusses and compares the respective strengths and weaknesses between these two distinct theoretical approaches and delivers a balanced understanding of OL theory.

### **Carnegie OL Theory**

The charter members of the Carnegie tradition dominated OL theory with an efficiency theme. From their perspective, knowledge was a scarce resource to be managed prudently. This thinking is represented from a variety of perspectives. Epple, Argote and Devadas (1991) used a

learning curve model to investigate the intra-plant transfer of knowledge acquired through learning by doing. The hypothesis assumed that knowledge is embedded in the technology (assets) and is measured by the amount of transfer across shifts, since both shifts use the same machines (Epple et al., 1991). Epple, Argote and Devadas (1991) analyzed three aspects of knowledge transfer: (1) the transfer between lines operating on the same shift, (2) the carry-forward transfer from one shift to another on the same line after the plant makes a shift change, and (3) the transfer across time on the same line after a period of downtime. Results revealed partial, but not complete, transfer occurs from one shift or line to the next (Epple et al., 1991). According to Epple, Argote and Devadas (1991), worker experience and reliable communication processes of the team leaders and staff both within and between shifts are also important to the transfer of knowledge.

March (1991) examined knowledge transfer from a different viewpoint. He explored adaptive processes and the relationship between exploring new opportunities and exploiting existing methods. This involved tense communication processes among leaders about how resources would be allocated over time and space to balance the cost and benefits of operations (March, 1991). In his first model, he investigated the mutual learning between social members using an organizational code; in the second model, he investigated the advantages of learning to compete (March, 1991). His results revealed that adaptive processes help organizational practices to get better. March (1991) argues that adaptive processes are likely to be effective in the short term but destructive in the long term when exploitation is a higher priority than exploration. Both March (1991) and Epple, Argote and Devadas (1991) address the importance of knowledge practices embedded within operations and present opportunities for exploring how knowledge functions with organizational culture.

Huber (1991) examined organizational practices from a more abstract level and suggested that knowledge acquisition is the most complex aspect of OL theory. It comprises five sub-processes: (1) congenital learning, (2) experiential learning, (3) vicarious learning, (4) grafting, and (5) searching. These information-gathering communication processes lack a conceptual and cumulative body of work to synthesize with mature literature (Huber, 1991). He emphasized that grafting to others and searching for new knowledge to improve performance are essential to organizational survival. Huber (1991) says the research surrounding information distribution is rich and mature. He found information interpretation and organizational memory require more empirical work and systematic investigation to further their advancement (Huber, 1991). Huber's (1991) closing arguments reiterated the need for organizations to "learn more effectively" (p. 109).

Simon (1991) shares Huber's (1991) abstract perspective and describes organizational learning as an internal social phenomenon. Learning does not take place inside of organizations; it takes place inside of human heads (Simon, 1991). According to Simon (1991), organizational learning occurs in two contexts: (1) by the learning of members and (2) by adopting new members who have new knowledge. This fundamental communication process is the simple transmission of information from one member to another member (Simon, 1991). According to Simon (1991), organizations are best viewed as systems of interrelated roles. Roles guide organizational members to reason through the problems that face them to find solutions (Simon, 1991). Simon (1991) says each role in the organization is surrounded by and interacts with other roles. Innovation within an organization is challenged by both member turnover and stability (Simon, 1991). Turnover causes the loss of a member and the respective organizational knowledge, yet it also creates a vacancy that provides an opportunity to welcome a new member



how may create innovation. Stability provides for the retention of individuals with organizational knowledge. It also prevents an opportunity to welcome a new member and may create stagnation. Simon (1991) concludes with the importance of balancing turnover and stability to preserve organizational memory inside human heads and computer databases. Yet, the abstract concepts of Huber (1991) and Simon (1991) both lack the practical insights about communication processes provided by Epple, Argote and Devadas (1991), and March (1991).

More recent KA research by Van Wijk, Van Den Bosch, and Volberda (2011) revisited the efficiency theme. The authors have returned to the practical aspects of studying KA activities within operations and stated that absorptive capacity is one of the most prominent constructs examined in organizational learning research. According to Van Wijk et al. (2011), an organization's communication processes must support the ability to recognize, assimilate, and apply new external knowledge that influences the speed, frequency, and magnitude of innovation. Their recent work served to guide the definition, levels of analysis, and measurement of the construct, as well as assess refinements, extensions and reconceptualization of KA (Van Wijk et al., 2011). They proceeded to distinguish between antecedent knowledge, knowledge development, and knowledge networks (Van Wijk et al., 2011). Finally, Van Wijk et al. (2011) addressed central problems with absorptive capacity, and future research.

Similar to Van Wijk et al. (2011) and their early predecessors, Teece and Al-Alali (2011) continue the efficiency theme revival and have returned to the practical perspective of studying operational routines by reviewing knowledge assets, capabilities, and the theory of the firm (organization). Technical and organizational knowhow are the foundation of each firm's competitive position (Teece & Al-Alali, 2011). According to Teece and Al-Alali (2011), knowledge assets are embedded routines and established patterns for finding solutions to

organizational problems. These foundations must be maintained, developed, and grounded in the expertise of individuals (Teece & Al-Alali, 2011). Teece and Al-Alali (2011) define organizational learning as a communication process of sensing assets to build new knowledge, seizing assets to capture value, and transforming the organization to adapt knowledge into the competitive environment. They conclude by emphasizing that resources exist inside and outside the boundaries of the firm, and caution about the risks of contracting R&D services without adequate protection over the creation and transfer of intangible assets (Teece & Al-Alali, 2011). The preceding articles suggested by Easterby-Smith and Lyles (2011) emphasize the importance of learning contexts, and contain a consistent efficiency theme that follows the Carnegie tradition but is fading in popularity.

### **Alternative OL Theory**

Only one article in the special issue (Brown & Duguid, 1991) held a minority viewpoint in OL theory with a distinct social theme. From this perspective, knowledge was a plentiful resource to be shared liberally. This philosophy is also represented from a variety of perspectives. Brown and Duguid (1991) observed how people actually function in the workplace compared to how organizations describe those tasks in manuals, charts, programs, and job descriptions. It appears that job descriptions and other traditional training manuals mask how people actually work, learn, and innovate within a community of practice (Brown & Duguid, 1991). Brown and Duguid (1991) discovered that while firms rely upon training documentation in their attempt to improve operations, differences exist in the way work is performed. Their investigation revealed the communication processes by which tacit knowledge is informally transferred within the context of actual communities and practices (Brown & Duguid, 1991).

Brown and Duguid (1991) believe it is possible to reconceptualize how work is actually practiced to improve an organization's operations.

More recently Brown and Duguid's (1991) social theme is emerging in popularity. Hayes (2011) explored the relationship between information technology and knowledge management. Most research focuses upon the technical aspects, rather than the social context (Hayes, 2011). Hayes (2011) assumes a relational perspective when examining the use of information technology in knowledge management initiatives. This approach views knowledge as context-dependent and relies heavily upon the communication processes that support the transfer of information rather than the technical aspects (Hayes, 2011). Hayes (2011) reviews the recent relational literature and discusses those technologies that are most commonly used to support knowledge work (like intranets, groupware, and databases). He concludes that each technical domain is supported by a unique social context (Hayes, 2011). Hayes (2011) suggests the next knowledge management challenge will be developing enterprise knowledge networks that link unrelated technical domains within multiple social contexts.

Gherardi (2011) continues the social theme and presents the practice approach to organizational learning, which assumes collective doing and knowing are entwined. This means that learning is a communication process that takes place by practicing situated activities with others (Gherardi, 2011). Gherardi (2011) used the term *practice-based studies* to describe the sociological root of the concept of practices. Two orientations of practices exist, practices as the object of empirical analysis and practices as epistemology (studying the theory of knowledge) (Gherardi, 2011). Gherardi (2011) considers combining the practice and theory of knowledge as a guide or relational vision for collective doing. The focus upon knowledge practices hints at further opportunities to explore how KA functions within organizational culture.

Taylor and Osland (2011) explored KA practices from an international point of view and addressed the challenges of intercultural communication and global organizational learning. They identified how intercultural communication affects knowledge transfer (Taylor and Osland, 2011). Their examples included marginality, stereotypes, style differences, linguistic ability, cosmopolitanism, satisficing, cultural intelligence, and intercultural sensitivity (Taylor & Osland, 2011). They also examined the relationship between readiness to learn and levels of intercultural sensitivity that trigger people moving into the next stage of intercultural development (Taylor & Osland, 2011). The rapidly growing global economy needs further KA research in multi-cultural organizations.

Von Krogh (2011) joins the social theme crusade and investigates the role of communities within knowledge sharing. He reveals how knowledge links cognition and action, also integrating collective levels of analysis (Von Krogh, 2011). He suggests that additional research is needed to understand how cognition and action are linked to organizational performance (Von Krogh, 2011). Von Krogh (2011) asks: what communication processes do people use to share knowledge in organizations? His exploration addresses four contexts of knowledge: (1) justified true beliefs, (2) enabling actions, (3) explicit, and (3) tacit (Von Krogh, 2011). Von Krogh (2011) concludes his examination of knowledge sharing with a collective action framework and two possible solutions to the sharing problem: the use of agency and a nurturing resource.

Plaskoff (2011) also recognized the social theme trend and reintroduced the construct of community building by examining the intersubjective elements of community: (1) relationships, (2) identity, and (3) meaning. Individuals must learn how to learn organizationally by developing expanding circles of intersubjectivity (Plaskoff, 2011). Plaskoff (2011) presents a

method to foster intersubjectivity dimensions (believing, behaving, belonging) by using the APPLE process (assess, plan, prepare, launch, establish). He concludes by discussing the social-cultural approach to bridge differences between the theory and practice of building communities. These articles discussed by Easterby-Smith and Lyles (2011) also address the importance of learning contexts and contain a persistent social theme that follows the Alternative tradition.

### **Summary of the Theoretical Orientation**

The recent renaissance in KA research occurring in 2011 is not coincidental, but is rather the result of the social and economic pressures exerted on organizations by the Great Recession of 2008 and the recent explosion of social media in 2003. These two streams of research continue to embrace OL theory, but are entwined with efficiency and social interdependencies. Each of these groups figuratively sits facing the opposing side of the same OL concepts. One side will never touch the other, yet each is needed to provide a boundary of distinction for the other to reference. Each of these traditions philosophically camps on the opposite bank of the same river with opposing viewpoints.

The Carnegie camp places great importance upon the efficient use of knowledge resources and the prudent allocation of assets toward economic motives and strategic advantages for competitive leverage. March (1991) says competitive learning among team members is needed to allocate knowledge resources and maximize benefits. Huber (1991) says new knowledge to improve performance can be attained by organizations grafting to others. Van Wijk et al. (2011) say an organization's ability to recognize knowledge, assimilate it, and apply it is a valuable absorptive capacity. Each of these remarks illustrated the efficiency theme of the Carnegie camp.

The Carnegie camp also recognizes that there are substantial social antecedents. Epple et al. (1991) says people learn by doing and transfer that knowledge between shifts. Simon (1991) says organizational learning is a social phenomenon where people transfer information to one another and make decisions. Teece and Al-Alali (2011) say the expertise of individuals is an asset to the organization. Each of these remarks illustrates a social theme that is a weakness of the Carnegie camp's primary focus upon the efficient aspect of OL.

The Alternative camp places great importance upon the social processes of people living, learning, and working in communities toward the collective knowledge of the village. Brown and Duguid (1991) say communities of practice are composed of people working, learning, and innovating. Gherardi (2011) says societies of practice are people knowing and doing. Taylor and Osland (2011) say intercultural communities include many social variables: marginality, stereotypes, style differences, linguistic ability, readiness to learn, triggering events, sensitivity, cultural intelligence. Each of these responses illustrates the social theme of the Alternative camp.

The Alternative camp also recognizes that efficiency is subordinate to the social processes. Hayes (2011) says that balancing the benefits of social context and information technology tools is important. Von Krogh (2011) says improving organizational performance leads to knowledge sharing. Plaskoff (2011) says using the APPLE process (assess, plan, prepare, launch, establish) is a method to foster intersubjectivity dimensions (believing, behaving, belonging). Each of these remarks illustrates an efficiency theme that is a weakness of the Alternative camp's primary focus upon the social aspect of OL.

The Carnegie and Alternative approaches exist by virtue of distinguishing themselves from the other. Yet they both recognize the importance of learning contexts and maintain a

theme within their respective philosophies. In time it should become apparent to scholars that each of these research streams joins a common river of understanding about OL theory. This theoretical gap suggests that further research is needed to find a conceptual foundation in which to build a bridge between these interdependent philosophies. This research project explores communication events to identify how key elements function to create learning contexts and KA themes.

### **Review of Research on the Topic**

This review of KA research will start with an introduction to the controversial publications by Senge (1990), Huber (1991), and Sitkin (1992) that also made OL popular. It will then focus upon explaining Huber's (1991) KA sub-processes. Each of his five areas of KA research (congenital learning, experimental learning, vicarious learning, grafting, and searching) will be evaluated individually to provide an explanation of each learning discipline. Next, this review will discuss three perspectives used to research KA: dependent, independent, and holistic. Finally, a summary will be provided that supports the research questions developed for this study.

### **Organizational Learning Research**

Studies by Senge (1990), Huber (1991), and Sitkin (1992) illustrate how popular definitions of OL have evolved. A common theme among these OL definitions is how information flows and is processed. Although each author shares this interest, they approach organizational learning from a different point of view. Senge (1990) focuses upon a broad concept known as system thinking. Huber (1991) focuses upon understanding communication processes to promote organizational change. Sitkin (1992) focuses upon the complexities of

learning from failure. Huber's (1991) approach appears to be the most practical framework to pursue the advancement of OL, since it is not too broad, nor too complex to apply.

One of the most noted definitions of OL is offered by Peter Senge (1990). The learning organization can be built by practicing five learning disciplines: (1) personal mastery, (2) mental models, (3) shared vision, (4) team learning, and (5) system thinking (Senge, 1990). Personal mastery is attained by concentrating personal energy and patience to create an objective view of reality. Mental models are constructed by using generalizations and assumptions to understand the world. Shared vision develops when a group builds commitment toward a common image of the future. Team learning results from learning among a group within the organization, not individuals. System thinking occurs when these tools and knowledge are used to discover patterns and effect changes. His mention of personal mastery and mental models speaks to the needs of leaders. They must choose to raise their level of consciousness and aspire to acquire special skills. These two disciplines demonstrate the importance of leadership as an instrumental role for agents of change. His reference to shared vision and team learning indicates the importance of networking within the organization as a whole. Groups must elect to pursue ongoing development. These two disciplines characterize the traits of organizational growth.

Finally, his message about systems thinking is the ultimate challenge for both the leaders and the organization. It represents the synergy that occurs when the interdependency between the leader's needs and the organization's needs becomes harmonious. This discipline is what sustains the culture of an entity. Senge (1990) says the key to learning in organizations is teams recognizing interdependencies and the value of incremental changes in processes. Senge's work, although popular, lacks the precision necessary to pursue specific investigations of his ideas. Rather, he offers a broad conceptual framework for learning in organizations that has been



bolstered by a number of other scholars. OL research needs more specific constructs to facilitate application in the workplace. Senge (1990) emphasizes the importance of learning disciplines and culture in building an OL organization.

Huber (1991) divided OL into four areas of study: knowledge acquisition, information distribution, information interpretation, and organizational memory. The most detailed area is KA, which is made up of five components (Huber, 1991). Inherited knowledge existing at an organization's birth is known as *congenital learning*. This type of knowledge, values and beliefs is provided by a new organization's founders. Experience gained from communicating feedback, self-appraisals, and adaptability is called *experimental learning*. This type of learning scenario provides an opportunity for exploring communication events. Observing other groups, imitation, and mimicry is labeled as *vicarious learning*. This opportunity to learn is derived from participating in ritualistic behaviors and complying with policies. Obtaining new members and attachment to others for quick learning is referred to as *grafting*. This is a common practice among leaders who are in need of new business partners. Exploration by focused seeking, scanning, and performance monitoring is called *searching*. This activity is critical for those leaders who are in need of new technologies. According to Huber (1991) the two most thoroughly investigated KA topics are experimental learning and searching. He recommends exploring grafting, vicarious learning and congenital learning, as those three KA topics are the least understood. Huber (1991) states that what still needs to be explored is information distribution, because those with valuable information must quickly find those who need it. Cognitive maps, framing, media richness, information overload, and unlearning require empirical study to advance information interpretation any further. Huber (1991) believes that information storage, retrieval and computer-based memory deserve a comprehensive systematic analysis by

those interested in organizational memory. He concludes that there is neither an accurate understanding of OL nor a consensus about how it should be evaluated. Huber (1991) suggests evaluating specific communication processes like grafting, vicarious learning, and congenital learning. Huber (1991) introduces the need to better understand communication processes and the practice of ritualistic behavior within organizations.

Learning may be prompted by a variety of factors. Sitkin (1992), for example, argues that failure is an essential prerequisite for effective adaptation and organizational learning. He discusses the seven benefits of failing (attention to deeper processing of information, ease of recognition and interpretation, increased search for solutions, motivation to adapt, risk tolerance, requisite variety, and practice) (Sitkin, 1992). He also describes the five liabilities of success (restricted search, reduced attention, complacency, risk aversion, and homogeneity) (Sitkin, 1992). Systematic failure, therefore, can foster learning, while other types of failure do not (Sitkin, 1992). Sitkin (1992) suggests several complex and diverse paths for advancing OL research. He highlights strategic failure as organizationally sponsored programs that are designed to induce constructive learning. Organizations foster intelligent failure by promoting a process focus (independent actions, challenging aspirations, fast feedback, and slow learning), legitimization of failure (visible leadership examples, career mobility after failure, and publicity), organizational culture and design (training for novelty, resource commitments, failure monitoring, and intelligent failure ideology) and failure management systems. This approach builds in complexity. Sitkin (1992) says these organizational conditions must exist in order to facilitate the five organizational characteristics of intelligent failure: well-planned actions, outcome uncertainty, modest scale, speedy action cycles, and domain relevance. The theory and practice of strategic failure can be applied in three contexts: fostering innovation, safety and

security, and mergers and acquisitions (Sitkin, 1992). He offers a set of ideas about learning in organizations that has also enjoyed popularity among scholars. Sitkin (1992) stresses the importance of strategic learning and situational contexts in learning organizations. This review of OL literature necessitates an understanding of how KA events function to produce situational context, ritualistic behavior, communication culture, and strategic learning in organizations.

### **Huber's KA Research**

According to Huber (1991), OL research needs more specific discoveries that pursue practical applications in the workplace. Both Senge's (1990) and Sitkin's (1992) research has revealed broad concepts and complex ideas that are popular, yet they have not provided an adequate foundation for the advancement of OL. Huber (1991) makes a practical suggestion to simply seek, describe, interpret, and evaluate specific communication processes that may promote OL. Huber's (1991) contribution to KA is particularly useful since it includes a model that identified five sub-processes: congenital learning, experimental learning, vicarious learning, grafting, and searching. Searching and experimental learning are the most thoroughly understood of these sub-processes. Searching is an innovative response to an organization's need for KA. These innovative activities include sensing the environment, hunting for targets and making comparative measurements. Experimental learning is an adaptive response to an organization's need for KA. These adaptive activities include gathering feedback, promoting interaction, striving for flexibility, utilizing post-decision feedback and improving performance. The remaining three sub-processes are congenital learning, vicarious learning and grafting. Congenital learning is inherited knowledge existing at the organization's birth that is provided from its founders (Huber, 1991). Vicarious learning is observing other groups, imitation, and mimicry (Huber, 1991). Grafting is obtaining new members and attachment to others for quick

learning (Huber, 1991). These activities are meaningful; however, less is understood about these processes. At this time, Huber's (1991) model is the most practical framework for understanding KA. An updated literature review may assist with advancing Huber's (1991) KA model by revealing themes and variants that help us to better understand the key communication elements within KA events.

### **Congenital Learning Research**

Founders bring inherited knowledge to the birth of a new organization. The organizational values and beliefs of these individuals are transported from their membership in a previous organization to a new entity. This form of KA is known as *congenital learning*. Limited research exists in this area of organizational study. This literature review will explore congenital learning research ranging from the cultural aspects to microeconomic impacts. The interpretation, imbalance, reform and collaboration of policy making revealed itself as a reoccurring activity relative to congenital learning. The following examples illustrate how lightly regulated or self-imposed policies are subject to wide interpretation and allow congenital learning to flourish, while heavily regulated or constrained policies are subject to narrow interpretation and inhibit congenital learning. Policy is a general theme associated with previous congenital learning studies. The examples below demonstrate these observations.

Negussie (2001) says the nursing profession must learn to promote harmony and avoid competition between traditional wisdom, cultural knowledge and modern medicine. Her research involves gathering global stories of nursing in remote areas of Africa, China, India, New Zealand, and Australia. She says that challenges exist with bringing modern medicine to tribal societies. Modern trained nurses move into tribal areas of the world and create new medical organizations, like hospitals and other health facilities. They share modern medical

science with tribal trained nurses, but are met with resistance to non-traditional methods. New medical organizations must embrace the concept of congenital learning. The founders of new medical facilities need to possess a mixed background within the field of nursing. Modern nurses are trained in scientific methods and policies while tribal nurses are trained in spiritual methods and policies. Negussie (2001) says that many medical facilities have adopted flexible policies that are applied subject to interpretation. Policy interpretation is a variant in the policy-making theme associated with congenital learning. This example illustrates that modern methods and tribal methods of medicine must complement each other; otherwise they are likely to compete and become less effective. Her research reveals that KA may be improved by an adaptive policy-making approach that combines both methods.

An analysis of the key elements in Negussie's (2001) KA events describes the relationships between modern nurses and tribal nurses as they struggle with teaching the subject of modern medical methods and policies at hospitals in remote geographic locations to improve (reason) health care in tribal regions. This research does show the channel of communication is face-to-face (storytelling); however, it does not describe the timing (hourly, daily, weekly, monthly, etc.) of communication between the nurses. We are not aware of the nurses' training schedule. It may be a single multi-day session, or a series of reoccurring encounters. These details are not known, and the omissions limit our ability to make meaningful inferences about the communication processes and the effectiveness of the KA events.

