THE A3 REPORT AS KNOWLEDGE-ACCOMPLISHING ACTIVITY: A PRACTICE-ORIENTED ANALYSIS OF SITUATED ORGANIZATIONAL PROBLEM SOLVING

A Thesis
Submitted to the Graduate Faculty
of the
North Dakota State University
of Agriculture and Applied Science

By

Angela Yvonne Hatton

In Partial Fulfillment of the Requirements
for the Degree of
MASTER OF ARTS

Major Department:
Communication

May 2010

Fargo, North Dakota

North Dakota State University
Graduate School

Title

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The Supervisory Committee certifies that this ***disquisition*** complies with North Dakota State University's regulations and meets the accepted standards for the degree of

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ABSTRACT

Hatton, Angela Yvonne, M.A., Department of Communication, College of Arts, Humanities, and Social Sciences, North Dakota State University, May 2010. The A3 Report as Knowledge-Accomplishing Activity: A Practice-Oriented Analysis of Situated Organizational Problem Solving. Major Professor: Dr. Robert S. Littlefield.

The A3 report is a lean practice innovated by Toyota motor company. The A3 report, a growing trend in organizations, is promoted as a communication tool, but it has not been studied from a communication perspective. In this study I interview twelve professionals who use A3 reports in their work and identify the ways in which A3 reports enable and constrain organizational communication. This study illustrates the communicative enactment of knowing and identifies how the A3 report structures organizational problem solving and creates knowledge-accomplishing activity. The A3 report constrains information through its concise 11 by 17 inch paper size and enables knowledge production through discussion and the Japanese consensus-building concept of *nemawashi.* I submit that organizational use of the A3 process creates bridges between communities of practice and allows organizational actors to span traditional boundaries and engage in knowledge-creating conversations, thus furthering understanding of the communicative constitution of the organization.

ACKNOWLEDGEMENTS

I wish to acknowledge the fine leadership of my thesis advisor, Dr. Robert Littlefield. You earned my respect years ago, and I am truly privileged to have worked with you on this project. Thank you for serving as my thesis advisor.

Dr. Paul Nelson, I admire the high standards you have set for the NDSU Department of Communication in your work as Head. Thank you for your detailed review of my work and your excellent feedback.

Dr. Ross Collins, thank you for encouraging me to complete my thesis. You introduced me to research methods in COMM 700, and I appreciate everything I have learned from you.

Dr. Karen Froelich, thank you for agreeing to serve on my committee. I appreciate your consistent responsiveness and the insightful comments you have shared with me throughout this process.

Dr. Joel Iverson, I met you when I was a 16-year-old kid attending debate camp at Concordia College, and you were simply, Joel. Thank you for your warmth and humor. I appreciate your extensive knowledge and expertise in this area of research as well as your willingness to share it with me.

In addition to those who challenged, encouraged, and instructed me, many others helped facilitate my achievement of this goal. I thank my friend Candace Homstad Decker for her encouragement and support. I appreciate my friend Dr. Kathy Cole for her kindness and support. I appreciate Dr. David Hilderbrand and his son, my friend Dr. Lucas Hilderbrand, for sharing their advice and support. I appreciate my undergraduate advisor at Minnesota State University Moorhead, Dr. Tim Borchers, for his ongoing support.

Dr. Durward Sobek, thank you for taking a call from a random woman who had read your book and for being willing to share some of your time and considerable knowledge about A3 reports. I appreciate your supportive comments regarding my research on A3 reports from a communication perspective.

I appreciate every person on the NDSU campus who provided me with resources and access to information, especially Cathy Marks in the Graduate School and Rhonda Kitch in the Registrar's office, and the countless women from the Interlibrary Loan Department who helped facilitate the transfer of the books I needed to conduct this research.

I am thankful to a great many people, but no one more than my dearest, closest, and most lifelong friend. My mom, Mrs. Lois Yvonne Hatton, is a woman of great character, strength, and beauty. She has given me a lifetime's worth of love, support and encouragement, while challenging me always to do more and do better. She is my greatest inspiration. Without her guidance, love, and support, I would never have accomplished this goal.

Completing this project while I worked full time has been nothing short of a miracle. And for that, above all else, I thank God. Yet again, He has demonstrated the truth and power of His word. Matthew 19:26: "With God, all things are possible."