Agarwal, Echambadi, Franco and Sarkar (2004) say knowledge is inherited from one organizational generation to the next. Their empirical research of organizational characteristics about the computer hard drive industry market data from 1977 to 1997 provided descriptive statistics and correlation analysis as evidence that knowledge acquisition does exist between

highly innovative companies and the entrepreneurial start-ups that spin out from them. They say that connections exist between technical know-how and marketing knowhow. They discovered that technical talent and marketing talent typically struggle to find a complementary balance in managing innovation; otherwise, they will compete and separate. Industry talent with an above-average knowledge capacity in either of these disciplines will cause an imbalance and promote the likelihood of an entrepreneurial departure from the parent organization. If technical talent or marketing talent believes that their knowledge capacity is at an imbalance, then the birth of a new organization is probable. Highly innovative organizations must understand the risks of congenital learning. New entrants in the disk drive industry will create increased competition in the marketplace that likely results in a loss of market share and profits to the original organization. The founders of new entrepreneurial ventures have a higher likelihood of business success than their competitors have by simply hiring technical talent or marketing talent from another innovative organization. Agarwal, Echambadi, Franco and Sarkar (2004) say that most entrants in a new market are the result of policy imbalances between departments within the original organization. Here policy imbalance is a variant in the policy making theme associated with congenital learning. Their findings illustrate that knowledge capacity of technical talent and marketing talent must complement each other, or it will create discontent.

Agarwal et al.'s (2004) research describes the KA events as relationships between marketing entrepreneurs and technical entrepreneurs wrestling with the subject of manufacturing and selling computer hard drives to improve (reason) product quality in a competitive high-tech industry (location). It does not reveal the channel of communication, nor does it disclose the timing of communication between the entrepreneurs. The channel of communication is likely to be electronic (emails or phone calls), and the timing may be spontaneous, as quality issues arise.

Additional research addressing the channel and timing of communication would help us to better understand this KA sub-process.

According to Cohen and Ball (1990), inherited beliefs, cultural knowledge, and traditional practices of elementary mathematics teachers must be utilized when creating new instructional policies. Their research includes several case studies of California's educational mathematics reform. Most of their research focuses upon the challenges of introducing new mathematical instruction with modern textbooks and curriculum guides into an existing educational system. Many teachers struggle to adapt new methods of mathematical understanding and problem solving for elementary school students. New teachers easily accepted the policy reforms. Many existing teachers did not assimilate the new educational materials into the classroom. They were required to interpret and reframe the policy reforms in terms of their pre-existing practices, knowledge and beliefs. New teachers may share their understanding of new teaching methods with existing teachers. Together they may enact education policy reforms that share both the old and new methods of teaching mathematics. Emerging school districts may recognize and embrace the concept of congenital learning. The founders of new school districts may be receptive to change and have a mixed background within the field of instruction and educational policy reform to adapt the old and new methods of math and problem solving. Cohen and Ball (1990) say that California State educational officials have discovered the need for flexible policies that are subject to interpretation. The element of policy reform is revealed as a factor in managing inherited knowledge. In this case, policy reform is a variant in the policymaking theme associated with congenital learning. This example illustrates that new methods and existing methods of mathematics must complement each other and coexist.

The key elements in these KA events describe the relationships between California state education officials and mathematics teachers as they strive to accept and use new instructional techniques (subject) within the California elementary school system (location) to improve (reason) educational methods. This research does show the channel of communication is mostly written in the form of published policy statements and the distribution of new textbooks. It does not describe the timing of communication between the California elementary school system and the mathematic teachers. It may be a scheduled continuing education workshop, or simply the distribution of a policy statement and new textbooks.

Mytelka and Goertzen (2004) argue that inherited knowledge and cultural beliefs within established organizations can create contradictory incentives for innovation and growth. This is likely to occur when financial and legal policies are constrained. Their research includes an analysis of innovation and relationships within the grape-growing and wine-making clusters of the Niagara Peninsula in Ontario, Canada, during the 1980s and 1990s. Some agricultural regions have better natural soil and climatic conditions than others. This creates a clustering of growers and producers, and supporting organizations and service providers within close proximity. Public policy shaped the clustering of this vintner region in two ways. On the supply side, the Ontario Grape Growers Marketing Board created policies to set minimum prices and regulated the marketing of grapes. On the demand side, the Liquor Control Board of Ontario created policies to control the production and distribution of wine. Competing economic incentives between these two organizations and their respective outdated policies have constrained growth and innovation within this agricultural region. Further conflicts and mistrust between these two regulatory groups have led to the creation of a monopoly and regional stagnation relative to worldwide wine production. Adaptive policy-making and interpretation are



necessary within both organizations for a strategic restoration to occur. Both of these groups must embrace the concept of congenital learning. Leaders of agricultural regulation must include a mixed background within the fields of farming and production policy-making to interpret and adapt compatible financial and legal reforms necessary for growth and innovation. Mytelka and Goertzen (2004) say that while the Niagara Peninsula wine cluster is Canada's largest, it will remain a small global producer until both of these regulatory organizations make adaptive policy-making a higher priority. As illustrated above, policy collaboration is a variant in the policymaking theme associated with congenital learning. This example illustrates that collaborative policy-making is necessary for organizations with contradictory incentives to complement each other and learn to grow together.

The Mytelka and Goertzen (2004) study describes the KA events as relationships between the Ontario Grape Growers Marketing Board and the Liquor Control Board of Ontario fighting with the subjects of financially and legally regulating grape growing and wine distilling production to improve (reason) innovation and economic growth in a fertile agricultural region (location) of the Niagara Peninsula in Ontario, Canada. It does not clearly disclose the channel of communication, nor does it clearly reveal the timing of communication between these regulatory organizations. Further research measuring the channel and timing of communication at KA events may help us to better understand the KA sub-process.

In the literature related to congenital learning, policy-making is a theme commonly associated with hierarchal relationships struggling to overcome necessary changes to make improvements in fundamental processes. Comparing the preceding examples of congenital learning displayed meaningful distinctions between how constraining policies inhibit congenital learning, and adaptive policies allow congenital learning to flourish. Negussie (2001) revealed

that many medical facilities have adopted flexible policies that are applied subject to interpretation. Agarwal, Echambadi, Franco and Sarkar (2004) discovered most entrants in a new market are the result of policy imbalances between departments within the original organization. Cohen and Ball (1990) illustrate how California State educational officials discovered the need for flexible policies that are subject to reform. Mytelka and Goertzen (2004) say the Niagara Peninsula wine cluster is Canada's largest, however it will remain a small global producer until competing regulatory organizations learn to collaborate and make adaptive policy making a higher priority. This literature displays how policy-making continues to reveal itself as a theme within the study of congenital learning. This review of congenital learning literature shows that categorical comparisons within a theme may reveal meaningful distinctions like constraining policies and adaptive policies.

In each of the examples of policy-related literature, this review clearly describes the relationships, subjects, and reasons for the communication event. It does not usually disclose the channel of communication, nor does it clearly reveal the timing of communication between the parties involved. The location of the event is typically not described or measured enough to make any meaningful implications. This research study explores the channel, timing and location of communication events to help researchers and business leaders gain a better understand about how key elements in KA events are related to policy-making.

### **Experimental Learning Research**

Individuals must learn to adapt, make self-assessments, and utilize feedback when faced with new experiences. Their personal instincts and insights help guide them to cope with new challenges. This form of knowledge acquisition is known as experimental learning. The following studies reveal that context is a general theme within the experimental learning

literature, which includes various situational contexts like cultural, organizational, environmental and chronological. From one context to the next, experimental learning occurs at multiple levels. Lower-level learning entails behavioral development that includes familiar routines, controlled environments, formal rules, and a use of repetition. Higher-level learning entails cognitive development that includes unfamiliar routines, a lack of control, informal rules, and a use of heuristics. Context is a common theme found in experimental learning research. The case studies below demonstrate these observations.

Cook and Yanow (1993) say KA is a collection of cultural events. Their research analyzed the collective thought processes within three small workshops that make the best flutes in the world. Flute-making apprentices learn by experience from completing tasks and presenting flutes to a mentor for feedback. Mentors are responsible for maintaining the production of high-quality flutes from the apprentices within their organization. Initially, Cook and Yanow (1993) assumed that organizational learning requires observable changes to be linked with individual thought processes. Their case study addresses cognitive learning from a variation of contexts. The first examines the learning of individuals from an organizational context. The second perspective examines learning of organizations from an individual context. Cook and Yanow (1993) struggle with the assumption that evidence of learning is dependent upon identifiable changes within the organization. Later, they discover learning may occur without any observable changes in the organization. Eventually, they argue that acquiring knowledge individually and sharing information organizationally are related to a variation of experimental learning contexts. Therefore, it is easier to understand and accept KA from a cultural context than from an individual or organizational context. They say that experimental learning is derived from a variation of shared experiences, values, and assumptions that are

found within these three small workshops. This research suggests that cultural differences are a variant in the situational contexts theme associated with experimental learning.

Cook and Yanow (1993) described the KA events as relationships between mentors and apprentices challenged with making musical flutes (subject) within a small artisan district (location) of Boston, Massachusetts. These instruments are considered the finest quality flutes in the world (reason). This research further describes the timing and channel of communication as daily face-to-face dialog between the mentors and apprentices. This communication event may also include a detailed physical examination and demonstration of the partially completed flute to illustrate the quality expectations of the mentor. These complete details of the communication event are uncommon in KA literature. They allow researchers to achieve an understanding of how the communication process works and the effectiveness of the KA event.

Weick and Ashford (2001) studied communication processes in an organizational context. Their research analyzed three military attack case scenarios that ended in failure. These events occurred on an Army base, in an Air Force plane, and on a Navy ship. They make a comparative assessment and begin by looking at KA from three different aspects. The first aspect argues that evidence of learning is demonstrated by a change in performance when stimulus-situation and motivation are essentially simultaneous, rather than consequential. The second aspect argues that learning is an experience that is produced by a relatively permanent change in a skill or knowledge. The third aspect argues that developing knowledge about action-outcomes is the process that creates learning. For example, officers, soldiers, pilots, and sailors learn by experience how to make observations and communicate crisis conditions to their military officers for decisions and directives. These officers are responsible for completing their assigned missions and maintaining the safety of their military units. Understanding the

organizational context is critical to avoid misunderstandings that may result in failure and death. Next, Weick and Ashford (2001) use these three aspects to provide different perspectives for understanding KA. They introduce the nature of organizational learning and make three arguments that are fundamental to KA. The first argument is that individuals learn by classifying and naming various types of information (military vocabulary) in a variety of ways (military divisions) from an ongoing supply of knowledge (military manuals). The second argument states that individuals learn from a combination of operant conditioning (military training) and tacit knowledge acquisition (military drills) resulting from a controlled and mindful activity (military missions). The third and final argument suggests that individuals learn from conscious awareness of their activity (military missions) and others', and leads to thinking in an organizational context (military mentality). Finally, Weick and Ashford (2001) use these three arguments to illustrate how a military individual's learning and performance influence communication processes in an organizational context. Up to this point, they have focused upon learning, and now they wish to emphasize communication. First, Weick and Ashford (2001) suggest that individual learning will fail, subject to organizational context (military mentality), without an adequate communication language (military vocabulary). Second, they suggest that individual learning will fail without adequately capturing the complexities that are both internal and external to the organizational information flows (military orders). Finally, they conclude that KA is enhanced when decision makers (military officers) live in tension, paradox, and conflict (Weick & Ashford, 2001). These three military case studies illustrate the complex and important impact that communication language and communication processes have upon KA. In this literature, Weick and Ashford (2001) suggest that organizational context may be important

to experimental learning. This project suggests that organizational differences are a variant in the situational context theme associated with experimental learning.

The key elements in Weick and Ashford's (2001) KA events describe the relationships between military officers (Army, Air Force, Navy) and other military personnel as they execute military commands (subject) at various geographic assignments around the world (location) to improve military security (reason). This literature further describes the timing and channel of communication as spontaneous daily electronic radio dialog between the officers and service men and women. These communication events may also include additional electronic devices like global position systems, radar or sonar tracking equipment to supplement the communication message by providing a confirmation of observations leading to quick decision making. These complete details of the communication event are rarely found in KA literature. Researchers gain an understanding of the KA sub-processes occurring in the communication event.

Pisano (1994) examined the development processes of KA as they relate to an environmental context. His research compared biotechnology and chemical technology firms within the pharmaceutical industry. He investigated how these organizations create knowledge. During his research of 23 different process development projects, Pisano (1994) discovered two strategies for learning: learning-by-doing and learning-before-doing. Learning-by-doing is common when pre-existing knowledge is limited. As a result, feedback is needed from experiments conducted on the shop floor. Learning-before-doing is common when reliable theory and practical applications exist. Then research and simulations are able to capture knowledge in the laboratory. For example, large organizations with many manufacturing locations may be able to justify and support a central research and development laboratory.

Small organizations with only one or a few manufacturing locations may not be able to justify supporting any research and development center. This environment leaves a small organization with only experimental learning opportunities on the shop floor. The process of creating knowledge typically includes three phases: process development, pilot development, and commercial startup. Process development entails designing and blueprinting a concept without all of the details. Pilot development entails modeling and documenting the process details to optimize efficiency. Commercial startup entails manufacturing the first batch of product to identify quality parameters. Pisano (1994) compared chemical firms and biotechnology firms and discovered the phases of knowledge development are inconsistent. Chemical engineers traditionally develop their findings in a laboratory, while biotech engineers typically develop their findings on the shop floor. These distinct scenarios are due to differences in the timing and the availability of resources in different environments. His results indicate that neither approach is better than the other. It depends upon the environmental context of each organization. Pisano's (1994) case studies also suggest that the learning process includes a time element (learning-by-doing versus learning-before-doing) that is environmentally determined. This study illustrates that environmental differences are a variant in the situational context theme associated with experimental learning.

Pisano's (1994) study describes the KA events by comparing the relationships between chemical engineers working in laboratories and biotech engineers working on the shop floor, both conducting pharmaceutical research (subject) to develop and improve drug products (reason) in uniquely different settings (location). The analysis of these 23 case studies did not reveal the channel of communication, nor did it disclose the timing of communication between

these engineers. It appears further research about the channels and times of communication events will aid us in understanding the KA sub-processes.

Fiol and Lyles (1985) researched the differences between organizational learning and organizational adaptation in a chronological context. They analyzed 15 published case studies and classified the labels used to distinguish learning from adaptation. Their study examined the type of learning, behavioral and cognitive development, and the levels of learning: lower and higher cognition. Learning is the process of associating the chronological effectiveness of past actions with future outcomes, while adaptation is the process of associating incremental chronological adjustments and environmental changes with goal-structured changes (Fiol & Lyles, 1985). Their definitions do not necessarily mean that one can adapt without learning or learn without adapting. They also identify differences between the meanings of the terms that extend from behavioral (relational) development to cognitive (thinking) development. Fiol and Lyles (1985) further say there are different levels of learning: lower versus higher. Lower level learning occurs from the repetition of past behaviors, and responds to short-term rewards with routine processes; higher-level learning develops complex rules for new associations, and develops an understanding of causation with new frames of reference (Fiol & Lyles, 1985). For example, a machine operator may learn how to apply temporary machine adjustments to increase production and achieve quotas in the future. A production leader may recognize that these same temporary machine adjustments will cause the production department to fail in meeting its quality assurance goals. This situation creates an organizational challenge between lower-level learning and higher-level adaptation on the shop floor. Fiol and Lyles' (1985) comparison between organizational learning and organizational adaptation also reveals that the learning process includes a chronological element (past actions compared to future outcomes) that is



environmentally determined. This study demonstrates that chronological differences are a variant in the situational context theme associated with experimental learning. In Pisano's (1994) case, the context compared learning-by-doing with learning-before-doing, while in Fiol and Lyles' (1985) case, the context compared the impact of past actions with future outcomes. It appears chronological contexts can have a variety of circumstances.

Fiol and Lyles' (1985) research describes the KA events by comparing the relationships between behavioral researchers studying learning and cognitive researchers studying adaptation; both are conducting studies about lower-level and higher-level learning (subject) to develop and improve the meaning associated with these labels (reason). The analysis of these 15 case studies did not reveal the channel or timing of communication, nor did it disclose the location of communication between these researchers. This study confirms the need for additional research about the channels and timing of communication events and how it will benefit scholarly work.

The preceding examples show how from one situational context to another (cultural, organizational, environmental and chronological) experimental learning may be influenced from multiple contexts. Cook and Yanow (1993) displayed how a variation of cultural learning contexts is derived from shared experiences, values, and assumptions. Weick and Ashford (2001) revealed that KA is enhanced when decision makers live in tension, paradox, and conflict within various organizational contexts. Both Pisano (1994) and Fiol and Lyles (1985) discovered the learning process includes a chronological element that is environmentally determined. This literature shows how lower-level learning entails behavioral development, while higher-level learning entails cognitive development. It also reviews how experimental learning helps individuals adapt, self-assess, and use feedback to cope with new challenges. From one example to the next, this group of research reveals that situational context is a theme

associated with experimental learning. This review of experimental learning literature illustrates how categorical comparisons within a theme may display meaningful distinctions like cultural, organizational, environmental and chronological contexts.

In each of the examples of context-related literature, this review typically describes the relationships, subjects, and reasons for many of these communication events. In two rare instances, the literature provided detailed descriptions of the channel, timing and location of the KA events. It generally does not disclose the channel of communication, nor does it reveal the timing of communication between the parties involved. The location of the events is typically vague or ambiguous, and does not support making any meaningful inferences. As researchers, we are currently limited in our ability to close these gaps in our understanding of the communication process. This KA project will investigate the channel, timing and location of communication events to aid business leaders in understanding how key elements in KA events may be related to learning contexts.

### **Vicarious Learning Research**

Individuals instinctively learn by observing other groups, using imitation and mimicry to cope with uncertainties. These methods provide individuals with a fundamental process for adapting to their environment. This form of knowledge acquisition is known as *vicarious learning*. Fragmented research exists in this area of organizational study, and much of what has been studied is only loosely associated. A recurring theme involving power, also described as “autonomy” or “legitimacy,” is evident throughout this work. The theme of power reveals itself in many ways, like membership, legitimacy and environment. It exists in both individual and group learning processes, and presents itself in the form of identities and reputations. It can be

developed and transferred between members and teams. From one seemingly unrelated example to the next, power is a common theme found in the vicarious learning literature.

Fiol, O'Connor and Aguinis (2001) explored how power develops and is transferred between members of groups. Their case study researched the dynamics and impact of a process improvement team within a hospital. They agree the transfer of power is supported by an organization's ability to learn from its members. Inversely, they state an organization's inability to learn renders it powerless. They evaluated how power is transferred within an organization relative to a member or group's identity and reputation. For example, as nurses and administrators imitate the behaviors of high-powered physicians, they inherit the perceived power and authority of their team members. Fiol, O'Connor and Aguinis (2001) describe two important aspects of power. Direct facilitators transfer power using personal experience or knowledge, and indirect facilitators transfer power secondhand through their acquaintances with others. The authors conclude that membership power occurs at various levels within an organization among individuals, groups, and locations. It is apparent that membership is a variant within the power theme associated with vicarious learning.

Fiol et al. (2001) describe these KA events as relationships between doctors, nurses, and hospital administrators challenged with planning a surgical schedule (subject) to improve productivity (reason) within a general hospital (location) in Denver, Colorado. They do not reveal the channel or timing of communication between the team members of the hospital. Further studies describing the channel and timing of communication within KA events would help researchers to better understand KA sub-processes.

Aldrich and Fiol (1994) say learning includes a process of establishing legitimacy or power by mimicking experienced predecessors. They studied how new entrepreneurs pursue

legitimacy from previous employers or existing business ventures to reshape industries. They identify two forms of legitimacy: (1) cognitive and (2) sociopolitical. Sharing information about a new opportunity or innovation with customers illustrates how to transfer cognitive legitimacy, while accepting a new opportunity or innovation from suppliers illustrates how to transfer sociopolitical legitimacy. For example, a salesperson may mimic the behavior and language of a prospective customer to develop knowledge or gain their approval to make a sale. A buyer may mimic consistent stories of a prospective supplier to develop trust in a new activity or buy materials. Aldrich and Fiol (1994) conclude that observing and imitating supply chain members (customers and suppliers) within an entrepreneurial venture paves the way for establishing trust and building a sound relationship, and transfers legitimacy in both processes. Those individuals with power may be more likely to influence learning than those without equivalent power. As legitimacy is transferred to others, then others may gain the ability to influence learning. This research supports the notion that legitimacy is a variant within the theme of power associated with vicarious learning.

These KA events in Aldrich and Fiol's (1994) project describe relationships between new entrepreneurs and their sponsoring entrepreneurial predecessor's struggle to negotiate investments in business opportunities (subject) by using cognitive and sociopolitical legitimacy to improve trust (reason), rather than any substantial economic evidence or capital to support the likelihood of success. This study does not reveal the channel, timing, or location of the communication event between the entrepreneurs. Spontaneous negotiations using face-to-face (encounters) or electronic (phone calls) communication may disclose the terms of business agreements. This vague description of communication events further illustrates the need for additional research to thoroughly understand the details of KA sub-processes.

Denison, Hart and Kahn (1996) confirm the importance of autonomy and power within their examination of learning environments among team members. Their research included creating a meaningful framework from over 200 interviews and 500 surveys from members of numerous product development and process improvement teams. They designed a model that identified associations between organizational learning, team processes and innovative outcomes. This model revealed relationships between autonomy (power), creative strategy and learning environments. Denison, Hart and Kahn (1996) conclude that teams are more committed to discovering innovations while participating in an autonomous environment. This project suggests that environments are a variant in the theme of power associated with vicarious learning.

The Denison et al. (1996) KA events are described as relationships between various project managers challenged with manufacturing automobiles (subject) for a multinational corporate headquarters (location) in Detroit, Michigan. The automotive industry is highly competitive, and its members require continuous product and process improvement training to survive (reason). This research describes the timing and channel of communication as daily face-to-face dialog between project managers. This communication event includes detailed conversations during departmental meetings that illustrate how conflicts are addressed and resolved in large organizations. These complete details of the communication events are uncommon in KA literature. They allow researchers to achieve a clearer understanding of how the communication process works and the effectiveness of the KA sub-processes.

The preceding examples show that power is a common theme found in vicarious learning. Power can be developed and transferred between members, teams, and various environments. Fiol, O'Connor and Aguinis (2001) revealed that membership power occurs at various levels

within an organization among individuals, groups, and locations. Aldrich and Fiol (1994) discovered that observing and imitating supply chain members (customers and suppliers) within an entrepreneurial venture transfers trust, builds a sound relationship, and creates legitimacy. Denison, Hart and Kahn (1996) illustrate that teams are more committed to discovering innovations while participating in an autonomous environment. Power can be developed and transferred between members and teams. It presents itself in the form of identities and reputations. It exists in both individual and group learning processes. How individuals learn vicariously by observing other groups using imitation and mimicry to cope with uncertainties is supported by these studies. From one capacity to the next, power reveals itself as a common theme within the study of vicarious learning. Power promotes mimicry as we mimic those in power. It appears that power has the ability to influence what is learned and how it is learned. There appears to be a relationship between autonomy or power and vicarious learning. This review of the vicarious learning literature demonstrates how categorical comparisons within a theme may display meaningful distinctions between sources of power like membership, legitimacy and environment.

In each of the three examples of power-related literature, this review typically describes the relationships, subjects, and reasons for many of these communication events. In one unusual instance, the research provided detailed descriptions of the channel, timing and location of the communication events. Typically, it does not disclose the channel or timing of communication between the parties involved. The location of the events is usually ambiguous or vague and does not support making any meaningful inferences. The study will explore the channel, timing and location of communication events to better understand how power is related to key elements in KA events.

### **Grafting Research**

Teams accelerate learning and innovation by integrating new members into their organization. New members bring new knowledge to a team. Also, original members attach to others for quick learning of new knowledge. These two approaches provide teams with increased agility to compete in a global marketplace. By accelerating the transfer of competitive knowledge through new membership, organizational learning occurs at a faster rate. This form of knowledge acquisition is known as *grafting*. The research in this area is both sparse and inconsistent. Most of these projects include a comparative analysis in areas like diversity, membership and power. The literature reviewed below describes the value of functional teams compared with cross-functional teams. A functional team includes members from one discipline, like accounting. Cross-functional teams include members from multiple disciplines, like accounting, logistics, and production. From one team comparison to the next, it appears that team is a theme frequently associated with grafting. The following studies illustrate these observations.

Keller (2001) examined the effects of communication and performance upon cross-functional product development teams. His research includes a study of 93 groups within four organizations. He discovered that team diversity created indirect and inconsistent effects. Quality, scheduling, and budgeting improved; however team cohesiveness decreased. Communication elements like timing and recipients included both internal and external components. Internal components included communication with functional members, while external components included communication with customers and suppliers. For example, internally, members of logistics discussed quality issues with members of manufacturing, while externally, members of customer service discussed scheduling with suppliers. Keller (2001)

discovered cross-functional groups assigned to development teams delivered better overall performance than operational teams. Overall, his study demonstrates the value of team diversity in promoting KA. This research exposes diversity as a variant of the team theme associated with grafting.

The Keller (2001) KA events describe relationships between product managers working in the Energy, Chemical, Aerospace, and Electronics industry (location) to develop new products and processes (subject) to improve scheduling, quality, and budgeting (reason). This research does not reveal the channel or timing of the communication event between product managers. This ambiguous description of communication events displays why more research is necessary to understand KA sub-processes.

Lovelace, Shapiro and Weingart (2001) researched how to maximize team innovation from a conflict communication perspective. Their research includes a study of 43 cross-functional product innovation teams. They developed a model of conflict communication and performance to examine collaborative communication, contentious communication and task disagreements upon team outcomes. Their model includes the influence of leader effectiveness and a member's freedom to express doubts. Lovelace et al. (2001) conclude that higher levels of team diversity are favorably associated with higher levels of task agreement. For example, diverse team membership is best suited to evaluate a challenge from multiple perspectives and arrive at the best outcome. The effect of task disagreement adversely impacts performance outcomes. For example, if a diverse team is not best suited to evaluate a challenge from multiple perspectives, then it may not arrive at the best outcome. Lovelace et al. (2001) say that a combination of effective communication and conflict is necessary to promote KA. Diverse team membership brings a variety of perspectives to a team. Some of these vantage points are likely



to be the same and will align without conflict, while other vantage points are unlikely to be the same and will not align, resulting in conflict. Those topics of disagreement will need to be resolved. The reconciliation of those differences should be in the best overall interest of the team and prevent the team from an adverse outcome. Without constructive conflict, the team members would be unlikely to arrive at the best overall decision. This research supports the idea that membership is a variant of the team theme associated with grafting.

Lovelace et al.'s (2001) KA events describe relationships between product managers working in the Telecommunication, Semiconductor, and Electronics industry (location) to develop new products and processes (subject) to improve decision making using constructive conflict (reason). This study does not reveal the channel or timing of the communication event between product managers. These incomplete descriptions of communication events show that additional research is needed to gain an understanding of KA sub-processes.

Uhl-Bien and Graen (1998) evaluated the associations between self-managed activities (power) and work teams. Their research includes a comparative analysis of professionals (including engineers, scientists, lawyers and economists) on both functional and cross-functional teams. Their study examined KA by comparing team effectiveness and perceptions of bureaucratic obstacles. The self-managed activities (power) involve responsible individuals working on unsupervised teams. Uhl-Bien and Graen (1998) discovered a negative relationship between cross-functional teams and self-management (power). For example, if a diverse group of professionals does not experience individual self-management (power), then they may not enjoy high job satisfaction. The sense of self-management (power) may prevent the perception of obstacles. For example, if a diverse group of professionals does experience individual self-management (power), then they may enjoy high job satisfaction. Uhl-Bien and Graen's

(1998) outcome is inconsistent with previous research regarding cross-functional teams. It appears that other themes, like power, may be interacting with the theme of team. Diversity without an adequate balance of power may prevent effective grafting. This study indicates that power is a variant within the theme of team associated with grafting.

The KA events in Uhl-Bien and Graen's (1998) project described relationships between various professionals: engineers, scientists, lawyers, and economists working in a large service organization (location) for an undisclosed purpose (subject) to improve organizational productivity and morale (reason). This study did not disclose the channel, timing or subject of the communication event between professionals. These partial descriptions of communication events demonstrate that greater research is required to achieve a solid understanding of KA sub-processes.

The examples above demonstrate that teams are a common theme found in grafting. Keller (2001) showed how diverse cross-functional groups assigned to development teams deliver better overall performance. Lovelace et al. (2001) revealed that higher levels of membership diversity are favorably associated with higher levels of task agreement. Uhl-Bien and Graen (1998) discovered a negative relationship between cross-functional teams and self-management (power). These reviews described the value of functional teams compared with cross-functional teams. Most of these projects included a comparative analysis and some revealed inconsistent and complex research results that merit further investigation. This literature presents how teams accelerate KA and innovation by obtaining new members and attaching to others for quick learning. From one example to the next, teams are recognized as a consistent theme in the study of grafting. This review of grafting literature shows how

categorical comparisons within a theme may display meaningful distinctions between team effectiveness like diversity, membership and power.

In each of the examples of team-related studies, this literature generally describes the relationships, subjects, and reasons for many of these communication events. Usually, it does not reveal the channel or timing of communication between the parties involved. The location of the events is typically vague, perhaps referencing an industry or a large geographic area. These ambiguous and vague details do not support making any meaningful inferences. Most of the research regarding teams omits details about the channel and timing of communication events. This project investigates how the key elements in KA events are related to teams.

### **Searching Research**

Scanning, seeking, and exploring new opportunities will accelerate learning. This form of KA is known as *searching*. Research in this area of organizational study involves understanding how improvements have been achieved within specific companies. Most of these research projects are case studies. This literature review describes the importance of performance monitoring activities. An organization must learn to map and measure organizational processes. It must conduct an ongoing search for process improvements. Incremental changes in service, productivity, quality, and on-time delivery must be translated into economic gains. From one organization to the next, performance monitoring is a common theme associated with searching. The following cases display these observations.

Ellinger, Ellinger, Baiyin, and Howton (2002) discovered a positive association between learning organization concepts like KA and an organization's financial performance. They surveyed over 400 logistics managers to better understand the dynamics of organizational learning. Their research focused upon service as the driving force for achieving customer value.

It included monitoring the systems that integrate logistics activities into a reliable delivery service. For example, these managers collect, evaluate, and analyze vast amounts of on-time delivery data to explore new methods that optimize their resources and identify how best to satisfy their customers' ever-changing needs. Ellinger et al. (2002) say KA processes are important measures that evaluate the dimensions of the learning organization concepts and their impact upon operating performance. This research displays logistical services as a variant in the performance monitoring theme associated with searching.

The Ellinger et al. (2002) communication events described relationships among logistics managers working in the transportation industry (location) to achieve on-time deliveries (subject) and improve customer satisfaction (reason). This study did not disclose the channel or timing of the communication events. These incomplete descriptions of communication events illustrate the need for better research toward achieving a greater understanding of KA sub-processes.

Forstenlechner, Letice, Bourne, and Webb (2007) confirmed assumptions that knowledge management principles, like searching for operational improvements, lead to financial performance. They interviewed two dozen attorneys among the top ten global law firms in the United Kingdom to validate the connections between managing knowledge and better performance. Their research is focused upon understanding information management in service-oriented environments using statistical analysis. It involves understanding how legal services benefit from improved efficiency, quality, risk management, long-term focus, culture, awareness, and training. For example, these lawyers show that quantitative and qualitative benefits are received from a diligent effort to improve service operations. Forstenlechner et al. (2007) conclude that statistical evidence exists that links organizational learning concepts like KA to financial performance. This study says that monitoring performance leads to financial rewards.

This study reveals legal services as a variant of the performance monitoring theme associated with searching.

The Forstenlechner et al. (2007) study describes the KA events as relationships between international attorneys challenged with servicing high-profile global clients (subject) from their international headquarters (location) in the United Kingdom. The international law industry is highly competitive, and their clients require the highest quality and efficiency in legal services (reason). This research describes the timing and channel of communication as daily face-to-face (discussions) and electronic (phone calls and email) communication of account managers. This communication event includes conversations about strategic meetings that illustrate how legal issues are addressed and resolved in large law firms. Discovering all the elements of a communication event is rare in KA literature. It allows scholars to receive a solid understanding of how a communication event functions.

Yap, Siu, Baker, Brown, and Lowi-Young (2005) demonstrate that scorecards are an effective tool for pursuing organizational strategies by monitoring important indicators and improving performance measures. They surveyed two dozen hospitals in Canada to investigate the value of using a defined system for measuring process improvements. Their research utilized statistical analysis to demonstrate the importance of exploring process improvements and seeking incremental gains. It included gathering data about learning, growth, process, customers, and financials. For example, the hospital administrators track medical service statistics per bed to obtain a balanced score for performance across hospitals of various sizes. Yap et al. (2005) discovered that large medical facilities report more improvements than small medical facilities, and teaching facilities report more improvements than community facilities. The results confirm that using balanced scorecards will result in efficiency gains. This study

finds medical services as a variant in the performance monitoring theme associated with searching.

This research by Yap et al. (2005) describes the KA events as relationships between doctors, nurses, and hospital administrators challenged with managing a hospital's overall operations (subject) to improve innovation, utilization, satisfaction, and profits (reason) within various hospitals (location) in Ontario, Canada. It does not disclose the timing or channel of communication among the hospital's team members. Additional research to investigate the channel and timing of communication events will aid researchers in obtaining an understanding of KA sub-processes.

Moxham (2009) concluded that performance measurement tools designed for private and public organizations can be used effectively in nonprofit organizations. She interviewed twenty-four managers from six different nonprofit organizations in the United Kingdom. Her case study research used paired comparisons among two local, two national, and two international organizations to validate the empirical data she gathered. Two organizations within each category may be insufficient for generalizing to the larger population of nonprofit organizations. Further research on a larger scale may confirm her findings. She further focused upon four specific drivers to make her assessment: financial reporting, demonstrated achievements, operational controls, and continuous improvements. While the details within each of these drivers were unique to each organization, the overall categories were comparable. For example, the administrators of these charitable services provided detailed explanations and documentation of their process improvement systems: community service projects, mental health services, and international development projects. Moxham (2009) revealed many strategic similarities between private and public organizations and nonprofit organizations that can be

supported by common performance measurement systems. This research supports the need for many organizational structures to seek continuous improvements. This project indicates that charitable services as a variant of performance monitoring is a theme associated with searching.

The Moxham (2009) article about KA events describes relationships between administration managers working in nonprofit organizations (location) in the United Kingdom to increase public services (subject) by improving reporting, achievements, and controls (reason). This study does not, however, reveal the channel or timing of the communication events by administration managers. The partial descriptions of these communication events illustrate that further research is essential to gather an understanding of KA sub-processes.

The preceding case studies present a consistent trend of performance monitoring within learning organizations. Ellinger et al. (2002) illustrated that performance monitoring is a prevalent theme when evaluating the operating performance of delivery services. Forstenlechner et al. (2007) revealed statistical evidence that links performance monitoring to financial performance of legal services. Yap et al. (2005) discovered that medical services of large facilities report more improvements than small facilities, and that teaching facilities report more improvements than community facilities, and are less likely to use performance monitoring. Moxham (2009) revealed many strategic similarities between the performance measurement systems within multiple charitable organizations. From one research project to the next, performance monitoring reveals itself as a theme linked to searching. Each case presented evidence that incremental changes in service, productivity, and quality will deliver economic gains. An organization must conduct ongoing searches for improvements and learn to map and measure organizational processes. These projects reinforce the theme that performance monitoring is associated with searching. This review of searching literature shows how

categorical comparisons within a theme may display meaningful distinctions between logistics, legal, medical and charitable services.

In each of the examples of research related to performance monitoring, this literature commonly describes the relationships, subjects, and reasons for most of the communication events. Typically, it does not reveal the channel or timing of communication between the managers. The location of the events is usually ambiguous, occasionally referencing a large geographic area or an industry segment. These vague details do not support making any meaningful inferences. Much of the current literature regarding performance monitoring omits details about the channel and timing of communication events. This research study investigates how key elements in KA events are related to performance monitoring.

This review of Huber's (1991) sub-processes and related KA literature covering congenital learning, experimental learning, vicarious learning, grafting and searching revealed consistent omissions in previous KA research about the channel, timing and location of communication events. It is important to focus upon key elements to better understand how KA events are executed. This research project will attempt to close these gaps by investigating how categorical comparisons may reveal meaningful distinctions within themes like policy-making, learning contexts, power, teams and performance monitoring to gain better understanding about how key communication elements function within KA events.

### **Dependent KA Research**

The organizational challenges resulting from the global economic crisis and explosion of social media challenged leaders to acquire information faster and make astute business decisions quicker. These circumstances caused many scholars to engage in KA research to address the accelerating need for knowledge. Utilizing the dependent KA perspective, these scholars



examined how a large variety of independent variables (relational mechanisms, formal contracts, district membership, cognitive social capital, co-opetition, entrepreneurial orientation, source of knowledge, contracts to sources, environmental uncertainty, industry position, institutional ties, information and communication technology, leaders' power bases, organizational size, organizational characteristics, and national culture) influence KA.

Research about these independent variables revealed a common theme involving the use of leverage or power balanced against the need to build and foster supportive relationships for acquiring knowledge. If the organizations being studied had leverage or power in the supply chain, then they were less likely to be concerned with building and fostering supportive relationships for acquiring knowledge. If the organizations being studied had little or no leverage or power in the supply chain, then they were more likely to be concerned with building and fostering supportive relationships for acquiring knowledge. When a shift in leverage or power occurred, then an offsetting shift in building and fostering supportive relationships was likely to occur. When speaking about the external independent variables, Li, Liu and Liu (2010), Li, Poppo and Zhou (2010), Parra-Requena, Molina-Morales and Garcia-Villaverde (2010), Fletcher and Harris (2012), and Xu, Huang and Gao (2012) concur that the need to leverage power is maintained by the size, position, and characteristics of an organization within the supply chain (suppliers, governments, manufacturers, competitors, peers, distributors and customers). When discussing the internal independent variables, Jayasingam, Ansari and Jantan (2010), Lopez-Nicolas and Soto-Acosta (2010), and Magnier-Watanabe and Senoo (2010) agree this need to leverage power is maintained by the quantity, position, and characteristics of the members within the organization (executives, managers, planners, researchers and knowledge workers). The need to build and foster supportive relationships is maintained by developing

social capital, membership, trust, and shared goals externally among organizational members within the supply chain, or internally among individual members within the organization. The interdependent need for acquiring competitive information is balanced by the mutual and continuous exchanges and conversions of tacit and explicit knowledge. This need to acquire knowledge supplements the traditional economic exchanges of currency for goods and services and perpetuates the building and maintenance of relationships.

From the dependent KA perspective the research gaps that remain are identifying and testing independent variables like: (1) the typology of organizational relationships, (2) an empirical measure of organizational relationship strength, (3) the typology of organizational leverage, (4) an empirical measure of organizational leverage strength, (5) the typology of tacit and explicit knowledge exchanges and conversions, and (6) an empirical measure of tacit and explicit knowledge exchanges and conversions. Defining, measuring, and understanding these independent variables may lead scholars toward discovering meaningful relationships that exist between environmental and social changes and how they may influence KA. Dependent KA research has not provided a balanced understanding of KA, nor has it provided any insights about how key communication elements function within KA events.

### **Independent KA Research**

Organizations are continuously challenged with changes in top management and changes within work groups while striving to remain focused upon achieving strategic objectives. These changes in leadership and the work force require an organization to make frequent adjustments to keep a steady aim on its targets. Leaders are required to make ongoing assessments to understand when an organizational change in direction is needed. Upon obtaining a new line of sight on their targets, leaders must understand how to move teams in new directions. Power is a

leader's ability to influence or move a team in a new direction. As leaders and team members enter and leave organizations, the power dynamic is constantly shifting. These scenarios invite scholars to engage in KA research and explore how leaders learn to move teams in new directions. Utilizing the independent KA perspective and a framework for understanding power mechanisms, these scholars examined how dependent variables (absorptive capacity, research and development, strategic orientation, environmental dynamism, management education, industry experience, and team participation) are influenced by KA and other related dependent variables like as learning, innovation and performance.

A review of KA and these related independent variables within the KA literature has revealed two types of assessment: environmental and strategic. The environmental assessment addresses learning and overall external team performance, like measures of market share, sales growth, market reputation, and profits compared with competitors. The strategic assessment addresses learning and specific internal innovative performance, like measures of a firm's technical understanding and expertise within specialized industries or ability to advance technology. As leaders and team members enter and leave organizations, the power dynamics and types of assessment (environmental and strategic) are constantly shifting. Both Chandler and Lyon (2009) and Li, Wei and Liu (2010) suggest that leaders with an environmental base of power will likely move teams in an external direction toward learning that improves the overall team performance measures. Zhou (2010), Grimpe and Kaiser (2010), Liao, Wu, Hu and Tsui (2010), and Laursen, Masciarelli and Prencipe (2012) claim that leaders with a strategic base of power will likely move teams in an internal direction toward learning that improves specific innovative performance measures. The need for overall team and specific innovative performance are mutually important. In the short term, it is more likely that an organization will

be shifting in one direction rather than another as a result of recent changes in leadership and their respective shifts in power dynamics. In the long term, it is more likely that an organization's interdependent need for overall team performance and specific innovative performance is balancing due to previous changes in leadership and power dynamics. These KA studies provided insights into how power functions to support or inhibit learning and innovation within the context of contemporary work groups (self-directed teams) by examining research and development teams, startup capital ventures, and international joint ventures.

From the independent KA perspective, the gaps that remain are how these types of power may influence these dependent variables: (1) venture team performance, (2) vendor firm performance, (3) radical innovation, (4) product innovation, (5) innovative performance, and (6) innovative capability. It appears our understanding of power and organizational learning is incomplete until additional research evaluates how various dependent variables moderated by power are influenced by KA. Independent KA research has also not provided a balanced understanding of KA, nor has it explained how key communication elements function within KA events.

### **Holistic KA Research**

During recent years leaders have experienced intense economic, technological, and organizational changes that have forced them to change the way they gather and process information. These emerging scenarios have required scholars to explore new methods for understanding how leaders acquire knowledge. Holistic studies using individual interviews, focus group interviews, and case studies have revealed new contexts and themes within the study of KA. The holistic perspective has enabled scholars like Inkpen (1998), Vavoula and Sharples (2002), Chesser-Smyth (2005), Dreyfus and Dreyfus (2005), McKenna and Newton (2008), and

Sun (2010) to identify a variety of different contexts (cultural, structural, time, space, and lifestyle), and progressive changes in context (novice, beginner, intermediate, advanced, and expert). Holistic KA research has revealed a range of themes (sense of belonging, independence, self-awareness, confidence, facilitation, anxiety, moving on, and professional issues) from leaders within an assortment of contexts. The following holistic research is particularly important to this KA project. The first three of these holistic studies examine different types of context and the unique themes that are revealed. The last three illustrate progressive changes in context and the sequence of themes that are discovered.

As previously mentioned within the introduction of this research project, the work of Vavoula and Sharples (2002) inspired this study by exploring mobile learning contexts (space, life, and time) which resemble the key elements of a news story (who, what, when, where, why, and how). They evaluated adult learning practices and experiences by conducting structured interviews and reviewing diary entries and developed a framework for designing software to support lifelong learning. Their research discovered three different mobile learning contexts: space, life and time (Vavoula and Sharples, 2002). Space includes workspace, home and play. Life includes work demands, self-improvement, and leisure time. Time includes different times of day, working days, and weekends. Vavoula and Sharples (2002) discovered that people learn at three operational levels. At the highest level, the episodes are grouped by objectives to form learning projects. At the middle level, the acts are grouped together by thematic, spatial, and/or temporal proximity to form learning episodes. At the lowest level, learning activities are discrete acts. According to Vavoula and Sharples (2002), learning activities can occur about anything, anywhere, and anytime.

Inkpen (1998) conducted case studies about learning and knowledge acquisition within the automotive industry by interviewing leaders from multiple international strategic alliances in Asia, North America, South America, and Europe. He observed three core themes among several joint ventures and developed a framework that includes six key objectives for promoting organizational learning within a cross-cultural context. His thematic framework shows the importance of understanding alliance knowledge: value, accessibility, and learning effectiveness. Inkpen's (1998) key objectives include (1) assessing and valuing partner knowledge, (2) determining knowledge accessibility, (3) evaluating knowledge tacitness, (4) establishing knowledge connections, (5) drawing on existing knowledge, and (6) assuring alignment between managerial cultures. His conclusion offers important observations. "Clearly, firms will attach different values to knowledge, and therefore knowledge creation and processing strategies will differ across organizations and also evolve over time" (Inkpen, 1998, p. 466). This observation supports the idea that KA is context dependent; it emerges, exists, and changes over time. "It is through those processes that different types of knowledge converge and become accessible" (Inkpen, 1998, p. 460). This observation supports how KA concepts emerge, KA patterns are formed, and KA themes are revealed. "Knowledge types, therefore, must be classified on a continuum that ranges from explicit knowledge embodied in specific products and processes to tacit knowledge acquired through experience and use and embodied in individual cognition and organization routines" (Inkpen, 1998, p. 456). This observation supports how KA themes reveal consistent organizational communication behavior. In summary, he claims that knowledge creation is an asset that is essential for organizational survival (Inkpen, 1998).