DEDICATION

I dedicate this work to all professionals who strive for knowledge and its accomplishment. In particular, I dedicate this work to the professionals who have helped to inform and shape my understanding of A3 reports.

To the professionals who gave me the opportunity to interview them, thank you for sharing with me your challenges as well as your successes. I am motivated by your drive and commitment to serving your organizations well. This work is dedicated to each of you and your objectives.

To Dan Bierschbach, my supervisor, for supporting new initiatives and for always being open to a better way. Thank you for introducing me to the A3 report and for stimulating it as my thesis topic through your explanation and belief of what A3 problem solving can do for our organization. To the other organizational A3 champions who inspired me to work this topic, thank you. Troy Erickson, Jim Merritt, and Dan Schulte, I appreciate our stimulating conversations about meaningful work and the importance of processes to make things better.

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CHAPTER 1. INTRODUCTION

"I spent months and months asking myself, 'What is an organization?' If I'm talking about institutional and organizational change, what am I really talking about? What is an organization in the deepest sense? It surely isn't just a set of bylaws, because I can write a set of bylaws and shove it in a desk drawer, and it just becomes an old moldering piece of paper. And if you really think deeply about it, you discover that every organization and every institution, without exception, has no reality save in your mind. It's not its buildings. Those are manifestations of it. It's not its name, it's not its logo, and it's not some fictional piece of paper called a stock certificate. It's not money. It is a mental concept around which people and resources gather in pursuit of common purpose." – Dee Hock (Hoffman, 2003)

"I collaborate, therefore I know." – KM World magazine ("I collaborate," 2000)

"Knowing is not enough; we must apply!" – Johann Wolfgang von Goethe (Cook, 1993)

Comedy is often born of incongruity, and organizational life is no different. Participants who engage in organizational life recognize that their organizations are not always "organized." Negative depictions of the chaos and complexity of organizational life are lampooned in popular culture on television shows like *The Office* or in cartoon strips like *Dilbert*. While individual members of organizations may find humor in these depictions, organizations do not have the luxury of enjoying satire. They have stakeholders to be responsive to, whether customers, employees, shareholders, suppliers, or the local community. Organizations take their positions seriously and desire ways to control the chaos and take effective action.

From personal involvement with several organizations, whether corporate entities, university committees, or volunteer boards, I believe that organizations greatly desire to function on the structured side of the organizational continuum. While some individuals may find humor in the haphazard side of organizational life, I believe that these same individuals fail to see the funny when such chaos exists not from the safe distance of an internet site or a television show; not in a mockumentary, but in the ongoing documentary they experience in their daily lives.

Members of organizations worldwide are feeling the pressures of a haphazard economy. Universities, corporations, hospitals, and non-profits are struggling to find balance in an unpredictable world. They have a great desire to maintain (or better yet, grow) business from their customers, extract the best performance from their workers, and justify investment from their shareholders. Organizations care about action. They want to build, to develop, to grow, to solve, to produce, to manufacture, to create, to innovate. And they are concerned with tools and methods that will structure their ability to achieve these goals faster, better, and more efficiently.

With these goals in mind, many organizations are discovering the concept of *lean* and making significant investments of time, training, and money to see whether the promise of lean will benefit their organization. Lean is a production science, a management strategy, and an organizational philosophy that seeks to increase efficiency and eliminate organizational waste to reduce costs and streamline operations. Organizations have long been trying to "do more with less" as the phrase is commonly stated, but lean is different in its focus. Lean concepts put the customer first and define waste so tightly that waste is simply anything that the customer will not place enough value upon to pay for directly. Inventory is waste. Mistakes are waste. Meetings are waste. Lean has many tools that seek to organize production is such a way as to eliminate the wastes that most organizations have resigned themselves to as necessary requirements of operation. Lean thinking seeks to question that reality, providing hope for administrators crunched by economic uncertainty.