Case study research by Sun (2010) focused upon three knowledge management processes: knowledge acquisition, knowledge creation, and knowledge utilization and sharing

between two organizations. One of the organizations was a large-scale insurance company in Asia. The other was an environmental protection agency in New Zealand. He interviewed leaders and observed these organizations using a routine-based framework for assessing absorptive capacity: acquisition, assimilation, transformation, and exploitation (Sun, 2010). His research revealed five critical knowledge management organizational themes: systematic knowledge, strategic engagement, social networking (external and internal), cultural context, and process and structural context (Sun, 2010). Sun's (2010) research supports the conceptual framework that effective routines enhance an organization's absorptive capacity and promote knowledge management processes. He concludes that rather than searching for measurements, leaders should look for relevant organizational routines to gain a more holistic understanding of knowledge management activities (Sun, 2010). These first three holistic studies reference the importance of contexts and themes in the study of KA, and they also echo the need to further explore how culture, strategy, routines, and teams relate to KA.

Chesser-Smyth (2005) conducted a phenomenological study about the experiences of nursing students on their first clinical placement toward achieving a better understanding of how to increase confidence levels and reduce anxiety. She conducted interviews to gain an understanding of the thoughts and feelings of the nursing students. Her findings revealed five themes: (1) self-awareness, (2) confidence, (3) anxiety, (4) facilitation, and (5) professional issues (Chesser-Smyth, 2005). Self-awareness was expanded to sub-themes that include personal qualities, inner feelings, respect, maturity, and communication. Confidence was expanded to sub-themes that include previous skills, new knowledge, and practice environment. Anxiety was expanded to sub-themes that include teamwork, socialization, and new learning. Facilitation was expanded to sub-themes that include supernumerary status, role of ward

manager, and role of clinical placement coordinator. Professional issue(s) was expanded to sub-themes that include clinical skills, theory-practice connection, and gender aspects. Chesser-Smyth (2005) concludes this phenomenological research revealed a key element in the socialization processes of nurses. She discovered that “it was only when students became actively involved in the workload together with the acquisition of new knowledge that confidence levels increased and anxiety reduced” (Chesser-Smyth, 2005, p. 326).

McKenna and Newton (2008) conducted focus groups among nursing students to understand how they develop their knowledge and skills during the transition from an academic setting to the workforce. They conducted interviews with new nurses to understand their experiences with moving from working in universities to working in hospitals. Their findings revealed three main themes: (1) sense of belonging, (2) independence, and (3) moving on (McKenna and Newton, 2008). Sense of belonging occurred at the end of clinical rotations and having settled into one ward. Independence was demonstrated by the level of knowledge attained, the confidence developed, and the increased responsibility. Moving on was realized by reflecting upon previous experiences as graduates and providing support and guidance for others. McKenna and Newton (2008) conclude their focus group research reveals the importance of the overall continuity and quality of care in new wards provided by the ongoing mentoring of new graduates.

A phenomenological study by Dreyfus and Dreyfus (2005) examined medical experts in real-world contexts. They interviewed doctors about experiences with life-and-death matters to develop a five-stage model of skill acquisition: (1) novice, (2) advanced beginner, (3) competence, (4) proficiency, and (5) expertise (Dreyfus and Dreyfus, 2005). Novice is the level that begins with understanding tasks without any acquisition of skills. Advanced beginner



is the when the novice gains experience by coping with real situations and develops an understanding of context. Competence occurs when learners are overwhelmed and must develop a perspective that helps them to sort out the elements that are important and the elements that can be ignored to make decision making easier. Proficiency develops when experience is assimilated and intuitive reactions replace reasoned responses. Expertise is achieved when the learner recognizes more subtle and refined discriminations to quickly see the goal and how to promptly attain it. Dreyfus and Dreyfus (2005) conclude that phenomenological research reveals (1) rule-based performance will never be more than competent and may be all that is required, (2) learning depends upon taking responsibility for mistakes and what went wrong to establish an ethos of responsibility for failure and success, and (3) reflection and deliberation are essential to success whenever there is time and serious consequences are involved. These last three studies illustrate how context may contain progressive stages and how themes may be broken down into sub-themes to illustrate distinctions related to KA.

From the holistic perspective, these six KA research projects demonstrate how leaders in a variety of positions (automotive executives, insurance managers, governmental agents, medical experts and nurses) within large organizations experience KA events in an array of contexts and themes assessing lifelong learning, alliance knowledge, absorptive capacity, professional placement, workplace transitions, and skill acquisition. This holistic KA literature extends our understanding of KA beyond the traditional boundaries previously defined by isolating KA as either a dependent or independent variable. It is important to understand how learning contexts and reoccurring themes are created and sustained over time. It begins to provide a balanced understanding of KA by investigating communication events and providing insights into the

characteristics of leaders and how organizations may strategically pursue achieving business objectives by deploying teams to create a culture of progressive learning routines.

### **Review of Research on the Methodology**

Holistic KA scholars (Inkpen, 1998; Vavoula and Sharples, 2002; Chesser-Smyth, 2005; Dreyfus and Dreyfus, 2005; McKenna and Newton, 2008; and Sun, 2010) have examined contexts and themes in organizations using a phenomenological approach. Vavoula and Sharples (2002), Chesser-Smyth (2005) and Dreyfus and Dreyfus (2005) conducted interviews. Inkpen (1998) and Sun (2010) conducted case studies, and McKenna and Newton (2008) conducted focus groups. These data sets were analyzed using multiple methods of analysis and revealed communication processes rarely found in dependent or independent KA studies. All of these holistic studies used categorical methods to analyze these data sets. Chesser-Smyth (2005), McKenna and Newton (2008) and Sun (2010) also used thematic analysis. Many of these holistic research projects identified multiple learning contexts and a variety of themes within KA that were not previously discovered. This project's research methodology was constructed from these holistic designs. It was created to gather raw data using scheduled interviews with participants to collect detailed descriptions about their leaders' KA experiences. This study's methodology included a combination of categorical, thematic and descriptive comparison procedures to identify key findings that explain how KA categories relate to leaders and organizations.

### **Synthesis of Research Findings**

This literature review explored many facets of KA relative to the current social and economic challenges facing organizational leaders. A synthesis of this KA research reveals a pattern that points toward the statement: knowledge is power. This synthesis will review

Foucault's literature about power and knowledge, since it is the most prominent research about power over the previous four decades (Foucault, 1972/1976/1977/1977a/1982/1983/1994a). Several contemporary power theorists (Castells, 2007; Kuhn and Jackson, 2008; Gherardi, 2009; Maravelias, 2009; Laschinger, Finegan and Wilk, 2009; Flynn, Gruenfeld, Molm and Polzer, 2012; and Treem and Leonardi, 2012) make frequent reference to Foucault's work as the foundation for their research studies. Power is known as a means of control by disciplinary measures within institutions by using observation, judgment, and examination, according to Foucault (1972/1976/1977/1977a/1982/1983/1994a). It is maintained by the concurrent examination of surveying individual's activities and judging their practices (movements). This is not merely the control of behavior or language, but more importantly, the efficiency of movements; the uninterrupted, constant coercion, and supervising the processes of the activity, as opposed to the result. The range and combination of recent power and knowledge research are vast.

Castells (2007) recognizes the emerging importance of social media in organizational communication. He recognizes differences in this research that expand the understanding of how social media affects knowledge and power. His study illustrates the relationship between horizontal networks of (mobile) communication, mass self-communication (social media), and how communication power is shifting (freeing) knowledge from institutions to individuals (social actors). Castells' (2007) research contributes by demonstrating that freeing knowledge using communication technology is the new counter power for challenging institutional legitimacy. Mobile communication is enabling a sudden power shift where institutions will have less control over the flow of knowledge using (one-directional) mass communication. Scholars

must recognize that institutions are pursuing control over the sources of social media as they have historically pursued and dominated newspaper, radio, and television.

Kuhn and Jackson (2008) agree that social media communication research recognizes the role of technology support as a catalyst for transferring knowledge and power, although, they illustrate differences and shift the study of social media and power to emphasize the importance of communities of practice. They introduce a new practice-based framework for understanding power in knowledge-accomplishing activities involving problem-solving situations with technology. Their contribution illustrates how knowledge episodes with actors use roles of identity, legitimacy, and accountability to manifest power during dialog with others. Technology as a context is an important base of power during knowledge-accomplishing activities. Definitions of knowledge are vague, knowledge-accomplishing activity models have simplistic assumptions, and practice-based studies are difficult and complex.

Gherardi (2009) studied communities of practice and her research reveals a difference that moves us toward an understanding of practices. She says a new body of research known as PBS (practice based studies) has emerged for the critical evaluation of knowledge and power in society. Gherardi's (2009) contribution defines power bases as scientific (laboratory use), organizational (everyday use), workplace (technological use), and social-political (gender use). Power and knowledge are institutionalized within the organized practices of the working consensus, and are sustained by mutually intelligible artifacts. Practices are difficult to assess, observe, measure, or represent because they are hidden, tacit, and often difficult to express.

Maravelias' (2009) study of practice-based research expands the understanding of how power relates to knowledge, but his study introduces the role of self-directed teams within organizations. He relates institutional power of firms to the knowledge of individual personal

health toward becoming a self-disciplined and self-directed worker. Maravelias (2009) illustrates flexible forms of power and control that provide organizations with legitimate means of crossing the boundary between work and private life. The practices of contemporary work groups (self-directed teams) impose self-managing values and norms that create a new culture power about workplace expectations. Institutional flexible work programs contain a hidden agenda unknown by most individuals who participate and have yet to recognize the consequences of balancing work-lifestyle.

Laschinger, Finegan, and Wilk (2009) explored self-directed work environments. Their research introduces the importance of environmental contexts relative to self-empowerment. They show how a leader's knowledge of workers' self-assessments may be leveraged to create a motivating work environment. Laschinger, Finegan, and Wilk (2009) illustrate how empowerment functions to satisfy workers' structural and psychological needs to improve organizational commitment. Context matters in the leadership practice of retaining workers and job satisfaction, although it is a difficult topic to define and measure for the purpose of making generalizations to other organizations.

Flynn, Gruenfeld, Molm, and Polzer (2012) emphasize the importance of context and power relationships, except their study moves toward the social psychology of power. They aim to develop theory about power in the workplace as a relational construct to actors within a variety of organizational contexts. Flynn et al. (2012) connect independent variable patterns to the contexts in power (pursuit, evolution, instability, risk behavior, etc.) and reveal how they shape life in organizations. Scholars are pursuing an array of differences (hierarchical differences, gender differences, etc.) in the study of knowledge and power. Research in the social psychology of power is sparse, and much work is needed to make meaningful generalizations.

Treem and Leonardi (2012) demonstrated that social media is distinct from traditional computer-mediated communication (CMC) technologies and affects organizational processes. Their research illustrates how social media affords (provides) users with higher visibility, editability, persistence, and association than CMC technologies. Social media positively influences the organizational communication practices of socialization, information sharing, and power processes, although, more empirical study is needed on the role social media affordances play in organizational practices if communication research is to remain important and timely.

Previous definitions of power like Foucault's emphasized leadership with a legitimate (authority) power base (high leverage) focusing upon the supervision and control of worker activities. Today Foucault's traditional definition of power (1977) requires a contemporary twist. Recent shifts toward contemporary work groups (like self-directed teams) emphasize observing, surveying, and supervising the results of individuals (as opposed to their activity). Contemporary definitions of power from modern theorists suggest leadership with an expert (knowledge) powerbase (low leverage) focuses upon the supervision and control of worker results. The findings from this synthesis may help leaders to embrace social media (Castells, 2007; Kuhn and Jackson, 2008; Treem and Leonardi, 2012) as a source of power to develop communities of practice (Gherardi, 2009; Maravelias, 2009) and utilize self-directed teams (Laschinger et al., 2009) to obtain the additional leverage needed for achieving organizational objectives during turbulent social and economic times.

### **Critique of Previous Research**

Previous scholars who pursued holistic qualitative research (Inkpen, 1998; Vavoula and Sharples, 2002; Chesser-Smyth, 2005; Dreyfus and Dreyfus, 2005; McKenna and Newton, 2008; and Sun, 2010) have contributed many new findings to KA in terms of insightful contexts and a

variety of meaningful themes. Many of these topics were not discovered during quantitative studies that examined KA as either a dependent or independent variable in organizations. Each new holistic discovery creates another opportunity for further research to extend the boundaries of our knowledge about KA.

Vavoula and Sharples (2002) explored adult learning practices and experiences in support of developing lifelong learning tools. Their research did not adequately address differences between work-related learning and leisure-related learning objectives, nor did they examine how time is related to KA in terms of day of week or time of day. These aspects of their project may expand the understanding of learning levels, but are left as future opportunities for KA research. Inkpen (1998) studied multiple international OL strategies. His research did not evaluate the value (cost-benefit) of creating international alliances, nor did he explore the accessibility (barriers) of acquiring knowledge. He also did not examine the capacity (tacit and explicit) to learn (systems and processes). Each of these elements of learning may increase the knowledge of international alliances, but will be reserved for future studies. Sun (2010) researched knowledge management processes, but he did not explore how organizations may balance mixed strategies: acquiring new knowledge or exploiting existing knowledge. His work also overlooked how organizations assess whether adequate routines exist to support KA processes. Lastly, he did not examine how organizations assess and measure knowledge assets. These factors may enlighten the understanding of knowledge management processes.

Chesser-Smyth (2005) examined how nursing students transitioned from college life into their first clinical assignments. She did not consider how a lack of skills or training reform may relate to learning experiences. Her work did not assess how physical characteristics (physical strength or physical attractiveness) may play a role in the socialization process of nursing.

McKenna and Newton (2008) also studied how nurses are socialized from a university environment to the workforce. Both scholars agreed upon the importance of understanding how KA skills change over time. Their research reveals future opportunities for understanding and improving the quality of healthcare. Dreyfus and Dreyfus (2005) studied how medical professionals acquire skills, but it is uncertain whether their findings are generalizable to other professions. They did not examine how human error may relate to measuring skill acquisition, nor did they consider how the institution of rules may limit the human error as it relates to measuring skill acquisition. These ideas remain as opportunities for further KA research.

This project investigated areas of KA where previous holistic studies left off. It has explored how time is related to KA in terms of day of week or time of day, as noted by Vavoula and Sharples (2002). This study explored the importance of learning routines and strategic objectives, as revealed by Sun (2010). This project showed how participants' characteristics relate to KA categories, as mentioned by Chesser-Smyth (2005). Finally, this research study explored how a cycle of learning themes advance skills over time, as inspired by McKenna and Newton (2008). In summary, holistic KA studies like this project offer more diversity in research opportunities than previous dependent and independent KA research projects.

### **Research Questions**

The following research questions were derived from important discoveries in the literature review. The theoretical orientation displayed how learning contexts and themes function within organizations. The review of OL literature illustrated how communication processes, situational context, ritualistic behavior, culture, and strategy relate to the study of KA. The review of KA literature demonstrated how categorical comparisons may reveal meaningful distinctions within themes to better understand the key elements found in KA events. The



review of dependent, independent and holistic KA research extended the understanding of KA beyond the traditional boundaries and provided insights into the characteristics of leaders and how organizations strategically pursue achieving business objectives. The following research questions were designed to seek, describe and understand leaders' experiences with KA and related factors in this organization.

RQ1 – How do leaders describe KA events (who, what, when, where, why, and how)?

RQ2 – How can KA event descriptions be categorized (relationships, subjects, times, locations, reasons, and channels)?

RQ3 – How do KA categories relate with the KA themes (policy, context, power, teams, and performance monitoring)?

RQ4 – How do KA categories relate with the leaders' demographics (gender, age, education, and years of service)?

RQ5 – How do KA categories relate with the organization's objectives (business: partners, technologies, and policies)?

Answers to these research questions are intended to provide a thorough explanation of the communication events, address the research problem, achieve the purpose of the study, and advance our understanding about how to strategically apply KA practices.

### **CHAPTER 3 – METHODOLOGY**

This chapter describes how the research design has been constructed and defines the research population. It also includes a thorough review of the methods and step-by-step procedures for participant selection and protection, and describes how this methodology is going to answer the research questions. This is followed by an explanation of the instruments and

measures. Finally, it includes a review of data collection, data preparation, and data analysis procedures.

### **Research Design**

It began with obtaining a list of leaders (population) from the executive sponsors of a successful organization which demonstrated growth and innovation during the Great Recession of 2008. The researcher recruited a subset of participants (purposive sample) who demonstrated direct experience with acquiring knowledge to achieve business objectives in a competitive environment. They were protected from any adverse research effects by informing them of their participant rights, obtaining informed consent, and assuring data security. The instrument used in this study included a list of structured interview questions. The data collection process involved scheduling structured interviews, conducting audio recordings of the participants' responses to the interview questions, transcribing the audio files into text files, and then summarizing the responses into a spreadsheet for data analysis.

### **Defining the Population**

The organization has been in existence for several decades, and during that time it has expanded from a few locations to over a dozen in North America, as well as several locations around the world. It has embraced rapidly changing technologies, demonstrated innovation, and thrived within its industry. This organization was selected because, despite the record number of bankruptcies during the Great Recession of 2008, this organization grew and expanded its market share during the same time period. This project intended to identify what made this organization successful. The researcher contacted the executive sponsors of this organization and requested permission to conduct a confidential research study. The researcher used email to make the initial request and then followed up in person to schedule a meeting and obtain permission.

### **Participant Selection**

Participants with direct knowledge acquisition experience were chosen as a sample for this project. This sampling method chooses participants who have direct experience with a particular event that they are knowledgeable about, like organizational leaders seeking to acquire knowledge. It was a preferred method for obtaining a holistic understanding about how leaders directly experience KA events and adapt to organizational challenges. The events are circumstances or occurrences that represent an important activity described using traditional elements of a news story, like who, what, where, when, why, and how. These six story elements represent potential variables in the KA experience. This research project requires that participants must be representative of the phenomenon being investigated. That is why these leaders were selected to assure they could describe a KA experience.

A sample of over 30 participants was selected by the researcher. This sample size represents over 20 percent of the 150 leaders provided by the executive sponsors. The researcher decided a 20 percent sample size was sufficient to balance the need for effective testing and also be representative of the population of leaders in the organization. These participants were identified as preferred candidates for this KA study by the researcher based upon their previous performance within the organization, their high level of involvement in the projects, and their leadership skills. Leaders with lesser performance, involvement, and skills were excluded from consideration. The list of participants was unknown by the executive sponsors or any other members of the organization. The leaders were recruited by email, and a follow-up phone conversation for their consent to participate (see Appendix A) and confirm their understanding of the organization's security policy.

### **Protection of the Participants**

Since this study is about communication events and not about living human individuals, the WSU Institutional Review Board (IRB) ruled that it was not human participant research that required IRB oversight. Informed consent was obtained, and methods for secure data storage and eventual destruction were established. The confidentiality of project records was maintained to the fullest extent possible. Responses to interview questions were identified in such a way as to conceal the identity of leaders. The data collected from the participants was first stored on a digital recorder, then on a single laptop computer, and finally backed up on an external disk drive, all in exclusive possession of the researcher. These files were stored until the completion of the research project, then all of the audio files and text files were deleted. The researcher agreed not to release, disclose, or discuss any participant responses outside the scope of the research project in accordance with the organization's security policy. The organization required a right to a review of the dissertation only after final approval of the WSU dissertation committee and before any public defense by the researcher.

### **Research Questions**

The study employed multiple methods and techniques. Structured interviews were performed to identify the descriptive elements of the KA events and answer RQ1. A constant comparative analysis was performed to categorize the descriptive elements of the KA events and arrive at an answer for RQ2. A thematic analysis was performed to identify themes from KA categories and answer RQ3. A descriptive analysis using comparative tables was performed to identify relationships between the leaders' demographics and KA categories to arrive at an answer for RQ4. A descriptive analysis using comparative tables was also performed to identify relationships between the organization's objectives and KA categories to answer RQ5.

Structured interviews were performed to identify the six descriptive elements (who, what, when, where, why, and how) of the KA events experienced by the participants. The researcher asked follow-up questions to obtain specific details about each of the stories. Interviews were recorded for transcription into a text format. This set of descriptive data about KA events was evaluated using open coding to answer RQ1.

A constant comparative analysis was performed to identify categories (relationships, subjects, times, locations, reasons, and channels) about the phenomenon from the descriptive elements of the KA events. The researcher created separate batches (who, what, when, where, why, and how) for each of the different types of responses. Then the researcher selected one batch at a time and began a constant comparative method of classifying all the responses in a single batch. The sum of these classifications for each batch provided categories for each descriptive element. This set of categorical data about KA events was used to answer RQ2 and for further evaluation by subsequent methods of analysis.

A thematic analysis was performed to identify themes (identification, strategizing, execution and reflection) from the phenomena that are patterns across the categorical data (relationships, subjects, times, locations, reasons, and channels) about the KA events. The sum of these named stories emerging from the categorical data provided the researcher with new themes. This assortment of patterns will empower the researcher to recognize reoccurring KA activities in routine operations and repetitive cycles that occur among the KA themes. This assortment of new themes about KA events was used to answer RQ3.

A descriptive analysis was performed using comparative tables to identify relationships between the four leader demographic characteristics (gender, age, education, and years of

service) and the six KA categories (relationships, subjects, times, locations, reasons, and channels). This collection of relational data was used to answer RQ4.

A descriptive analysis was also performed using comparative tables to identify relationships between the organization's objectives and the six KA categories (relationships, subjects, times, locations, reasons, and channels). The researcher designed six unique comparative tables representing each combination of business objectives and KA category. This summary of relational data was used to answer RQ5.

### **Research Instruments**

The interview survey questionnaire known as the Knowledge Acquisition Interview Questions (see Appendix B) was designed by the researcher to investigate and capture three recent KA experiences (discovering a new partner, a new technology, and a new policy) from each participant in the sample. The questions were structured to reveal and describe the six elements of a story (who, what, when, where, why and how). Four demographic characteristics (gender, age, education, and years of service) were also recorded for each participant.

### **Research Measures**

The first measure is the *who* element in the story. It captures the type of relationships that exist in KA experiences. Examples include coworkers, business partners, friends and family members. The second measure is the *what* element in the story. It designates the type of subjects that exist in these narratives. Customers, machines, materials, and vendors are examples. The third measure is the *when* element in the story. It illustrates the times of day that KA events occur. Examples are morning, afternoon, evening and night. The fourth measure is the *where* element in the story. It represents the type of locations where KA events occur. Work, home, school and vacation are examples. The fifth measure is the *why* element in the story. It

specifies the types of reasons for KA events. Examples encompass changes in sales, manufacturing, delivering and expenses. The sixth measure is the *how* element in the story. It characterizes the type of communication channels that exist in these events. Face-to-face, phone, email and group meetings are examples.

This research project also collected four leader demographic characteristics (gender, age, education, and years of service). Gender was reported as male or female. Age was measured in ranges: 18 to 30 years, 31 to 40 years, 41 to 50 years, 51 to 60 years, and 61 to 70 years. Education was measured as: High school graduate, Associate's degree, Bachelor's degree, Master's degree, and Doctoral degree. Years of service to the organization was also placed in ranges: 0 to 10 years, 11 to 20 years, 21 to 30 years, 31 to 40 years, and 41 to 50 years.

### **Data Collection**

A conference room in the organization's corporate office was reserved for each interview. The interviews were conducted by telephone and recorded. After participants confirmed their identities, they were given an introduction and orientation to the research project and allowed to ask questions and confirm their willingness to participate. The interview procedure included a 22 question survey lasting approximately 30 minutes. Each leader provided a story (who, what, when, where, why and how) about three recent experiences with acquiring knowledge (new partner, new technology, new policy) and some limited demographic information (gender, age, education, and years of service). The six questions about discovering a new business partner were read individually (who, what, when, where, why and how), with a pause after each question to allow the participants time to gather their thoughts and respond. Occasionally, the participants provided a vague answer, and the researcher asked them to provide additional details. Questions about discovering a new technology and discovering a new policy

followed, and demographic information was gathered last. Participants were then thanked before the interview ended.

### **Data Preparation**

Interview audio files were transferred from the audio recording device to a laptop computer and to an external hard drive. Individual recordings were checked for audio quality before being transcribed into text files using transcription software and word processing software. Responses from the text documents for all of the participants' stories were summarized in a spreadsheet on the laptop computer (see Appendices from C1 to C4), and text files were also copied to the external hard drive. After the project was completed, all audio and text files were deleted from the audio recording device, the laptop computer, and the external hard drive.

### **Data Analysis**

A constant comparative analysis was performed to identify categories (relationships, subjects, times, locations, reasons, and channels) about the phenomenon from the descriptive elements of the KA events (see Appendices from D1 to D6). Separate batches (who, what, when, where, why, and how) were created for each of the different types of responses. Then the researcher selected one batch at a time and began a constant comparative method of classifying all the responses in a single batch. First, he read all of the responses in a specific batch to identify the scope of responses and potentially relevant characteristics available to classify the responses. Second, he read and assessed the initial responses in a batch and assigned an initial category to the batch (open coding). Third, he read, assessed, and compared subsequent responses in a batch, and then decided to either assign them to an existing category or create a new category for the batch (selective coding). Finally, he continued these constant comparative



iterations until all responses in a batch were classified into categories. The sum of these classifications for each batch provided the researcher with categories for each descriptive element. This collection of categorical data about KA events was further evaluated by subsequent methods of analysis.

A thematic analysis was performed to identify themes (identification, strategizing, execution, and reflection) from the phenomenon that are patterns across the categorical data (relationships, subjects, times, locations, reasons, and channels) about the KA events (see Appendices from E1 to E3). All of the categories in all of the batches were read, and then reread again to facilitate immersion in the data set and familiarity with the categorical content. Second, codes were assigned to label any important features discovered among the categorical data, and the codes were grouped where appropriate. Third, the groupings of codes were searched and examined to identify patterns across the categories and emergent themes. Fourth, emergent themes were reviewed, reorganized and compared back to the data set to reveal a story from the categories. Fifth, any important stories discovered were defined and assigned names among the categorical data. Finally, the named stories that emerged from the categorical data set were compared and contrasted back to the known themes found in existing research literature. The sum of these named stories emerging from the categorical data provided new themes.

A descriptive analysis was performed using comparison tables to identify relationships between the four leader demographic characteristics (gender, age, education, and years of service) and the six KA categories (relationships, subjects, times, locations, reasons, and channels) (see Appendices from F1 to F6). Another descriptive analysis was also performed using comparative tables to identify relationships between the three business objectives (partners,

technologies, and policies) and the six KA categories (relationships, subjects, times, locations, reasons, and channels) (see Appendix J).

## **CHAPTER 4 – DATA ANALYSIS AND RESULTS**

This chapter describes how the data analysis methods extract meaningful information from raw data to answer the research questions. It does not use statistical inference and only highlights some trends, therefore the results could be random. This analysis illustrates how categorical comparisons reveal distinctions. It demonstrates how themes emerge from stories. It also reveals how descriptive analysis identifies consistent behaviors. Finally it concludes with key findings for further discussion.

### **Presentation of Data and Results**

This data analysis provided details to support the findings for the series of five research questions. First, how do leaders describe KA? Second, how can KA event descriptions be categorized? Third, how do KA categories relate with the KA themes? Fourth, how do KA categories relate with the leaders' demographics? Fifth, how do KA categories relate with the organization's objectives? The following explanations describe a process of abstraction that moves from the various types of data being analyzed toward statements of meaning that support the answers to these research questions.

#### **RQ1 – How do leaders describe KA events?**

Research Question 1 was answered by performing an analysis of leaders' stories about knowledge acquisition experiences. The leaders described the KA events in terms of a news story's key elements by revealing *who*, *what*, *when*, *where*, *why*, and *how* they experienced the phenomenon. First, leaders described *who* they communicated to. Second, leaders described *what* they communicated about. Third, leaders described *when* they communicated. Fourth,

leaders described *where* they communicated. Fifth, leaders described *why* they communicated. Sixth, leaders described *how* they communicated. These findings identified the key elements of a leader's KA experience. Samples of this data are provided below.

This research began with the open coding of the raw data. During this process the leaders' words and phrases were coded on an item-by-item basis to identify all of the KA event elements (*who*, *what*, *when*, *where*, *why*, and *how*) that define the scope of the event being evaluated. These elements were repeatedly reviewed, recoded, and resorted until a final data set was defined. The overall problem with these examples is that the participants typically provided very short factual responses. These brief answers made it challenging to interpret any interesting or meaningful observations from a qualitative perspective. The few most detailed or descriptive responses were sparse at best, and do not enlighten our understanding of their KA experience.

The *who* elements described the individuals that the leaders met with during their KA encounters. Here is a listing:

Sample of how leaders described *who* they communicated with during the KA event

- a) "our C.E.O."
- b) "the V.P. of Manufacturing"
- c) "a colleague"
- d) "a coworker"
- e) "my subordinate, a national account manager"
- f) "the corporate travel coordinator"
- g) "my boss, the plant manager"
- h) "my supervisor, the site leader"
- i) "our corporate quality assurance leader"
- j) "the plant safety manager"
- k) "the purchasing agent at our customer"
- l) "this person is a supplier"
- m) "he is a consultant"
- n) "a salesman at our vendor"
- o) "our customer's V.P. of production"

The *what* elements described the topics discussed by the leaders during their KA meetings. Examples are provided below:

Sample of how leaders described *what* they communicated about during the KA event

- a) “this is a new product technology”
- b) “a new business development”
- c) “improving our product specifications”
- d) “more efficient heating and cooling systems”
- e) “a health care policy change”
- f) “safe equipment operation training”
- g) “acquisition of a competitor”
- h) “sourcing a new supplier”
- i) “to buy a new machine platform”
- j) “to get new quality inspection equipment”
- k) “changing security roles”
- l) “new network communication technology”
- m) “new time and attendance software”
- n) “technology to store and retrieve legal information”
- o) “new health planning software”

The *when* elements described the time period of the day that leaders scheduled their KA meetings. Here is another listing:

Sample of how leaders described *when* they communicated during the KA event

- a) “at 10:00 a.m. every two weeks”
- b) “in the early afternoon at about 2:00 p.m.”
- c) “it was 9:40 a.m.”
- d) “4:00 p.m. on a Tuesday”
- e) “at 12:00 p.m.”
- f) “it was early afternoon”
- g) “later in the morning”
- h) “at lunch time”
- i) “late afternoon”
- j) “early morning”
- k) “in the afternoon”
- l) “evening”
- m) “normal business hours”
- n) “definitely in the morning”
- o) “it was during working hours”

The *where* elements described the physical areas the leaders occupied during their KA events. More examples are available below:

Sample of how leaders described *where* they communicated during the KA event

- a) “at my desk”
- b) “in my office”
- c) “I was in my cubicle”
- d) “in the small conference room”
- e) “at a conference center”
- f) “at our annual management meeting”
- g) “in the hallway”
- h) “at the supplier’s factory”
- i) “the customer’s office”
- j) “in the marketing department”
- k) “in the training room”
- l) “in a restaurant”
- m) “at a trade show”
- n) “at home in my backyard”
- o) “I was at home”

The *why* elements described leaders’ motives for engagement during their KA meetings.

Below is a list:

Sample of how leaders described *why* they communicated during the KA event

- a) “a strategic reduction of suppliers”
- b) “preparation for using a new material”
- c) “to schedule the line and order materials”
- d) “need help starting up a new product”
- e) “to prevent cuts on hands”
- f) “do trial runs to improve quality”
- g) “to detect defects”
- h) “resolve safety concerns”
- i) “to improve internal controls”
- j) “the sharing of information”
- k) “to gather evidence”
- l) “to share what’s happening in the organization”
- m) “to inform leadership of changes”
- n) “to help cut costs”
- o) “trying to enter a new market”

The *how* elements described the leaders' methods of communicating during their KA gatherings. More examples are provided below:

Sample of how leaders described *how* they communicated during the KA event

- a) "face-to-face in a meeting"
- b) "it was a large group presentation"
- c) "one-on-one"
- d) "a small group meeting"
- e) "face-to-face one-on-one"
- f) "a phone call"
- g) "a conference call with a small group"
- h) "over the phone"
- i) "on a conference call with others"
- j) "through a phone conversation"
- k) "through email"
- l) "mass email"
- m) "paper document"
- n) "initially by email"
- o) "received a hard copy"

The consistent absence of rich descriptions is a pattern of communication in this company. Although the participants may have thought they were providing rich descriptive details. It is possible that any rare incidences of detailed descriptions suggest that leaders thought it was important to depart from the normal efficient speak to emphasize the context of the conversation. It is also possible the nature of the interview questions may have solicited brief answers. Although the interview questions did specifically ask the participant to "describe in detail" (see Appendix B) what they had experienced, perhaps following up with persistent requests for more detailed information may have elicited more descriptive responses. These observations about leaders' descriptions provide us potential insights into the efficient context of KA events within this company, and suggestions for improving interview techniques in further KA event interviews.

**RQ2 – How can KA event descriptions be categorized?**

The answer to Research Question 2 was developed by performing a categorical procedure upon the KA event descriptions in search of KA sub-categories. The primary categories identified were defined as relationships, subjects, times, locations, reasons, and channels. First, concepts derived from how leaders described the relationships can be sub-categorized into levels of authority. Second, concepts derived from how leaders described the subjects can be sub-categorized into business processes. Third, concepts derived from how leaders described the times can be sub-categorized into time periods of the day. Fourth, concepts derived from how leaders described the locations can be sub-categorized into relative assignments and measures of privacy. Fifth, concepts derived from how leaders described the reasons can be sub-categorized into motives for activities. Finally, concepts derived from how leaders described the channels can be sub-categorized into methods of conveyance and size of audience. See the Appendices from F1 to F6.

This project used a categorical process that included identifying concepts from the raw data using axial and selective coding techniques. The axial coding step reexamined the raw data on a concept-by-concept basis to find relationships between them. Connections were identified by relating one concept to another and using different types of conditions. These connections revealed interactions between the concepts and identified variables about the behavior of participants. The selective coding step identified variables to selectively recode the important data points more efficiently, while disregarding the less important variables. This was necessary to arrive at sub-categories that abstractly described the meaningful variables, like levels of authority, business activities, time periods, relative assignments with levels of privacy, motives for activities, methods of conveyance and size of audience.

Relationship concepts derived from the leaders' descriptions of who was communicating were sub-categorized into levels of authority, like higher authority, equal authority, and lower authority. Examples of higher authority were corporate superior ("our C.E.O"), plant superior ("my boss, the plant manager"), and customer superior ("our customer's V.P. of Production"). Corporate peer ("a colleague"), plant peer ("a coworker"), customer peer ("a purchasing agent at our customer"), and supplier peer ("a salesmen at our vendor") were examples of equal authority. Examples of lower authority included corporate subordinate ("my subordinate, a national account manager") and plant subordinate ("the plant safety manager"). Each relationship concept included levels of authoritative distinctions like corporate versus plant, or customer versus supplier.

Subject concepts derived from the leaders' descriptions of what was communicated were sub-categorized into business processes, like asset management, human resources, information systems, innovation, and relationship management. Equipment development ("more efficient heating and cooling systems") and materials development ("this is a new product technology") were examples of asset management. Examples for human resources included associate development ("health care policy change") and associate safety ("safe equipment operation training"). Data processing ("technology to store and retrieve legal information"), data security ("changing security roles"), and data analysis ("new health planning software") were examples of information systems. Examples of innovation included both product development ("improving our product specifications") and process development ("to buy a new machine platform"). Customer acquisition ("shipping samples to a new customer"), supplier acquisition ("sourcing a new supplier") and competitor acquisition ("acquisition of a competitor") were a range of examples for relationship management. Each subject concept included many business



process distinctions like equipment versus materials, or security versus analysis, or development versus safety, or product versus process.

Time concepts derived from the leaders' descriptions of when a topic was communicated were sub-categorized into time ranges of the day, like morning, midday, afternoon, and evening. Examples of morning were regarded as morning time clock ("at 10:00 a.m. every two weeks"), morning time range ("definitely in the morning"), and morning time vague ("later in the morning"). Midday time clock ("at 12:00 noon"), midday time range ("at lunch time"), and midday time vague ("it was early afternoon") were examples of midday. An example of afternoon included afternoon time clock ("4:00 p.m. on a Tuesday"). Evening time clock ("6:30 p.m.") and evening time range ("after dinner") were examples of evening. Each time of day concept included period of time distinctions like morning versus midday, or afternoon versus evening.

Location concepts were derived from the leaders' descriptions of where a topic was communicated. These were sub-categorized into relative assignments and measures of privacy, like off-site private, off-site public, on-site private, and on-site public. Private location ("at home in my backyard") was an example of off-site private. Examples of off-site public were a public location ("at a trade show"), and other's work site ("at the suppliers factory"). Assigned work space ("in my office"), an assigned conference space ("in the small conference room"), and assigned other's space ("at their desk") were examples of on-site private. An example of on-site public was an assigned work site ("at a conference center"). Each location concept included relative assignment and measure of privacy distinctions like public location versus other's work site, or assigned work site versus assigned others space.

Reason concepts derived from the leaders' descriptions of why a topic was communicated were sub-categorized into motives for activities, like exchanging information, improving controls, maximizing profits, and strategic planning. Sharing information ("to share what is happening in the organization") and gathering information ("to gather evidence") were examples of exchanging information. Examples of improving controls included controls safety ("to prevent cuts on hands"), controls quality ("to detect defects") and controls financials ("to improve internal controls"). Revenue increases ("new business was awarded") and expense decreases ("plan to reduce costs") were both examples of maximizing profits. An example of strategic planning was preparing schedules ("to schedule the line and order materials"). Each reason concept included many motives for activity distinctions like sharing versus gathering, or safety versus quality versus financials, or revenue versus expenses.

Channel concepts derived from the leaders' descriptions of how a topic was communicated were sub-categorized into methods of conveyance and size of audience, like face-to-face, voice and written. In-person individual ("one on one") and in-person group ("it was a large group presentation") were examples of face-to-face communication. Examples of voice communication included phone call individual ("over the phone") and phone call group ("on a conference call with others"). Electronic copy document ("initially by email") and hard copy document ("paper documents") were common examples of written communication. Many channel concepts included method of conveyance and size of audience distinctions like single versus group meeting, or individual call versus conference call, or hard copy document versus electronic document.

This categorical data set disclosed concepts (authority, activities, periods, assignment, privacy, motives, conveyance and audience) within the primary KA categories (relationships,

subjects, times, locations, reasons, and channels). These concepts revealed how leaders make distinctions within the key elements (who, what, when, where, why, and how) described in the KA events. For example, when describing relationships, leaders used modifying words such as “corporate” or “plant” that displayed organizational rank to distinguish authority. They described subjects using modifying words such as “new” or “old” that revealed operational priority to distinguish activities. Leaders described time using modifying words such as “early” or “late” that revealed specific, approximate and vague references to distinguish periods of time. When describing locations, leaders used modifying words such as “large” or “small” that revealed the physical position or access to the public to distinguish an assignment or a measure of privacy. Leaders described reasons using modifying words such as “clean” or “contaminated” that revealed desirable or undesirable objectives to distinguish their motives. When they described communication channels, the leaders used modifying words such as “paper” or “electronic” that revealed the means of sending a message or the intended recipient to distinguish the method of conveyance or size of audience. In this organization, the study revealed distinctions within the key elements from the categorical comparisons of leaders’ descriptions.

### **RQ3 – How do KA categories relate with the KA themes?**

Research Question 3 was answered by performing a thematic procedure upon the KA sub-categories in search of themes. The KA themes identified were defined as identification, strategizing, execution, and reflection. First, features about exchanging information created patterns pertaining to intelligence and revealed a theme known as identification. Second, features about strategic planning created patterns pertaining to targets and revealed a theme known as strategizing. Third, features about improving controls created patterns pertaining to leverage and revealed a theme known as execution. Fourth, features about maximizing profits

created patterns pertaining to performance and revealed a theme known as reflection. See the Appendices from G1 to G4.

This study used a thematic process that included labeling features and identifying patterns, revealing stories and naming them, then comparing stories to identify themes. Labeling features and identifying patterns was the initial step in the thematic process, and it was derived from the KA sub-categories to reveal stories. Revealing stories and naming them was the next step in the thematic process, and it was derived from clustering KA sub-categories into more abstract themes of related KA sub-categories used to further exemplify the meaning of the themes. Comparing stories and identifying themes was the final step in the procedure and was primarily derived from synthesizing the subject and reason KA sub-categories to name themes. The results of the thematic process revealed five stories about improving: supply chain, operational, creative, data management, and work force functions. The researcher named these stories “Marketplace Baseball” (supply chain improvements), “Dollar Hunting” (operational improvements), “Imagination Wars” (creativity improvements), “Knowledge Puzzle” (data improvements), and “Mind Games” (work force improvements).

Supply chain improvement stories were named “Marketplace Baseball” because the progression of inventory moving through the supply chain from a supplier’s supplier through the organization to the customer’s customer resembled a batter hitting the ball and running around all of the bases to score a point. The individual story components in “Marketplace Baseball” illustrated a sequence of themes: *getting to first base* (identification), *stealing second base* (strategizing), *making it to third base* (execution), and *crossing home plate* (reflection). The example *getting on first base* included the categories *relationship management* and *exchange*

*information.* A marketing leader in this organization met with a new business partner to discuss technical information in hopes of finding new relationship opportunities:

It was related to the acquisition of a competitor, he wanted me to go to the development center to understand some of their technologies and what value the technologies that they developed should be of value to us. (Sample from Participant 7A)

This quote demonstrates how a relationship with a competitor promotes the sharing of information. The categories *relationship management* and *strategic planning* were illustrated in the example named *stealing second base*. A scheduling leader met with a customer to prepare for a new product launch:

It was a new product that we're supplying to them. I am the scheduler, so I needed to start planning the product because the new customer had actually sent an email straight to me placing orders and I needed it for that. (Sample from Participant 20A)

This quote demonstrates how a relationship with a customer leads to the strategically planning of production. The categories *relationship management* and *improving controls* were illustrated in the example named *making it to third base*. A quality leader met with a customer to discuss quality improvements:

The subject matter was that the customer wants to no longer use the previous vendor because they've been having a lot of issues with their quality. Based on their experience with this new vendor they wanted us to take a trial run. This was customer directed for better quality. We needed to do some trial runs and he needed me to follow our company protocol. (Sample from Participant 22A)

This quote demonstrates how a relationship with a customer leads to improving quality controls.

The example *crossing home plate* illustrated the categories *relationship management* and *maximizing profits*. A marketing leader met with a potential customer to acquire more business:

This was a business we were not participating in, we chose not to at the time, however we recently decided to pursue this particular product again. So I sent a communication to the customer that we were interested in participating in their business that we hadn't in the past, and his response back to me was, well we're

not going to be procuring that business anymore, someone else is going to be doing it for us, and gave me the name of the subsequent partner of his that is going to be procuring the products for him. This is a current customer introducing a new customer. It's a new product for us that we have not been involved in. This was business that had been managed by our direct customer in the past, and that they decided to have this new business partner manage it for them. (Sample from Participant 38A)

This quote demonstrates how a relationship with a customer leads to receiving new business.

These four examples show how the complete series of themes function within supply chain improvement stories.