Taylor (2009) detailed two distinct conceptions of *organization*. The first described organization as a verb that signifies a work in progress (organizing) or as a completed work (organized). In the second definition, Taylor presents the word in noun form detailing the organization as a group or collective bound together by commonalities. Little about these definitions is controversial. Many individuals familiar with the English language are quick to understand and accept both of these definitions. What is implicitly present in the noun version of organization is that the group is already formed or established. Even the verb sense, *organized*, suggests some existing level of organizational foundation with the goal of organizing to progress further along the continuum of organization from a fledgling, haphazard state to a highly refined, tightly structured state of organization in an idealized, romanticized form.

Organizations, and their members, long to exist along the structured side of the continuum. Just as the degree to which an organization is organized (in verb form) is more complex than definitions initially suggest, the status of the organization in noun form is equally confounding.

Statement of the Problem

Communication scholars have consistently advanced the argument that communication drives action within organizations, so much so that for many researchers communication *is* the organization (Boje, 2001; Cooren & Fairhurst, 2009; McPhee & Iverson, 2009; McPhee & Zaug, 2000; Saludadez & Taylor, 2006; Stacey, 2001; Taylor, 2006, 2009; Taylor, Flanagin, Cheney & Seibold, 2001; Taylor & Van Every, 2000). Communication is a productive means for organizational development, via sensemaking (Weick, 1995), as well as the fundamental element of many organizational challenges (Lewis & Seibold, 1998). Communication can cause conflict just as easily as it can resolve it (Güney, 2006).

Communication is amoral; it can be part of the problem just as often as it can be part of the solution. Like most tools, communication only exhibits moral qualities based on *how* it is handled by its user. For example, a hammer is a tool that has no inherent qualities of good or evil. The hammer only promotes good or evil as it is handled by its user. Communication is fundamentally different than most of the tools that could complete this analogy. Communication is not just a tool by a particular user in any given situation; it is a social tool that forms the basis of reality.

McPhee and Iverson (2009) defined some of the questions presented by the phrase, "communicative constitution of organization" to ask fundamental questions about organization. How does an organization become established? In detailing the communicative aspects of this question, McPhee and Iverson questioned, "How do a set of people, or practices, or messages, become an organization?" (2009, p. 51). The inclusion of practices and messages as central to the establishment of an organization is essential to the communicative foundation of this question.

In the following review of literature, I will demonstrate that communication scholars have made great progress in establishing the role of communication in the formation of organizations. I will also review in detail the literature that addresses the verb form of organization and share what scholars have revealed about how organizations communicatively enact knowledge. I will share the theoretical basis of how organizational structures can impact organizations. Organizational leaders make strategic choices to determine how best to structure the organization. Some organizational structures are loose and open; they support flexibility and bottom-up approaches to communication and management. Other structures emphasize a top-down approach to management and communication, and consequently, may be more rigid and hierarchical.

Güney explains the harm that can result from too much structure describing cases where employees "find themselves trapped within corporate structures" (2006, p. 35). Individuals are the key to organizational flexibility. They are the creators of the new ideas that lead to organizational nimbility. In sharing these new ideas, conflict may emerge. Organizational actors have different ideas and different opinions of the different ideas of their coworkers; chaos is often the result of such difference. Conflict is only beneficial when it can be resolved. Conflict may be a key part of the organizational environment prior to the decision to act, and it may be necessary for good decision making; but when the time comes for the organization to act, it needs to operate in sync (Güney, 2006).

Given the constraining nature of structure in its most formal sense, how can an organization progress far enough along the organizational continuum to reach structure and stability, yet still allow a process of free interchange and creativity to allow individual employees to share new ideas and create new knowledge? Weick (1995) focused the question pragmatically: “A basic focus of organizing is the question, how does action become coordinated in a world of multiple realities?” (p. 75).

Güney suggested that the Weickian concept of *sensemaking* (literally organizational actors “making sense” of their environment through communication) is a key method in productively overcoming organizational conflict, yet “the question of whether this communicative strategy is as easily practiced as it is theorized remains to be answered” (2006, p. 19).

Rationale

I have established an overview of the communicative nature of organizing, the *what* in this study, and now I will briefly address the *how* of the communicative constitution of organizing. I have established that a key goal of organizations is to become “organized,” to be capable of effective action in a challenging world. An increasingly appreciated forerunner to action is knowledge. A growing focus of research in organizational communication thus centers on knowledge management (KM). While many perspectives focus on knowledge management from a container perspective, where knowledge is an object, captured, stored, and easily transferred; other researchers seek an understanding of knowledge management from a social interactional perspective.