Operational improvement stories were named “Dollar Hunting” due to the likeness of a hunter interacting with his or her dog about the prey being hunted. The patterns resembled the stages of interaction between departments of an organization working together to produce a customer's order and getting it delivered on time. The individual story components in “Dollar Hunting” revealed a sequence of themes: *dog is on point* (identification), *two in the bush* (strategizing), *aim and fire* (execution), and *bird in hand* (reflection). The categories *asset management* and *exchange information* were illustrated in the example named Dog is on point. A development leader met with an equipment supplier to evaluate a machine and identify possible process improvements:

He had been there to visit along with our V.P. and they introduced to them a new technology for making a product that is half of what we do today and another half related to a new technology, so it's a totally different type of machine than what we'd normally see today and it is brand new. He had asked permission to go see this, to talk to them about several different opportunities and this was part of his review of what they had seen. He had requested permission for a visit prior to going to see this. (Sample from Participant 29B)

This quote demonstrates how sourcing an asset promotes the sharing of information. The example *two in the bush* illustrated the categories *asset management* and *strategic planning*. A

group of leaders attended an internal conference and listened to an executive leader introduce them to a new material technology they must prepare to use:

It was basically a material that we acquired through an acquisition that would help us in our business to improve. He was going through the acquisition that our company was obviously taking part of and just the benefits of it. It was educational in terms of the awareness of why we wanted to acquire the company but then also, going down the road, we'll be dealing with it and the work that we need to do for it, like preparation for using the new material. (Sample from Participant 2B)

This quote demonstrates how the introduction of an asset strategically plans for the use of a new material. The example *aim and fire* illustrated the categories *asset management* and *improving controls*. An engineering leader met with equipment supplier to reduce product defects:

He was developing a vision system to help us detect visual defects in our products for a customer where we've been having some issues with that. We were having some issues with the customer with visual defects that were in the products so we needed a way to cull it out. So we had been for a short term using people to do that until he finished developing his vision system to do that for us. (Sample from Participant 3B)

This quote demonstrates how the sourcing of an asset improves quality controls. The categories *asset management* and *maximizing profits* were illustrated in the example named *bird in the hand*. An engineering leader met with a contractor to improve the efficiency of equipment and reduce expenses:

It was a company that can provide us cooling systems for our equipment. So we could do business and they could provide us a different type of solution than what we've been using for cooling equipment. (Sample from Participant 18A)

This quote demonstrates how the sourcing of an asset reduces expenses. These four examples show how the complete series of themes function within operational improvement stories.

Creative improvement stories were named "Imagination Wars" due to similarities with a game known as "Capture the Flag" where two adventure teams use their skills and teamwork to

compete against one another. The patterns resembled two competing development teams, each racing against time to beat the other in delivering a new product or process to the marketplace. The individual story components in “Imagination Wars” displayed a sequence of themes: *identify the enemy* (identification), *find the enemy camp* (strategizing), *think like the enemy* (execution), and *capture the flag* (reflection). The example *identify the enemy* illustrated the categories *innovation* and *exchange information*. Internally, sales leaders met to evaluate new marketing concepts:

We were discussing our concept to market process where new concepts, new technologies are brought to a team to be reviewed and discussed on whether or not we want to pursue or develop that technology or product. We were discussing this type of product because he was coming up with an idea to submit for purposes of innovation. (Sample from Participant 25B)

This quote demonstrates the innovative process by sharing information among coworkers. The categories *innovation* and *strategic planning* were illustrated in the example named *find the enemy camp*. An executive leader describes being informed of new process improvements that he needed to approve and prepare to implement:

We just walked through it. I mean she does changes all the time. This is a standardized process where we changed documentation and she’s the one who changes it, she documents it, she gets consensus from our manufacturing sites and then she brings it to me to sign off on. It changes internal processes and how it works and what the responsibilities are and requirements, qualifications of new products, what the timing and responsibilities are of the plan of qualifications of new products there’s probably been twenty in the last six months. I’d say they document our processes and controls. It gets us administratively prepared for an audit which is important because we need to be qualified. (Sample from Participant 9C)

This quote demonstrates the process of innovating to strategically plan for qualification. The categories *innovation* and *improving controls* were illustrated in the example named *think like the enemy*. A warehouse leader met internally with an auditing leader to implement a creative solution for addressing an internal control issue:



They've identified some roles that more or less overlap and that there needed to do some controls on how that whole process is done, and in order to make sure those controls are in place they needed to segregate. For example, the same person posting shouldn't be clearing. Posting and clearing cycle counts must be different people. To make sure that the controls are in place, to make sure that the inventories, the cycle process has clear roles and those roles don't overlap by people posting the count and clearing the count. (Sample from Participant 26C)

This quote demonstrates how the innovative process improves internal controls. The example *capture the flag* illustrated the categories *innovation* and *maximizing profits*. A group of sales leaders discussed how to use existing technology for generating more revenue:

I was talking about us, the struggles we have competing in this market because we do not use a new technology and it was shared with me that recently we have begun doing it in our other division. It set me on a path that I was able to explore this for the product I'm trying to sell. It was a direct response to my discussing the difficulties I was having in trying to enter a new market for us because our competitor uses this technology. (Sample from Participant 38B)

This quote demonstrates how the innovative process increases revenue. These four examples show how the complete series of themes function within creative improvement stories.

Data improvement stories were named "Knowledge Puzzle" on the analogy of assembling a large jigsaw puzzle, where the individuals used process of elimination to resolve the most obvious variables first and then converged upon the more complex variables to solve the challenge at hand. The patterns resembled data mining efforts where systems analysts converge upon large data sets in an attempt to extract meaningful answers only to find more questions. The individual story components in "Knowledge Puzzle" showed a sequence of themes: *connect the straight edges* (identification), *connect the same colors* (execution), and *find the missing pieces* (reflection). The categories *information systems* and *exchange information* were illustrated in the example named *connect the straight edges*. Administrative leaders met with a software supplier to explore how to improve their systems:

At that point in time they were looking at bringing on new software, you know, what features are you wanting to have. And then later on, the idea of using it and not some other system and we got a lot more details. This is the new time and attendance software, payroll keeping software. They were wanting feedback, he was gathering feedback for whomever that was wanting feedback from all the different folks on what would be the likes, what we'd want to have in that software, what features we'd want to have in the new system. (Sample from Participant 35B)

This quote demonstrates how information systems are developed by gathering feedback. The example *connect the same colors* illustrated the categories *information systems* and *improving controls*. An operations leader met with a system leader to improve security.

I was having a conversation with the IT associate and we were talking about head count, which is a performance measurement that we use in the company that just tracks the number of employees we have. We were having a discussion around security roles in our system. In her programming, she works with assisting the company in assigning security roles to associates. It was just through a conversation of security roles and the programming within our system around security. (Sample from Participant 41A)

This quote demonstrates how information systems are managed by improving controls. The categories *information systems* and *maximizing profits* were illustrated in the example named *find the missing pieces*. A systems leader met with a network consultant to implement new communication technology and cut costs:

So this encounter came from an email and was followed up by a phone call. The email was with regard to attend a conference regarding this network communication technology and there was subsequent follow-up via a phone call describing the technology and why it should interest us. Because number one, we uses their technologies. Number two we are currently not, our current infrastructure is not cloud-based. And number three, I've shown interest before in that technology. To potentially allow us to be more dynamic in the way we configure our network. Dynamic meaning, we can easily change, modify, update, upgrade, adaptability, a lot easier than we can today. Updating, configuring, monitoring our network infrastructure, the way packets of information are transferred around the network. (Sample from Participant 21B)

This quote demonstrates how information systems are developed to reduce expenses. These three examples show how the partial series of themes function within data improvement stories.

Work force improvement stories were named “Mind Games” due to the nature of psychological competition between leaders and teams with similar and competing objectives. The patterns resembled the ongoing exchanges of cooperation and conflicts between leaders and teams attempting to achieve higher levels of operational performance. The individual story components in “Mind Games” presented a short sequence of two themes: *observe behavior* (identification), and *modify behavior* (execution). The example *observe behavior* illustrates the categories *human resources* and *exchange information*. A training leader met with an instructional consultant to identify new learning strategies:

It was an introduction to the new supplier, a little bit about their company. They offer training, different communications skills training, to learn training on how to use different types of training technology. It’s a training method that they use for launching programs there and they thought that it might be beneficial to us to look into them for different types of training at our corporate office. (Sample from Participant 11A)

This quote demonstrates how human resource development is promoted by gathering information. The categories *human resources* and *improving controls* were illustrated in the example named *modify behavior*. A site leader reminded a warehouse leader about improving safety controls:

I was opening up a box in the shipping office and he was bringing to my attention that I needed to have gloves. I had no idea. The plant manager had noticed that I was walking out there and I was opening a box so he reminded me about it because I wasn’t using the gloves. (Sample from Participant 20C)

This quote demonstrates how human resource policies improve safety. These two examples show how a limited series of themes function within work force improvement stories.

Initial patterns regarding intelligence were created from categories and revealed themes within stories about identification. The names of the initial story components included *getting on first base*, *dog is on point*, *identify the enemy*, *connect the straight edges*, and *observe*

*behavior*. This data suggests that exchanging information (or gathering intelligence) is an initial task, known by the theme *identification*.

Subsequent patterns regarding targets were created from categories and revealed themes within stories about strategizing. The names of the next story components included *stealing second base*, *two in the bush* and *find the enemy camp*. Here the data suggests that strategic planning (or identifying targets) was a subsequent task, known by the theme *strategizing*.

Further patterns regarding leverage were created from categories and revealed themes within stories about execution. The names of the following story components included *making it to third base*, *aim and fire*, *think like the enemy*, *connect the same colors* and *modify behavior*. Again the data suggests that improving controls (or establishing leverage) is an additional task, known by the theme *execution*.

Lastly, patterns regarding performance were created from categories and revealed themes within stories about reflection. The names of the last story components included *crossing home plate*, *bird in the hand*, *capture the flag* and *find the missing pieces*. Finally the data suggests that maximizing profits (or reflecting upon performance) was the final task, known by the theme *reflection*.

In this company, a thematic data set revealed patterns (intelligence, targets, leverage, and performance) within the stories named by the researcher (“Marketplace Baseball”, “Dollar Hunting”, “Imagination Wars”, “Knowledge Puzzle”, and “Minds Games”). These patterns disclosed themes (identification, strategizing, execution, and reflection) from a combination of the subject sub-categories and reason sub-categories found in KA events.

#### **RQ4 – How do KA categories relate with the leader’s demographics?**

The answer to Research Question 4 was derived by evaluating the distribution of responses to questions about the KA sub-categories and the leaders’ demographic information using descriptive analysis. The results revealed consistent findings for the relationships, times, locations and channels for engaging in KA events. In this company, leaders typically meet face-to-face with leaders of equal authority during normal business hours in on-site private areas during KA events. The results suggest that the subjects and reasons for engaging in KA events offered several interesting findings among the participants’ personal characteristics. See the Appendices from H to K.

The first set of descriptive tables compared the KA sub-categories with the participants’ gender. This gender data set revealed two findings. Apparently, men and women were both more likely to describe the subject of communication as innovation.

##### *Distribution of Responses for Subject by Gender*

Subject	Gender	
	<u>Men</u>	<u>Women</u>
Asset Management	12 (18%)	8 (22%)
Human Resources	9 (14%)	7 (19%)
Information Systems	11 (17%)	5 (14%)
Innovation	18 (27%)	12 (34%)
Relationship Management	16 (24%)	4 (11%)
<i>Note.</i> N = 102	66 (100%)	36 (100%)

This comparison revealed that innovation was a dominant topic of conversation among both genders in the organization. It also revealed an interesting gender difference. Relationship management was the second most frequent topic (after innovation) of discussion for men and the least frequent topic of discussion for women. Men were more likely to describe the reason for communicating as roughly equal splits between exchanging information, improving controls, and

maximizing profits, while women were more likely to describe the reason for communicating as an equal split between exchanging information and improving controls.

*Distribution of Responses for Reason by Gender*

Reason	Gender	
	<u>Men</u>	<u>Women</u>
Exchange Information	21 (32%)	11 (31%)
Improve Controls	21 (32%)	12 (33%)
Maximize Profit	20 (30%)	8 (22%)
<u>Strategic Planning</u>	4 (6%)	5 (14%)
<i>Note.</i> N = 102	66 (100%)	36 (100%)

This data illustrates that exchanging information and improving controls were common motives for conversation among men and women in the organization.

The second set of descriptive tables compared the KA sub-categories with the participants' ages. This data was collapsed into two generations (age groupings): baby boomers (fifty years of age or older) and non-baby boomers (under fifty years of age) for the purpose of simplifying the data comparison. Two findings were discovered within this evaluation of the participants' ages. Boomers were more likely to describe the subject of communication as relationship management as opposed to non-boomers, who were more likely to describe the subject of communication as innovation. A comparison of genders to generations revealed that non-boomers are equally split between men and women. Men dominate the women in the boomer generation by a ratio of six to one. This gender difference may have implications with the way power is manifested within the organization, especially in regards to relationship management.

*Distribution of Responses for Subject by Age*

Subject	Age	
	<u>Boomer</u>	<u>Non-Boomer (&lt;50)</u>
Asset Management	4 (10%)	16 (27%)
Human Resources	5 (12%)	11 (18%)
Information Systems	7 (17%)	9 (15%)
Innovation	12 (29%)	18 (30%)

<u>Relationship Management</u>	14	(32%)	6	(10%)
<i>Note. N = 102</i>	42	(100%)	60	(100%)

These results revealed a noteworthy difference between the older and the younger generations. Boomers were also more likely to describe the reason for communicating as roughly equal splits between exchanging information, improving controls, and maximizing profits, while non-boomers were more likely to describe the reason for communicating as an equal split between exchanging information and improving controls.

<u><i>Distribution of Responses for Reason by Age</i></u>				
Reason	Age			
	<u>Boomer</u>		<u>Non-Boomer (&lt;50)</u>	
Exchange Information	13	(31%)	19	(32%)
Improve Controls	12	(28%)	21	(35%)
Maximize Profit	13	(31%)	15	(25%)
<u>Strategic Planning</u>	4	(10%)	5	(8%)
<i>Note. N = 102</i>	42	(100%)	60	(100%)

Similar to the findings for men and women, this data also illustrates that exchanging information and improving controls were popular motives for conversation among the boomer and non-boomers in the company.

The third set of descriptive tables compared the KA sub-categories to the participants' levels of education. This data was collapsed into two classes (educational groupings): higher degrees (Bachelor's and Master's degrees) and lower degrees (High School and Associate's degrees) for ease of comparison. This evaluation of the participants' education also revealed two findings. Higher degree graduates were more likely to describe the subject of communication as an equal split between asset management and innovation, while lower degree graduates were more likely to describe the subject of communication as innovation.

<u><i>Distribution of Responses for Subject by Education</i></u>				
Subject	Education			
	<u>Higher</u>		<u>Lower</u>	
Asset Management	17	(25%)	3	(9%)

Human Resources	11	(16%)	5	(15%)
Information Systems	14	(20%)	2	(6%)
Innovation	16	(23%)	14	(43%)
<u>Relationship Management</u>	<u>11</u>	<u>(16%)</u>	<u>9</u>	<u>(27%)</u>
<i>Note.</i> N = 102	69	(100%)	33	(100%)

This research continued to find innovation was a frequent topic of conversation among both educational classes within the company. Higher degree graduates were more likely to describe the reason for communicating as an equal split between exchanging information and maximizing profits. Lower degree graduates were more likely to describe the reason for communicating as improving controls.

*Distribution of Responses for Reason by Education*

Reason	Education			
	<u>Higher</u>		<u>Lower</u>	
Exchange Information	23	(33%)	9	(27%)
Improve Controls	19	(28%)	14	(43%)
Maximize Profit	24	(35%)	4	(12%)
<u>Strategic Planning</u>	<u>3</u>	<u>(4%)</u>	<u>6</u>	<u>(18%)</u>
<i>Note.</i> N = 102	69	(100%)	33	(100%)

Here the motive for participating in KA events suggested differences between the higher-educated and lower-educated classes within the organization.

Finally, the fourth set of descriptive tables compared the KA sub-categories with the participants' years of service. Similar to the other data sets, it was collapsed into three experience levels (service groupings): low experience (less than or equal to 10 years of service), medium experience (from 11 to 20 years of service) and high experience (greater than or equal to 21 years of service) in order to make the comparison less complicated. Two findings were also discovered within the comparison of the leaders' years of service. Low-experience associates were more likely to describe the subject of communication as roughly equal splits between asset management, human resource management, information systems and innovation. Medium-experience associates were more likely to describe the subject of communication as innovation.



High-experience associates were more likely to describe the subject of communication as an equal split between innovation and relationship management.

*Distribution of Responses for Subject by Years of Service*

Subject	Years of Service		
	<u>Low (= &lt;10)</u>	<u>Medium (11 to 20)</u>	<u>High (= &gt;21)</u>
Asset Management	5 (19%)	8 (24%)	6 (14%)
Human Resources	7 (26%)	4 (12%)	5 (12%)
Information Systems	6 (22%)	2 (6%)	8 (19%)
Innovation	7 (26%)	12 (37%)	11 (26%)
Relationship Management	2 (7%)	7 (21%)	12 (29%)
<i>Note. N = 102</i>	27 (100%)	33 (100%)	42 (100%)

The topic of innovation continued to demonstrate a pattern, even among differences in years of service. Low-experience associates were more likely to describe the reason for communicating as roughly equal splits between exchanging information, improving controls and maximizing profits. Medium-experience associates were more likely to describe the reason for communicating as exchanging information. High-experience associates were more likely to describe the reason for communicating as an equal split between improving controls and maximizing profits.

*Distribution of Responses for Reason by Years of Service*

Reason	Years of Service		
	<u>Low (= &lt;10)</u>	<u>Medium (11 to 20)</u>	<u>High (= &gt;21)</u>
Exchange Information	8 (30%)	15 (45%)	9 (21%)
Improve Controls	7 (26%)	10 (30%)	16 (39%)
Maximize Profit	9 (33%)	5 (15%)	14 (33%)
Strategic Planning	3 (11%)	3 (10%)	3 (7%)
<i>Note. N = 102</i>	27 (100%)	33 (100%)	42 (100%)

This descriptive comparison revealed a noticeable gap between the reasons for KA events among difference experience levels in the company.

Comparison of the demographic data sets revealed similarities and differences among the subjects and reasons discussed in KA events. While innovation was the most common topic discussed across all of the demographic variables (except for relationship management with

boomers), the reason for communicating in KA events varied depending upon the participants' personal characteristics. Most of the variability was equally distributed among the motives to exchanging information, improving controls and maximizing profits. The remaining categorical relationships were consistent across all demographic characteristics. This study does not use statistical inference and only highlights some trends that are not generalizable therefore the results could be random. In this organization, the demographic data suggested that most leaders practice a consistent behavior when communicating during KA events.

### **RQ5 – How do KA categories relate with the organization's objectives?**

Research Question 5 was answered by analyzing the distribution of responses using descriptive comparisons between the KA sub-categories and the organization's objectives. The research suggests distinct findings for the subjects, time periods and reasons for engaging in KA events. The other tables are consistent across all remaining KA sub-categories. See Appendix L.

First, partnership objectives were more likely to be discussed with the subject of relationship management. Technology objectives were more likely to be discussed with the subject of asset management. Policy objectives were more likely to be discussed with the subject of human resources.

#### *Distribution of Responses for Subject by Organization's Objectives*

Subject	Organization's Objectives		
	Partner	Technology	Policy
Asset Management	3 (9%)	16 (47%)	1 (3%)
Human Resources	2 (6%)	0 (0%)	14 (41%)
Information Systems	4 (12%)	6 (18%)	6 (18%)
Innovation	7 (21%)	11 (32%)	12 (35%)
<u>Relationship Management</u>	18 (52%)	1 (3%)	1 (3%)
<i>Note.</i> N = 102	34 (100%)	34 (100%)	34 (100%)

The remaining comparative observations within subjects and objectives appear inconsequential.

Second, partnership objectives were more likely to be discussed in the morning time period. Technology objectives were more likely to be discussed in the midday time period. Policy objectives were more likely to be discussed in the afternoon time period.

*Distribution of Responses for Time by Organization's Objectives*

Time	Organization's Objectives		
	Partner	Technology	Policy
Morning	15 (45%)	10 (29%)	12 (35%)
Midday	9 (26%)	12 (36%)	4 (12%)
Afternoon	10 (29%)	9 (26%)	17 (50%)
Evening	0 (0%)	3 (9%)	1 (3%)
Note. N = 102	34 (100%)	34 (100%)	34 (100%)

The remaining comparative observations within time and objectives appear inconsequential.

Finally, partnership objectives were more likely to be discussed with the reason for maximizing profits. Technology objectives were more likely to be discussed with the reason for exchanging information. Policy objectives were more likely to be discussed with the reason for improving controls.

*Distribution of Responses for Reason by Organization's Objectives*

Reason	Organization's Objectives		
	Partner	Technology	Policy
Exchange Information	10 (29%)	14 (41%)	8 (24%)
Improve Controls	6 (18%)	4 (12%)	23 (67%)
Maximize Profit	13 (38%)	12 (35%)	3 (9%)
Strategic Planning	5 (15%)	4 (12%)	0 (0%)
Note. N = 102	34 (100%)	34 (100%)	34 (100%)

The remaining comparative observations within reasons and objectives appear inconsequential.

The results of the descriptive comparison suggest some meaningful discoveries among the subjects, time periods and reasons for KA events. The other categorical findings were consistent across all the organizational objectives. In this company, the organizational results suggest that most leaders practice consistent behavior when communicating during KA events.

**Summary**

The research results revealed five key findings in this organization. First, the study revealed the consistent absence of rich descriptions within the leaders' descriptions of KA events. Second, the study revealed distinctions within the key elements from the categorical

comparisons of leaders' descriptions. Third, the study revealed themes that emerged from the categorical data. Fourth, the demographic data suggested that most leaders practice a consistent behavior when communicating during KA events. This study does not use statistical inference and only highlights some trends that are not generalizable therefore the results could be random. Finally, the organizational data also suggested that most leaders practice consistent behavior when communicating during KA events.

## **CHAPTER 5 – CONCLUSIONS**

This study of knowledge acquisition (KA) processes and communication events began by reviewing two perspectives that were needed to comprehend and appreciate this research problem and its complexities. First, it discussed the social and economic challenges that many organizational leaders endured during the Great Recession of 2008 and the recent explosion of social media in 2003. Second, it discussed the challenges that many scholars encountered while searching for a conceptual foundation that relates what has been learned about KA and how to apply it. This conclusion evaluates two key research discoveries in this organization: a sequence of themes illustrating a cycle of KA efforts toward achieving organizational objectives, and the leaders' consistent meeting behavior reflecting a strong communication culture and clearly defined strategic targets. This research placed less importance upon making generalizations from the sample and assumed more importance upon understanding the experiences of the participants in this organization. This conclusion also discusses several methodological limitations and recommendations for further research. It explores sample size, the recording of scenarios and details, and self and group reporting. Additional consideration is given to the leaders' functional positions and cultural affiliations.

### **Discussion of the Results and Conclusions**

The section will look both inward, to relate and interpret the results of the research project, and outward toward what those key discoveries mean to the previous KA literature and other communities interested in KA. It will discuss both the practical and conceptual implications of this research study in the context of the greater body of knowledge about KA.

The first key discovery showed how the sequence of themes illustrates a cycle of KA efforts toward achieving organizational objectives. The practical implication of this discovery is that the stories revealed in the thematic analysis suggested that leaders pursue a progressive series of activities or patterns (intelligence, targets, leverage, and performance) until business objectives are completed. A comparison of this sequence of themes (identification, strategizing, execution, and reflection) to some of Huber's (1991) KA sub-processes (searching, vicarious learning and experimental learning) reveals similar learning patterns. Below is a table to illustrate these loose connections:

Cycle of KA efforts to achieve organizational objectives Huber (1991) KA Sub-Processes

1) Identification theme (identifying goals) Intelligence patterns include: Exchange Info. & Relationship Mgt. features Exchange Info. & Asset Mgt. features Exchange Info. & Innovation features Exchange Info. & Info. Syst. features Exchange Info. & Hum. Res. features	Searching (Pre-organizational objectives) Learning patterns include: Scanning & Seeking Exploring new opportunities Observed in Service contexts: Legal (Forstenlechner, 2007) Medical (Yap, 2005)
2) Strategizing theme (planning objectives) Target patterns include: Strategic Plng. & Relationship Mgt. features Strategic Plng. & Asset Mgt. features Strategic Plng. & Innovation features	Experimental Learning Learning patterns include: Learning to adapt Making self assessments Utilizing feedback Observed in Situational contexts: Variations (Cook, 1993) Organizational (Weick, 2001) Environmental (Pisano, 1994) Chronological (Fiol, 1985)
3) Execution theme (leveraging controls & taking action) Leverage patterns include:	Vicarious Learning Learning patterns include:

Improve Controls & Relationship Mgt. features  
 Improve Controls & Asset Mgt. features  
 Improve Controls & Innovation features  
 Improve Controls & Info. Syst. features  
 Improve Controls & Hum. Res. features

Observing other groups  
 Using imitation & mimicry to cope  
 Observed in Power contexts:  
 Membership (Fiol, 2001)  
 Transfer (Aldrich, 1994)  
 Environment (Denison, 1996)

4) Reflection theme (assessing results)

Performance patterns include:

Maximize Profits & Relationship Mgt. features  
 Maximize Profits & Asset Mgt. features  
 Maximize Profits & Innovation features  
 Maximize Profits & Info. Syst. features

Searching (Post- organizational objectives)

Learning patterns include:

Performance monitoring  
 Map & measure processes  
 Observed in Service contexts:  
 Delivery (Ellinger, 2002)  
 Charity (Moxham, 2009)

According to Huber (1991), searching comprises scanning, seeking, and exploring new opportunities that will accelerate learning. His literature also reviews and describes the importance of performance-monitoring activities. As Huber (1991) further showed, an organization must learn to map and measure organizational processes. It must conduct an ongoing search for process improvements. The results of this study revealed an initial theme known as *identification*, which was derived from features about exchanging information in areas like relationship management, asset management, innovation, information systems, and human resources. The identification theme is aligned with and resembles Huber's (1991) ideas about searching for new opportunities. The intelligence patterns in the identification theme are loosely connected to the learning patterns in the pre-organizational searching objectives sub-process. The results of this study also showed a final theme known as *reflection*, which was derived from features about exchanging information in areas like relationship management, asset management, innovation, and information systems. The reflection theme is aligned with and resembles Huber's (1991) ideas about searching for the measurement of processes. The performance patterns in the reflection theme are loosely connected to the learning patterns in the post-organizational searching objective sub-process. These congruencies between intelligence-

gathering patterns in both the initial theme known as *identification* and the final theme known as *reflection* confirm Huber's (1991) previous findings regarding searching learning patterns.

Experimental learning occurs when individuals learn to adapt, make self-assessments, and utilize feedback when faced with new experiences. Their personal instincts and insights help guide them to cope with new challenges. A common theme involving a changing set of circumstance or surroundings is demonstrated in the KA literature. This pattern of situations reveals itself in many contexts, like variations, organizations, environmental and chronological. The results of this study revealed a theme known as *strategizing* which was derived from features about planning situational targets and objectives in areas like relationship management, asset management, and innovation. The strategizing theme is aligned with Huber's (1991) ideas about experimental learning when faced with new experiences. The target patterns in the strategizing theme are loosely connected to the learning patterns in the experimental learning sub-process. The congruency between target patterns in the strategizing theme resembles Huber's (1991) previous findings regarding experimental learning patterns. It is important to note a contradiction in the data about the importance of strategizing. The thematic analysis revealed a strategic theme, however the leader's demographic analysis showed it was consistently the least frequent reason for communicating. It is possible that strategy is not an expressed priority in this company, but rather an implied priority which is only detected by thematic patterns found in the communication events. Strategy may be an assumed core value in this organization that exists without being verbally reinforced in conversations.

Huber (1991) says that vicarious learning involves the instinct to learn by observing other groups, using imitation and mimicry to cope with uncertainties. These simple methods provide individuals with a fundamental process for adapting to their environment. A recurring theme



involving power, also described as autonomy or legitimacy, is evident throughout KA literature. This pattern of power reveals itself in many contexts, like membership, transfer and environment. The results of this study revealed a theme known as *execution*, that was derived from features about leveraging controls and taking action in areas like relationship management, asset management, innovation, information systems, and human resources. The execution theme is aligned with Huber's (1991) ideas about vicarious learning by observing other groups. The alignment between leveraging patterns in the execution theme resemble Huber's (1991) previous findings regarding the imitation of power patterns. The linkages between the thematic patterns discovered in this research project and the learning patterns found in Huber's (1991) work serve to illustrate how his sub-processes loosely fit within the cycle of KA demonstrated by the sequence of the new KA themes: identification (searching), strategizing (experimental learning), execution (vicarious learning) and reflection (searching).

The conceptual implications of the first key discovery are that the stories revealed in the thematic analysis suggested that leaders pursue a progressive series of activities, patterns or themes. Three previous projects also supported the importance of understanding KA themes. Chesser-Smyth (2005) interviewed nursing students on their first clinical placement to achieve a better understanding about how to increase confidence levels and reduce anxiety. Her findings revealed five themes: self-awareness, confidence, anxiety, facilitation and professional issues (Chesser-Smyth, 2005). Similar to this study, she was able to expand each of her five primary themes to sub-themes and provided a greater depth of understanding about KA. McKenna and Newton (2008) conducted focus groups among nursing students to understand how they developed their knowledge and skills during the transition from an academic setting to members of the workforce. Their findings revealed three main themes: sense of belonging, independence

and moving on (McKenna and Newton, 2008). Sun (2010) studied three knowledge management processes (knowledge acquisition, knowledge creation, and knowledge utilization) by interviewing leaders in two organizations. One was a large-scale insurance company in Asia. The other was an environmental protection agency in New Zealand. His research revealed five critical knowledge management organizational themes: systematic knowledge, strategic engagement, social networking, cultural context, and process and structural context (Sun, 2010). This KA project resembles the previous research of Chesser-Smyth (2005), McKenna and Newton (2008) and Sun (2010) in terms of the importance of understanding themes in KA studies. This study also supports the research of these scholars by illustrating loose connections between contexts and themes found in existing KA literature. This research project expands our previous knowledge by demonstrating how categorical distinctions reveal sub-categories of KA. It illustrated patterns which revealed a cycle of themes that loosely resembles Huber's (1991) KA sub-processes.

The second key discovery showed how the leaders' consistent meeting behaviors revealed a strong communication culture with clearly defined strategic targets. Here we notice the unexplainable contradiction in the data is repeated, in light of the low ranking that strategic planning received among reasons for communicating. The practical implication of this discovery is that most leaders share common behaviors about communicating. Most leaders also share a clearly defined strategic agenda. Here is a summary:

Summary of the Organizational Objectives displaying by the most common Sub-Category in each Key Element

<u>Key Elements</u>	<u>Partners</u>	<u>Technologies</u>	<u>Policies</u>
Who	Equal Authority (56%)	Equal Authority (47%)	Equal Authority (50%)
What	Relationship Mgt. (53%)	Asset Management (47%)	Human Resource (41%)
When	Morning (44%)	Midday (35%)	Afternoon (50%)
Where	On-site Private (68%)	On-site Private (50%)	On-site Private (62%)

Why	Maximize Profits (38%)	Exchange Information (41%)	Improve Controls (68%)
How	Face to Face (53%)	Face to Face (68%)	Face to Face (56%)

The key elements named *who*, *where* and *how* show that most leaders' meeting behavior is quite consistent. They meet face-to-face with leaders of equal authority in on-site private areas during KA events. The key elements named *what*, *when* and *why* show that most leaders pursue the same three strategic targets. In the morning, they discuss how to better manage relationships with partners to maximize profits. During the midday, they discuss how to exchange information about technologies to improve the management of assets. In the afternoon, they discuss how to change human resource policies to improve internal controls. The meeting patterns in this company may be influenced by the small sample size. Influential leaders or light work-loads in these functional areas may simply be influencing the meeting times for these topics.

The conceptual implications of the second key discovery are that most leaders share a common culture when communicating. Two previous research studies also supported the importance of understanding a KA culture. Cook and Yanow (1993) say KA is a collection of cultural events. Their research analyzed the collective thought processes within three small workshops that make the best flutes in the world. They discovered that it is easier to understand and accept KA from a cultural context than from an individual or organizational context. Cook and Yanow (1993) say that learning is derived from a variation of shared culture (experiences, values and assumptions). This company's consistent meeting behavior may reflect the shared experiences, values and assumptions of these leaders. Weick and Ashford (2001) studied communication processes in an organizational context by analyzing three military attack case scenarios that ended in failure. These events occurred on an Army base, in an Air Force plane, and on a Navy ship. They make a complex assessment by looking at KA from three different aspects. Weick and Ashford (2001) illustrate how a military individual's learning and

performance influence communication processes in an organizational context. These three military case studies demonstrate the impact communication language and communication processes have upon KA. While each branch of the service may have a unique organizational context, they all have a common military culture. This KA research project supports the previous work of Cook and Yanow (1993) and Weick and Ashford (2001) in terms of 1) providing the complete details of the communication events (*who, what, when, where, why, and how*) which are rarely found in KA literature, and 2) providing contextual variations which enable themes and reoccurring cultural behavior to surface from within these organizations. Overall, this study somewhat agrees with these scholars' findings by demonstrating loose linkages between contexts and culture in KA events.

### **Limitations and Recommendations for Further Study**

This section will discuss the expected and unexpected problems with this research study and make recommendations for resolving them. It will review the issues and make suggestions to correct the data, limitations (unintentional flaws), delimitations (intentional omissions) and the scope of the research problem. This process is intended to improve the results and quality of similar projects in the future.

First, this study was restricted to a small sample of leaders due to a limited amount of time available to complete the research. This research does not use statistical inference and only highlights some trends that are not generalizable therefore the results could be random. Additional participants may provide a source of data and an understanding of how leaders experience KA events. Similar studies in the future should consider selecting leaders with various levels of performance to identify whether leaders' performance affects the KA experience. Second, the recollection of scenarios and details about KA events by some leaders

was rather vague and ambiguous. Recent captured documentation about the leaders' KA experiences may enhance the scope and reliability of the data being collected. Research projects in the future should evaluate using diaries or journals to capture more specific details about the KA scenarios that leaders experience. Third, this study collected self-reported data about the KA experiences of leaders that may be subjective or biased by the participants' predispositions. Objective interpretations of KA experiences may be collected more accurately using a peer review to validate perceptions of the KA events. In the future, KA studies should consider a collective approach to improve the quality of data being gathered from participants. Fourth, the study did not collect any information about the participants' functional position or responsibilities in the organization, due to the risk of revealing participant identities in a small sample size. These details may provide meaningful insights into how leaders experience KA events. The organizational background of participants may impact their perceptions about how KA processes function. In the future, research projects should consider including the functional department or position of leaders gathered from organizational charts. Fifth, this project did not gather any information about the race, geographic origin, or cultural affiliation of participants, also due to the risk of revealing participant identities in a small sample size. Cultural differences may influence the KA experience of leaders. The cultural background of participants may be meaningful to understanding how leaders describe KA experiences. Studies in the future should consider the benefits of gathering cultural information about the organization's leaders. Lastly, although social media was suspected to be a determining factor in this study, no evidence of social media influences was revealed from the participant's narratives. This observation poses questions about what other factors were not measured or did not show up in the results.

## **Conclusion**

This research project's two key discoveries offer new insights into Huber's (1991) KA sub-processes (*congenital learning, experimental learning, vicarious learning, grafting, and searching*) and understanding the key elements (*who, what, when, where, why, and how*) of communication events. Organizational leaders and scholars of communication have a better understanding about how one organization's team of leaders have addressed and responded to the Great Recession of 2008 and the recent explosion of social media in 2003 by practicing a thematic cycle of KA efforts (*identification, strategizing, execution, and reflection*) to achieve organizational objectives (*partners, technologies, and policies*) and a strong communication culture to pursue their strategic targets. Further studies about KA in organizations should consider expanding the scope and depth of participants to include functional responsibilities and ethnic differences when evaluating the experiences of global leaders.



**APPENDIX B  
KNOWLEDGE ACQUISITION INTERVIEW QUESTIONS**

**Please take a few moments to describe your recent experience with discovering a new business partner in your organization.**

Describe in detail who (relationship) communicated the new business partner to you.

---

Describe in detail what (subject) was communicated to you about the new business partner.

---

Describe in detail when (time of day) the new business partner was communicated to you.

---

Describe in detail where (location) the new business partner was communicated to you.

---

Describe in detail why (reason) the new business partner was communicated to you.

---

Describe in detail how (channel) the new business partner was communicated to you.

---

**Please take a few moments to describe your recent experience with discovering a new business technology in your organization.**

Describe in detail who (relationship) communicated the new business technology to you.

---

Describe in detail what (subject) was communicated to you about the new business technology.

---

Describe in detail when (time of day) the new business technology was communicated to you.

---

Describe in detail where (location) the new business technology was communicated to you.

---

Describe in detail why (reason) the new business technology was communicated to you.

---

Describe in detail how (channel) the new business technology was communicated to you.

---

**Please take a few moments to describe your recent experience with discovering a new business policy in your organization.**

Describe in detail who (relationship) communicated the new business policy to you.

---

Describe in detail what (subject) was communicated to you about the new business policy.

---



Describe in detail when (time of day) the new business policy was communicated to you.

---

Describe in detail where (location) the new business policy was communicated to you.

---

Describe in detail why (reason) the new business policy was communicated to you.

---

Describe in detail how (channel) the new business policy was communicated to you.

---

**Please take a few moments to answer the following demographic questions.**

**What is your gender?**

- Man  
 Woman

**What is your age?**

- From 18 to 30 years  
 From 31 to 40 years  
 From 41 to 50 years  
 From 51 to 60 years  
 From 61 to 70 years

**What is your educational level?**

- High school graduate  
 Associate's degree  
 Bachelor's degree  
 Master's degree  
 Doctorate's degree

**How long have you worked in the organization?**

- From 0 to 10 years  
 From 11 to 20 years  
 From 21 to 30 years  
 From 31 to 40 years  
 From 41 to 50 years





























**APPENDIX F1**  
**KA CATGEORIES FOR LEADERS' DESCRIPTIONS OF RELATIONSHIPS**

Relationships – Concepts derived from how leaders describe the *relationships* can be classified into sub-categories revealing levels of authority

- a) Higher authority
  - i) Corporate superior – “our C.E.O.”
  - ii) Plant superior – “my boss, the plant manager”
  - iii) Customer superior – “our customer’s V.P. of Production”
- b) Equal authority
  - i) Corporate peer – “a colleague”
  - ii) Plant peer – “a coworker”
  - iii) Customer peer – “a purchasing agent at our customer”
  - iv) Supplier peer – “a salesmen at our vendor”
- c) Lower authority
  - i) Corporate subordinate – “my subordinate, a national account manager
  - ii) Plant subordinate – “the plant safety manager”

**APPENDIX F2**  
**KA CATGEORIES FOR LEADERS' DESCRIPTIONS OF SUBJECTS**

Subjects – Concepts derived from how leaders describe the *subjects* can be classified into sub-categories revealing business activities

- a) Asset management
  - i) Equipment development – “more efficient heating and cooling systems”
  - ii) Materials development – “this is a new product technology”
- b) Human resources
  - i) Associate development – “health care policy change”
  - ii) Associate safety – “safe equipment operation training”
- c) Information systems
  - i) Data processing – “technology to store and retrieve legal information”
  - ii) Data security – “changing security roles”
  - iii) Data analysis – “new health planning software”
- d) Innovation
  - i) Product development – “improving our product specifications”
  - ii) Process development – “to buy a new machine platform”
- e) Relationship management
  - i) Customer acquisition – “shipping samples to a new customer”
  - ii) Supplier acquisition – “sourcing a new supplier”
  - iii) Competitor acquisition – “acquisition of a competitor”



**APPENDIX F3**  
**KA CATGEORIES FOR LEADERS' DESCRIPTIONS OF TIMES**

Times – Concepts derived from how leaders describe the *time* can be classified into sub-categories revealing time periods of the day

a) Morning

i) Morning time clock – “at 10:00 a.m. every two weeks”

ii) Morning time range – “definitely in the morning”

iii) Morning time vague – “later in the morning”

b) Midday

i) Midday time clock – “at 12:00 noon”

ii) Midday time range – “at lunch time”

iii) Midday time vague – “it was early afternoon”

c) Afternoon

i) Afternoon time clock – “4:00 p.m. on a Tuesday”

d) Evening

i) Evening time clock – “6:30 p.m.”

ii) Evening time range – “after dinner”

**APPENDIX F4**  
**KA CATGEORIES FOR LEADERS' DESCRIPTIONS OF LOCATIONS**

Locations – Concepts derived from how leaders describe the *location* can be classified into sub-categories revealing relative assignments and measures of privacy

- a) Off-site private
  - i) Private location – “at home in my back yard”
- b) Off-site public
  - i) Public location – “at a trade show”
  - ii) Others work site – “at the suppliers factory”
- c) On-site private
  - i) Assigned work space – “in my office”
  - ii) Assigned conference space – “in the small conference room”
  - iii) Assigned others space – “at their desk”
- d) On-site public
  - i) Assigned work site – “at a conference center”

**APPENDIX F5**  
**KA CATGEORIES FOR LEADERS' DESCRIPTIONS OF REASONS**

Reasons – Concepts derived from how leaders describe the *reasons* can be classified into sub-categories revealing motives for activities

- a) Exchanging information
  - i) Sharing information – “to share what is happening in the organization”
  - ii) Gathering information – “to gather evidence”
- b) Improving controls
  - i) Controls safety – “to prevent cuts on hands”
  - ii) Controls quality – “to detect defects”
  - iii) Controls financials – “to improve internal controls”
- c) Maximizing profits
  - i) Revenue increase – “new business was awarded”
  - ii) Expense decrease – “plan to reduce costs”
- d) Strategic planning
  - i) Preparing schedules – “to schedule the line and order materials”

**APPENDIX F6**  
**KA CATGEORIES FOR LEADERS' DESCRIPTIONS OF CHANNELS**

Channels – Concepts derived from how leaders describe the *channels* can be classified into sub-categories revealing methods of conveyance and size of audience

- a) Face-to-face
  - i) In person individual – “one on one”
  - ii) In person group – “it was a large group presentation”
- b) Voice
  - i) Phone call individual – “over the phone”
  - ii) Phone call group – “on a conference call with others”
- c) Written
  - i) Electronic copy document – “initially by email”
  - ii) Hard copy document – “paper documents”

**APPENDIX G1**  
**KA CATGEORIES RELATED WITH KA THEME: IDENTIFICATION**

Theme 1 – Identification (identifying goals themes)

- a) Story 1 – Marketplace baseball (supply chain improvement stories)
  - i) Getting on first base (intelligence patterns)
    - (1) Relationship management (features labeled)
    - (2) Exchange information (features labeled)
  - ii) Sample from Participant 7A – “It was related to the acquisition of a competitor, he wanted me to go to the development center to understand some of their technologies and what value the technologies that they developed should be of value to us.”
- b) Story 2 – Dollar hunting (operational improvement stories)
  - i) Dog is on point (intelligence patterns)
    - (1) Asset management (features labeled)
    - (2) Exchange information (features labeled)
  - ii) Sample from Participant 29B – “He had been there to visit along with our V.P. and they introduced to them a new technology for making a product that is half of what we do today and another half related to a new technology, so it’s a totally different type of machine than what we’d normally see today and it is brand new. He had asked permission to go see this, to talk to them about several different opportunities and this was part of his review of what they had seen. He had requested permission for a visit prior to going to see this.”
- c) Story 3 – Imagination wars (creativity improvement stories)
  - i) Identify the enemy (intelligence patterns)
    - (1) Innovation (features labeled)
    - (2) Exchange information (features labeled)
  - ii) Sample from Participant 25B – “We were discussing our concept to market process where new concepts, new technologies are brought to a team to be reviewed and discussed on whether or not we want to pursue or develop that technology or product. We were discussing this type of product because he was coming up with an idea to submit for purposes of innovation.”

- d) Story 4 – Knowledge puzzle (data improvement stories)
  - i) Connect the straight edges (intelligence patterns)
    - (1) Information systems (features labeled)
    - (2) Exchange information (features labeled)
  - ii) Sample from Participant 35B – “At that point in time they were looking at bringing on new software, you know, what features are you wanting to have. And then later on, the idea of using it and not some other system and we got a lot more details. This is the new time and attendance software, payroll keeping software. They were wanting feedback, he was gathering feedback for whomever that was wanting feedback from all the different folks on what would be the likes, what we’d want to have in that software, what features we’d want to have in the new system.”
- e) Story 5 – Minds games (work force improvement stories)
  - i) Observe behavior (intelligence patterns)
    - (1) Human resources (features labeled)
    - (2) Exchange information (features labeled)
  - ii) Sample from Participant 11A – “It was an introduction to the new supplier, a little bit about their company. They offer training, different communications skills training, to learn training on how to use different types of training technology. It’s a training method that they use for launching programs there and they thought that it might be beneficial to us to look into them for different types of training at our corporate office.”