Cook and Brown (1999) advanced beyond the container approach to knowledge, which they defined as an “epistemology of possession” (p. 384), arguing instead for a generative approach where knowing arises from the use of knowledge as an instrument for interaction. In their view, “knowing” is about relation and interaction in practice. Lindlof defined *practice* as, “a way of doing things that is sanctioned by a social collectivity” (1995, p. 16). Iverson and McPhee (2002) expounded on this concept of practice by advancing the theoretical construct of “communities of practice” (CoP), first established by Wenger (1998) as a way for researchers to understand the relational aspects of knowing in practice, what Iverson and McPhee referred to as “knowledgeable social practice” (p. 264). Iverson and McPhee (2002) summed up this concept as “an active and relevant part of organizational constitution” (p. 264) informing practice as the how of the communicative constitution of organizing. Iverson and McPhee used similar language in 2008 to further detail the elements of how CoPs “can be used to analyze knowing as communicatively constituted in practice” (p. 195). These elements, set forth by Iverson and McPhee (2008), are foundational to this study and are hence detailed further in the literature review portion of the next chapter.

Kuhn and Jackson (2008) advanced the practical implications for knowing in organizations in their suggestion of knowing as “situated problem solving” (p. 457). While arguing for a pragmatic and action-based approach to knowledge as “accomplishment,” Kuhn and Jackson critiqued the prevalence of a corporate approach to “knowledge as commodity” where some organizational interests suggest that a “competitive advantage results from a greater or more creative collection of it” (2008, p. 455).

Academically accurate or not, that perception is reality for many executives. Easily evidenced in the popular press, organizations have a deep desire to stimulate innovation and manage knowledge, to create more of it, more effectively and efficiently than their competition. One tool being advanced within the business press for its ability to help organizations innovate new products, solve organizational problems, and streamline operations is the A3 report.

Significance of the Study

A3 reports are a communication practice innovated by the Japanese automobile manufacturer Toyota and popularized in management books like *The Toyota Way* (Liker, 2004). Toyota's focus on continuous improvement (*kaizen*) has led to the popularity of lean principles and strategies. Lean is the principle that sets the organizational priority on waste elimination strategies. Kaizen is the process of continually challenging the organization to develop higher standards and work more aggressively to eliminate waste. The A3 report is a tool of lean that promotes kaizen through the creation of a thought process (A3 thinking) and a tool (A3 report) for communicating organizational initiatives and solutions (A3 problem solving). Lean tools and strategies have been adopted by businesses, hospitals, and educational institutions.

The A3 report gets its name from the international standard for the metric equivalent of an 11 x 17 inch sheet of paper; literally, an *A3* sheet of paper. In and of itself, the A3 report is just a single sheet of ledger-sized paper. The uniqueness of the A3 is the emphasis on communication that it requires. A3 reports are not created in isolation. They are developed through a distinct process of consensus-building communication activities known as *nemawashi* (Liker, 2004). Members of an organization create an A3 report by working together to gain agreement about the root cause of a problem, possible countermeasures (solutions), and a plan of action. The catch is that the A3 author can only use the front side of a single sheet of 11 x 17 inch paper; no attachments, addendums or website links allowed. A3 reports are streamlined and brief. A successful report must be able to articulate a compelling story to anyone reviewing the report, especially other organizational decision makers who were not involved in the creation of the report.

A3 reports have a significant communication function within organizations, but current research (mostly centered in the fields of product development and industrial and operations engineering) has focused on its use as a tool rather than as a communication process, which is ironic because much of the popular literature on lean states that A3 reports are *not* significant as a tool but rather as a means to promote communication (Sobek & Smalley, 2008). A3 reports are a significant communication phenomenon in the workplace, but they have yet to be studied in organizational communication research.

In this work I seek to further understand the communicative nature of A3 reports. In what ways do A3 reports contribute to knowing and knowledge accomplishment? In what ways do A3 reports structure, that is, enable or constrain, organization?

Definition of Terms

I now define the following key terms to help orient the reader to the material that follows. Clearly, the social interactionist perspective informs my work. Terms defined above like *knowing* and *practice* are rooted in this perspective. *Structures* are "the rules and resources that individuals draw on—or 'appropriate'—during interaction. These structures enable and constrain interaction by providing conditions for action and templates for understanding" (Miller, Shoemaker, Willyard & Addison, 2008, p. 23-24).

Likewise, Wenger defined the term *reification* as "the process of giving form to our experience by producing objects, including symbols and texts that congeal this experience into thingness" (1998, p. 58). For example, Stacey's (2001) definition of *documents* as "tools in the process of negotiating" (p. 184) adds to the pragmatic nature of social interaction. Stacey's documents serve to reify ideas as points of negotiation. They create, as Wenger suggests, points of focus around which meaning is negotiated.

Text is another form of reification. Heaton and Taylor defined *text* as the explicit representation of knowledge, an "instrumentality of communication and the medium people use to sustain organization" (2002, p. 214). These are all sensemaking activities designed to help the organization develop. Weick identified the parallel aims of organizing and sensemaking, suggesting that they "have much in common" (1995, p. 82).

I have established the social perspective where meaning arises within the activities of the community. Wenger (1998) used similar language to explain his concept of communities of practice. But any establishment of meaning harbors inclusions and exclusions, or boundaries. *Boundary objects* were defined by Wenger as "artifacts, documents, terms, concepts and other forms of reification around which communities of practice can organize their interconnections" (1998, p. 105).

These interconnections are necessary for the productivity of large and diverse organizations. Heaton and Taylor (2002) argued that displays of professional expertise (situated in practice) form a boundary effect, where communities of practice are distinct from others within the organization making cross-CoP communication problematic. According to Heaton and Taylor, "the modern corporation should be visualized as a mosaic of distinct communities of practice, whose bases of knowledge are relatively opaque to other communities within the organization" (2002, p. 232).

Boundaries can be problematic, but they are also the most productive place for new meaning to be created. According to Wenger, "Because boundaries create new interplays of experience and competence, they are a learning resource in their own right…they are the likely locus of the production of radically new knowledge" (1998, p. 254). Therein lies the great organizational challenge: how to structure the organization to create new knowledge and innovation. How can companies structure their organizations to enhance their ability to manufacture knowledge?

Nonaka and Takeuchi argued that Japanese companies have developed expertise in "organizational knowledge creation" which they suggested is achieved "by continually creating new knowledge, disseminating it widely through the organization, and embodying it quickly in new technologies, products, and systems" (1995, p. 246). While this idea may appear to run counter to the widely held notion that American companies with a grand tradition of entrepreneurship are the main innovators, it is a reflection of the power of *tacit* knowledge, the more internalized knowledge that is more difficult to express than explicit knowledge. American entrepreneurs are highly regarded for their competencies in the promotion of tacit knowledge, which further cements the relationship between tacit knowledge and innovation. Nonaka and Takeuchi described an "East-West synthesis" in which the processes of organizational knowledge creation are "no longer endemic to Japanese companies" but are now "universal" (1995, p. 246). American companies and Japanese companies can both claim competency in achieving innovation. American companies are investing in the concept of lean to gain the reputation that Japanese companies have earned for operational efficiency. The A3 report is an example of a business trend that has crossed the Pacific on its journey into East-West synthesis.

Due to the emergence of the A3 in Japan, this work will use many Japanese terms including *nemawashi* (consensus) and *kaizen* (continuous improvement). Additional differences that are relevant to this study include the Japanese emphasis on a tacit knowledge orientation versus the explicit knowledge orientation more common to the United States. Other differences include a valuing of group autonomy and emphasis on cross-functional teams in the East versus a valuing of individual autonomy and emphasis on individual differences in the West, as well as a different perception of the value of redundancy. Nonaka and Takeuchi explained that redundancy is seen as wasteful in Western thought yet is organizationally logical (and thus beneficial) from an Eastern perspective. This redundancy is exhibited through an organizational design of overlapping tasks in Japan where United States-based companies are more likely to rely on individual differences to promote creative approaches to common tasks.