**APPENDIX G2**  
**KA CATGEORIES RELATED WITH KA THEME: STRATEGIZING**

Theme 2 – Strategizing (planning objectives themes)

- a) Story 1 – Marketplace baseball (supply chain improvement stories)
  - i) Stealing second base (targets patterns)
    - (1) Relationship management (features labeled)
    - (2) Strategic planning (features labeled)
  - ii) Sample from Participant 20A – “It was a new product that we’re supplying to them. I am the scheduler, so I needed to start planning the product because the new customer had actually sent an email straight to me placing orders and I needed it for that.”
- b) Story 2 – Dollar hunting (operational improvement stories)
  - i) Two in the bush (targets patterns)
    - (1) Asset management (features labeled)
    - (2) Strategic planning (features labeled)
  - ii) Sample from Participant 2B – “It was basically a material that we acquired through an acquisition that would help us in our business to improve. He was going through the acquisition that our company was obviously taking part of and just the benefits of it. It was educational in terms of the awareness of why we wanted to acquire the company but then also, going down the road, we’ll be dealing with it and the work that we need to do for it, like preparation for using the new material.”
- c) Story 3 – Imagination wars (creativity improvement stories)
  - i) Find the enemy camp (targets patterns)
    - (1) Innovation (features labeled)
    - (2) Strategic planning (features labeled)
  - ii) Sample from Participant 9C – “We just walked through it, I mean she does changes all the time. This is a standardized process where we changed documentation and she’s the one who changes it, she documents it, she gets consensus from our manufacturing sites and then she brings it to me to sign off on. So, all of those are methodically walked through the organization. This had to do with documentation approval. There’s a bunch of them. I could launch into a couple of specific ones. It

changes internal processes and how it works and what the responsibilities are and requirements, qualifications of new products, what the timing and responsibilities are of the plan of qualifications of new products there's probably been twenty in the last six months. I'd say they document our processes and controls. I think it is okay to say they document them and in most cases improve them because if they're documented then we're doing them consistently. It gets us administratively prepared for an audit which is important because we need to be qualified."

d) Story 4 – Knowledge puzzle (data improvement stories)

i) Not discovered in data (targets patterns)

(1) Not applicable (features labeled)

e) Story 5 – Minds games (work force improvement stories)

i) Not discovered in data (targets patterns)

(1) Not applicable (features labeled)



**APPENDIX G3**  
**KA CATGEORIES RELATED WITH KA THEME: EXECUTION**

Theme 3 – Execution (leveraging controls and taking action themes)

- a) Story 1 – Marketplace baseball (supply chain improvement stories)
  - i) Making it to third base (leverage patterns)
    - (1) Relationship management (features labeled)
    - (2) Improve controls (features labeled)
  - ii) Sample from Participant 22A – “The subject matter was that the customer wants to no longer use the previous vendor because they’ve been having a lot of issues with their quality. Based on their experience with this new vendor they wanted us to take a trial run. This was customer directed for better quality. We needed to do some trial runs and he needed me to follow our company protocol.”
- b) Story 2 – Dollar hunting (operational improvement stories)
  - i) Aim and fire (leverage patterns)
    - (1) Asset management (features labeled)
    - (2) Improve controls (features labeled)
  - ii) Sample from Participant 3B – “He was developing a vision system to help us detect visual defects in our products for a customer where we’ve been having some issues with that. We were having some issues with the customer with visual defects that were in the products so we needed a way to cull it out. So we had been for a short term using people to do that until he finished developing his vision system to do that for us.”
- c) Story 3 – Imagination wars (creativity improvement stories)
  - i) Think like the enemy (leverage patterns)
    - (1) Innovation (features labeled)
    - (2) Improve controls (features labeled)
  - ii) Sample from Participant 26C – “They’ve identified some roles that more or less overlap and that there needed to do some controls on how that whole process is done, and in order to make sure those controls are in place they needed to segregate. For example, the same person posting shouldn’t be clearing. Posting and clearing cycle

counts must be different people. To make sure that the controls are in place, to make sure that the inventories, the cycle process has clear roles and those roles don't overlap by people posting the count and clearing the count."

- d) Story 4 – Knowledge puzzle (data improvement stories)
  - i) Connect the same colors (leverage patterns)
    - (1) Information systems (features labeled)
    - (2) Improve controls (features labeled)
  - ii) Sample from Participant 41A – “I was having a conversation with the IT associate and we were talking about head count, which is a performance measurement that we use in the company that just tracks the number of employees we have. We were having a discussion around security roles in our system. In her programming, she works with assisting the company in assigning security roles to associates. It was just through a conversation of security roles and the programming within our system around security.”
- e) Story 5 – Minds games (work force improvement stories)
  - i) Modify behavior (leverage patterns)
    - (1) Human resources (features labeled)
    - (2) Improve controls (features labeled)
  - ii) Sample from Participant 20C – “I was opening up a box in the shipping office and he was bringing to my attention that I needed to have gloves. I had no idea. The plant manager had noticed that I was walking out there and I was opening a box so he reminded me about it because I wasn't using the gloves.”

**APPENDIX G4**  
**KA CATGEORIES RELATED WITH KA THEME: REFLECTION**

Theme 4 – Reflection (assessing results themes)

- a) Story 1 – Marketplace baseball (supply chain improvement stories)
  - i) Crossing home plate (performance patterns)
    - (1) Relationship management (features labeled)
    - (2) Maximizing profits (features labeled)
  - ii) Sample from Participant 38A – “This was a business we were not participating in, we chose not to at the time, however we recently decided to pursue this particular product again. So I sent a communication to the customer that we were interested in participating in their business that we hadn’t in the past, and his response back to me was, well we’re not going to be procuring that business anymore, someone else is going to be doing it for us, and gave me the name of the subsequent partner of his that is going to be procuring the products for him. This is a current customer introducing a new customer. It’s a new product for us that we have not been involved in. This was business that had been managed by our direct customer in the past, and that they decided to have this new business partner manage it for them.”
- b) Story 2 – Dollar hunting (operational improvement stories)
  - i) Bird in the hand (performance patterns)
    - (1) Asset management (features labeled)
    - (2) Maximizing profits (features labeled)
  - ii) Sample from Participant 18A – “It was a company that can provide us cooling systems for our equipment. So we could do business and they could provide us a different type of solution than what we’ve been using for cooling equipment.”
- c) Story 3 – Imagination wars (creativity improvement stories)
  - i) Capture the flag (performance patterns)
    - (1) Innovation (features labeled)
    - (2) Maximizing profits (features labeled)
  - ii) Sample from Participant 38B – “I was talking about us, the struggles we have competing in this market because we do not use a new technology and it was shared

with me that recently we have begun doing it in our other division. It set me on a path that I was able to explore this for the product I'm trying to sell. It was a direct response to my discussing the difficulties I was having in trying to enter a new market for us because our competitor uses this technology.”

d) Story 4 – Knowledge puzzle (data improvement stories)

i) Find the missing pieces (performance patterns)

(1) Information systems (features labeled)

(2) Maximizing profits (features labeled)

ii) Sample from Participant 21B – “So this encounter came from an email and was followed up by a phone call. The email was with regard to attend a conference regarding this network communication technology and there was subsequent follow-up via a phone call describing the technology and why it should interest us. Because number one, we uses their technologies. Number two we are currently not, our current infrastructure is not cloud-based. And number three, I've shown interest before in that technology. To potentially allow us to be more dynamic in the way we configure our network. Dynamic meaning, we can easily change, modify, update, upgrade, adaptability, a lot easier than we can today. Updating, configuring, monitoring our network infrastructure, the way packets of information are transferred around the network.”

e) Story 5 – Minds games (work force improvement stories)

i) Not discovered in data (performance patterns)

(1) Not applicable (features labeled)

**APPENDIX H**  
**DISTRIBUTION OF RESPONSES FOR KA CATEGORIES RELATED**  
**WITH LEADERS' GENDER**

*Distribution of Responses for Relationship by Gender*

Relationship	Gender	
	<u>Men</u>	<u>Women</u>
Higher Authority	26 (40%)	13 (36%)
Equal Authority	30 (45%)	22 (61%)
Lower Authority	10 (15%)	1 (3%)
<i>Note.</i> N = 102	66 (100%)	36 (100%)

*Distribution of Responses for Subject by Gender*

Subject	Gender	
	<u>Men</u>	<u>Women</u>
Asset Management	12 (18%)	8 (22%)
Human Resources	9 (14%)	7 (19%)
Information Systems	11 (17%)	5 (14%)
Innovation	18 (27%)	12 (34%)
Relationship Management	16 (24%)	4 (11%)
<i>Note.</i> N = 102	66 (100%)	36 (100%)

*Distribution of Responses for Time by Gender*

Time	Gender	
	<u>Men</u>	<u>Women</u>
Morning	26 (39%)	11 (31%)
Midday	13 (20%)	12 (33%)
Afternoon	23 (35%)	13 (36%)
Evening	4 (6%)	0 (0%)
<i>Note.</i> N = 102	66 (100%)	36 (100%)

*Distribution of Responses for Location by Gender*

Location	Gender	
	<u>Men</u>	<u>Women</u>
Off-Site Private	2 (3%)	1 (3%)
Off-Site Public	8 (12%)	9 (25%)
On-Site Private	42 (64%)	19 (53%)
On-Site Public	14 (21%)	7 (19%)
<i>Note.</i> N = 102	66 (100%)	36 (100%)

*Distribution of Responses for Reason by Gender*

Reason	Gender	
	<u>Men</u>	<u>Women</u>
Exchange Information	21 (32%)	11 (31%)
Improve Controls	21 (32%)	12 (33%)
Maximize Profit	20 (30%)	8 (22%)
Strategic Planning	4 (6%)	5 (14%)
<i>Note.</i> N = 102	66 (100%)	36 (100%)

*Distribution of Responses for Channel by Gender*

Channel	Gender	
	<u>Men</u>	<u>Women</u>
Face to Face	38 (58%)	22 (61%)
Voice	12 (18%)	5 (14%)
Written	16 (24%)	9 (25%)
<i>Note.</i> N = 102	66 (100%)	36 (100%)

**APPENDIX I**  
**DISTRIBUTION OF RESPONSES FOR KA CATEGORIES RELATED**  
**WITH LEADERS' AGE**

*Distribution of Responses for Relationship by Age*

Relationship	Age	
	<u>Boomer</u>	<u>Non-Boomer (&lt;50)</u>
Higher Authority	15 (36%)	22 (37%)
Equal Authority	20 (47%)	34 (56%)
Lower Authority	7 (17%)	4 (7%)
<i>Note. N = 102</i>	42 (100%)	60 (100%)

*Distribution of Responses for Subject by Age*

Subject	Age	
	<u>Boomer</u>	<u>Non-Boomer (&lt;50)</u>
Asset Management	4 (10%)	16 (27%)
Human Resources	5 (12%)	11 (18%)
Information Systems	7 (17%)	9 (15%)
Innovation	12 (29%)	18 (30%)
Relationship Management	14 (32%)	6 (10%)
<i>Note. N = 102</i>	42 (100%)	60 (100%)

*Distribution of Responses for Time by Age*

Time	Age	
	<u>Boomer</u>	<u>Non-Boomer (&lt;50)</u>
Morning	15 (36%)	22 (37%)
Midday	10 (23%)	16 (26%)
Afternoon	15 (36%)	21 (35%)
Evening	2 (5%)	2 (2%)
<i>Note. N = 102</i>	42 (100%)	60 (100%)

*Distribution of Responses for Location by Age*

Location	Age	
	<u>Boomer</u>	<u>Non-Boomer (&lt;50)</u>
Off-Site Private	2 (5%)	1 (2%)
Off-Site Public	6 (14%)	11 (18%)
On-Site Private	24 (57%)	39 (65%)
On-Site Public	10 (24%)	9 (15%)
<i>Note. N = 102</i>	42 (100%)	60 (100%)

*Distribution of Responses for Reason by Age*

Reason	Age	
	<u>Boomer</u>	<u>Non-Boomer (&lt;50)</u>
Exchange Information	13 (31%)	19 (32%)
Improve Controls	12 (28%)	21 (35%)
Maximize Profit	13 (31%)	15 (25%)
Strategic Planning	4 (10%)	5 (8%)
<i>Note.</i> N = 102	42 (100%)	60 (100%)

*Distribution of Responses for Channel by Age*

Channel	Age	
	<u>Boomer</u>	<u>Non-Boomer (&lt;50)</u>
Face to Face	26 (62%)	33 (55%)
Voice	8 (19%)	10 (17%)
Written	8 (19%)	17 (28%)
<i>Note.</i> N = 102	42 (100%)	60 (100%)



**APPENDIX J**  
**DISTRIBUTION OF RESPONSES FOR KA CATEGORIES RELATED**  
**WITH LEADERS' EDUCATION**

*Distribution of Responses for Relationship by Education*

Relationship	Education	
	Higher	Lower
Higher Authority	26 (38%)	14 (42%)
Equal Authority	34 (49%)	18 (55%)
Lower Authority	9 (13%)	1 (3%)
<i>Note. N = 102</i>	69 (100%)	33 (100%)

*Distribution of Responses for Subject by Education*

Subject	Education	
	Higher	Lower
Asset Management	17 (25%)	3 (9%)
Human Resources	11 (16%)	5 (15%)
Information Systems	14 (20%)	2 (6%)
Innovation	16 (23%)	14 (43%)
Relationship Management	11 (16%)	9 (27%)
<i>Note. N = 102</i>	69 (100%)	33 (100%)

*Distribution of Responses for Time by Education*

Time	Education	
	Higher	Lower
Morning	28 (41%)	9 (27%)
Midday	12 (17%)	13 (40%)
Afternoon	26 (38%)	10 (30%)
Evening	3 (4%)	1 (3%)
<i>Note. N = 102</i>	69 (100%)	33 (100%)

*Distribution of Responses for Location by Education*

Location	Education	
	Higher	Lower
Off-Site Private	0 (0%)	3 (9%)
Off-Site Public	13 (19%)	4 (12%)
On-Site Private	45 (65%)	16 (49%)
On-Site Public	11 (16%)	10 (30%)
<i>Note. N = 102</i>	69 (100%)	33 (100%)

*Distribution of Responses for Reason by Education*

Reason	Education	
	<u>Higher</u>	<u>Lower</u>
Exchange Information	23 (33%)	9 (27%)
Improve Controls	19 (28%)	14 (43%)
Maximize Profit	24 (35%)	4 (12%)
Strategic Planning	3 (4%)	6 (18%)
<i>Note.</i> N = 102	69 (100%)	33 (100%)

*Distribution of Responses for Channel by Education*

Channel	Education	
	<u>Higher</u>	<u>Lower</u>
Face to Face	42 (61%)	18 (55%)
Voice	11 (16%)	6 (18%)
Written	16 (23%)	9 (27%)
<i>Note.</i> N = 102	69 (100%)	33 (100%)

**APPENDIX K**  
**DISTRIBUTION OF RESPONSES FOR KA CATEGORIES RELATED**  
**WITH LEADERS' YEARS OF SERVICE**

*Distribution of Responses for Relationship by Years of Service*

Relationship	Years of Service		
	Low ( $\leq 10$ )	Medium (11 to 20)	High ( $\geq 21$ )
Higher Authority	10 (37%)	12 (36%)	17 (40%)
Equal Authority	13 (48%)	18 (55%)	21 (50%)
Lower Authority	4 (15%)	3 (9%)	4 (10%)
<i>Note. N = 102</i>	27 (100%)	33 (100%)	42 (100%)

*Distribution of Responses for Subject by Years of Service*

Subject	Years of Service		
	Low ( $\leq 10$ )	Medium (11 to 20)	High ( $\geq 21$ )
Asset Management	5 (19%)	8 (24%)	6 (14%)
Human Resources	7 (26%)	4 (12%)	5 (12%)
Information Systems	6 (22%)	2 (6%)	8 (19%)
Innovation	7 (26%)	12 (37%)	11 (26%)
Relationship Management	2 (7%)	7 (21%)	12 (29%)
<i>Note. N = 102</i>	27 (100%)	33 (100%)	42 (100%)

*Distribution of Responses for Time by Years of Service*

Time	Years of Service		
	Low ( $\leq 10$ )	Medium (11 to 20)	High ( $\geq 21$ )
Morning	10 (37%)	14 (42%)	13 (31%)
Midday	2 (7%)	8 (25%)	15 (35%)
Afternoon	13 (49%)	11 (33%)	12 (29%)
Evening	2 (7%)	0 (0%)	2 (5%)
<i>Note. N = 102</i>	27 (100%)	33 (100%)	42 (100%)

*Distribution of Responses for Location by Years of Service*

Location	Years of Service		
	Low ( $\leq 10$ )	Medium (11 to 20)	High ( $\geq 21$ )
Off-Site Private	1 (4%)	0 (0%)	2 (5%)
Off-Site Public	5 (19%)	6 (18%)	6 (14%)
On-Site Private	16 (58%)	22 (67%)	23 (55%)
On-Site Public	5 (19%)	5 (15%)	11 (26%)
<i>Note. N = 102</i>	27 (100%)	33 (100%)	42 (100%)

*Distribution of Responses for Reason by Years of Service*

Reason	Years of Service		
	<u>Low (= &lt; 10)</u>	<u>Medium (11 to 20)</u>	<u>High (= &gt; 21)</u>
Exchange Information	8 (30%)	15 (45%)	9 (21%)
Improve Controls	7 (26%)	10 (30%)	16 (39%)
Maximize Profit	9 (33%)	5 (15%)	14 (33%)
Strategic Planning	3 (11%)	3 (10%)	3 (7%)
<i>Note. N = 102</i>	27 (100%)	33 (100%)	42 (100%)

*Distribution of Responses for Channel by Years of Service*

Channel	Years of Service		
	<u>Low (= &lt; 10)</u>	<u>Medium (11 to 20)</u>	<u>High (= &gt; 21)</u>
Face to Face	16 (59%)	23 (70%)	21 (50%)
Voice	8 (30%)	3 (9%)	6 (14%)
Written	3 (11%)	7 (21%)	15 (36%)
<i>Note. N = 102</i>	27 (100%)	33 (100%)	42 (100%)

**APPENDIX L**  
**DISTRIBUTION OF RESPONSES FOR KA CATEGORIES RELATED WITH**  
**ORGANIZATION'S OBJECTIVES**

*Distribution of Responses for Relationship by Organization's Objectives*

Relationship	Organization's Objectives					
	Partner		Technology		Policy	
Higher Authority	12	(35%)	12	(35%)	15	(44%)
Equal Authority	19	(56%)	16	(47%)	17	(50%)
Lower Authority	3	(9%)	6	(18%)	2	(6%)
<i>Note. N = 102</i>	34	(100%)	34	(100%)	34	(100%)

*Distribution of Responses for Subject by Organization's Objectives*

Subject	Organization's Objectives					
	Partner		Technology		Policy	
Asset Management	3	(9%)	16	(47%)	1	(3%)
Human Resources	2	(6%)	0	(0%)	14	(41%)
Information Systems	4	(12%)	6	(18%)	6	(18%)
Innovation	7	(21%)	11	(32%)	12	(35%)
Relationship Management	18	(52%)	1	(3%)	1	(3%)
<i>Note. N = 102</i>	34	(100%)	34	(100%)	34	(100%)

*Distribution of Responses for Time by Organization's Objectives*

Time	Organization's Objectives					
	Partner		Technology		Policy	
Morning	15	(45%)	10	(29%)	12	(35%)
Midday	9	(26%)	12	(36%)	4	(12%)
Afternoon	10	(29%)	9	(26%)	17	(50%)
Evening	0	(0%)	3	(9%)	1	(3%)
<i>Note. N = 102</i>	34	(100%)	34	(100%)	34	(100%)

*Distribution of Responses for Location by Organization's Objectives*

Location	Organization's Objectives					
	Partner		Technology		Policy	
Off-Site Private	2	(6%)	0	(0%)	1	(3%)
Off-Site Public	4	(12%)	7	(21%)	6	(18%)
On-Site Private	23	(67%)	17	(50%)	21	(61%)
On-Site Public	5	(15%)	10	(29%)	6	(18%)
<i>Note. N = 102</i>	34	(100%)	34	(100%)	34	(100%)

*Distribution of Responses for Reason by Organization's Objectives*

Reason	Organization's Objectives					
	<u>Partner</u>		<u>Technology</u>		<u>Policy</u>	
Exchange Information	10	(29%)	14	(41%)	8	(24%)
Improve Controls	6	(18%)	4	(12%)	23	(67%)
Maximize Profit	13	(38%)	12	(35%)	3	(9%)
Strategic Planning	5	(15%)	4	(12%)	0	(0%)
<i>Note.</i> N = 102	34	(100%)	34	(100%)	34	(100%)

*Distribution of Responses for Channel by Organization's Objectives*

Channel	Organization's Objectives					
	<u>Partner</u>		<u>Technology</u>		<u>Policy</u>	
Face to Face	18	(53%)	23	(68%)	19	(56%)
Voice	6	(18%)	7	(20%)	4	(12%)
Written	10	(29%)	4	(12%)	11	(32%)
<i>Note.</i> N = 102	34	(100%)	34	(100%)	34	(100%)

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**ABSTRACT****KNOWLEDGE ACQUISITION PROCESSES: UNDERSTANDING THE  
COMMUNICATION EVENT**

by

**RICHARD J. ULREY JR.****December 2015****Advisor:** Dr. Donyale Padgett**Major:** Communication (Organizational)**Degree:** Doctor of Philosophy

This research project's two key discoveries offer new insights into Huber's (1991) KA sub-processes (*congenital learning, experimental learning, vicarious learning, grafting, and searching*) and understanding the key elements (*who, what, when, where, why, and how*) of communication events. Organizational leaders and scholars of communication have a better understanding about how one organization's team of leaders have addressed and responded to the Great Recession of 2008 and the recent explosion of social media in 2003 by practicing a thematic cycle of KA efforts (*identification, strategizing, execution, and reflection*) to achieve organizational objectives (*partners, technologies, and policies*) and a strong communication culture to pursue their strategic targets. Further studies about KA in organizations should consider expanding the scope and depth of participants to include functional responsibilities and ethnic differences when evaluating the experiences of global leaders.

**AUTOBIOGRAPHICAL STATEMENT**

*Richard J. Ulrey Jr. received an undergraduate degree from the University of Michigan and became a certified public accountant. He later earned his MBA from the University of Michigan-Flint and became an adjunct instructor at Wayne State University where he pursues his Ph.D. in Organizational Communication. His background includes over thirty years of progressive work experience in accounting, information systems, production operations management, procurement, product supply, marketing, and project management. During the previous ten years, he specialized in managing process improvement projects for a large international organization. The nature of his work responsibilities are similar to that of an independent consultant that includes traditional research disciplines, an understanding of the data collection methods, conceptual models, research protocols, and analytical procedures.*