The concept of lean as mentioned previously is exacting and straightforward, but also philosophical: "Going lean, then, is less about 'leaning out' every business process. . . and more about improving organizational performance, seeing problems, solving them the 'right' way, and in doing so continually increasing the intellectual capacity and skill of all members of the organization" (Ballé, Beauvallet, Smalley, & Sobek, 2006, p. 2). The A3 is both a document and a state of mind, hence the term "A3 thinking" popularized by Sobek and Smalley (2008).

Proposed Organization for the Study

I focus this work to consideration of the A3 report and related A3 thinking from the perspective of how A3 reports enable and constrain organization, and consequently, knowing and knowledge. Considering its development in Japan, a country known to vary greatly from the United States culturally, a valid area of research is to consider the impact culture has on A3 reports and other lean implementations. I do not analyze the A3 report from a strictly cultural perspective in this work; I leave that as an area for future research.

Researchers who study knowledge management as information and information storage might conduct this study differently, but I am guiding it from the social interactionist perspective. I am more interested in studying how to connect divergent communities of practice (CoP) across boundaries, what Brown and Duguid (1991) referred to as "the community of communities," than in studying individual CoPs. My focus in this analysis is to identify how this connection leads to knowledge enactment, or knowledge accomplishment.

In the upcoming chapters, I will review more closely the relevant work that has been produced by other researchers to give the reader an understanding of how the field of organizational communication is expanding in the "communication as organization" vein. I will also explore the growing field of knowledge management in greater depth. I will conclude Chapter Two with the specific research questions this study will address. Chapter Three details my study methodology, Chapter Four relays results, and Chapter Five details conclusions and examines additional areas for further research.

According to Taylor, the organization "is always in the communication." He wrote, "the answer to what an organization is thus reduced to this: an organization emerges in the intersection of (a) an ongoing object-oriented conversation specific to a community of practice, and (b) the text that names, represents, or pictures it. Nowhere else" (2006, p. 156). Taylor's definition is intriguingly direct, almost dogmatic. I am excited to investigate it further and reveal potential understandings of how this study of the A3 report can further academic knowledge on the communicative constitution of organizing.

CHAPTER 2. REVIEW OF LITERATURE

Organizational communication research has often been defined as communication that happens within organizations. This statement may be the case, but it does little to explain the nature of the organization from a phenomenological perspective: how it is constructed, altered, and sustained. Researchers who consider organizational communication from the "communication as organization" vein contribute theoretically and practically to our understanding of both of these subjects.

If communication is indeed the organization, then the organization can only exist through the engagement of social actors. As I detailed in Chapter One, Weick established the role of social interaction in organizational development through the concept of *sensemaking*. Communication scholars extend the sensemaking concept to explore how such activity occurs. According to McPhee and Iverson (2009): "Communication is a dimension of social interaction and practice, specifically the dimension in which meaning is marshaled in the course of practice; communication draws on and reproduces the signification resources of a social system, but always in practical contexts" (p. 52). This perspective of communication is deeply embedded in an understanding of the role of interaction in the production of meaning.

In this review of literature, I will first examine the role of social interaction in communication to provide the root level understanding necessary to appreciate this work. Second, as knowledge is a result of communication (and consequently, a result of social interaction and practice), I will explore knowledge and knowledge management from the social interaction perspective. Third, I will examine the practical consequences of the knowledge management discussion and detail academic perspectives on the role of the manager. The role of the manager is significant to knowledge management; someone has to be responsible to shepherd the knowledge. Fourth, I will address the community of practice and examine what researchers have found regarding its role in knowledge creation and organizational learning. Last, I will detail the concept of the communicative constitution of organization and its relationship to the specific research questions I will address in this work.

Throughout this work, I maintain a close alignment with the socioconstructivist school of thought. Yet, the pragmatist in me recognizes that human (inter)action alone is not responsible for everything that happens within an organization. For this reason, I hesitate to label my epistemological and ontological leanings in this way. But I am given the confidence to voice this hesitation through the work of top communication scholars who illustrate similar challenges. Miller (2000) inquired among three of her colleagues, all well-published and highly-respected organizational communication scholars (Linda Putnam, Scott Poole, and Charley Conrad), how each of them would label themselves using Burrell and Morgan's 1979 typology of organizational communication paradigms from the original 1979 version as well as Deetz's 1996 reworking. Miller found that:

> for practicing scholars, these boundaries are blurry, they are straddled based on particular views of the world, they are even 'jumped' as the needs of specific research projects evolve. But perhaps the most important insight here is that these typologies can serve as a straightjacket, constraining researchers to 'think like a critical theorist' or 'do research in the interpretivist tradition' or 'be a good post-positivist' rather than explore

> research questions that are important for an understanding of organizational communication processes. (2000, p. 48)

Miller's challenge resonates with me. Reading the experiences of her colleagues as well as the statements by Taylor (2000) that echo these challenges, I proceed with caution against applying strict labels to the theoretical experiences that inform this work. In the interest of crafting the best possible research and exploring as full an understanding of this subject as possible, I ask each reader to see this benefit as well.

Cooren (2006) advanced a "hybrid" approach to the study of organizational action. He explained: "the socioconstructivists are right to start from interaction, but they need to widen the extension (and intension) of this concept to recognize that nonhumans also do things. As for the materialists, they are right to notice that humans are acted on as much as they act" (p. 82). Cooren's definition of *agency* is "making a difference" (2006, p. 82). Cooren focused on the result over the action. In this way he created understanding for nonhuman agents (such as the A3 report), further separating the idea of agent as human actor. The concept of structuration suggests that certain activity can change the standard ways in which people act by establishing new patterns of action (interactions).

Concept of Structuration

In Chapter One, I cited Miller et al. (2008) for their explanation of the role of structures to "enable and constrain interaction by providing conditions for action and templates for understanding" (p. 24). Miller et al. demonstrated that researchers have found a way to balance their understanding of organizational action with organizational materiality. As early as 1986, Weick and Browning argued that "interaction creates structure" identifying the "precise ways in which interaction becomes translated into structures which constrain interactions and interpretations" (p. 245). Kuhn and Corman (2003) wrote about knowledge structures "formed by experience in a given information environment (to) construct and interpret form and meaning" (p. 199). They identified how *schemas*, a term they use in addition to the phrase, knowledge structures, helped to focus and frame experience. The concept of structuration is a guiding principle in much communication scholarship. In this work, the A3 report is a specific case and I explore how A3 reports enable and constrain organization.

Poole and McPhee (2005) related structuration theory (ST) to the systems approach that is common across many academic disciplines; yet, they offered a key distinction. According to Poole and McPhee, for structuration theory, "the system is not a pattern of objects (like the parts in an auto engine)—it is a system of *human practices*. . . patterns of activity that are meaningful to those engaged in them" (2005, p. 174). The structurational approach is appropriate for this work given the fundamental role of social interaction in the practices that constitute organization.

Poole and McPhee explained:

> Structuration theory is a useful theory for communication because it focuses squarely on interaction as the arena in which structuring occurs… Rather than regarding them as static, "solid" entities, ST shows how organizations are created and sustained by human action and how, potentially, they can be changed. (2005, p. 180)

In this work ST is a guiding theory to fully understand the specific case of the A3 report. ST focuses on the patterns of human interaction.

Like structuration, activity theory also helps to explain systems of human interaction. Groleau explained:

> Activity theory contends that, '[t]he tool's function is to serve as the conductor of human influence on the object of activity' (Engeström, 1987, p. 59). This broad definition of tools includes psychological tools (a category that includes signs, language, and codes) as well as the category of technical tools, under which we find material entities such as a hammer or a computer. (p. 158)

In Engeström's explanation of activity theory, he expanded the exploration of subject, object, and tool to include community, rules and division of labor. Taylor (2009) explained an object is defined "less as a goal than as a project under construction, one that emerges as individuals interact with each other and with their environment of work. . . It is not a fixed target. It serves to direct people's attention to what needs to be dealt with" (p. 159). I bring forward this concept of activity theory to correlate specifically to the concept of the A3 as a tool around which interaction occurs. Activity theory complements structuration theory in general and the study of the A3 report in particular.

Knowledge and its Relationship to Practice

This focus on interaction is critical to an understanding of knowledge and knowledge management. Nonaka and Takeuchi (1995) explained a knowledge spiral in which individually based tacit knowledge is explicitly shared with the group and back again through an ongoing process of internalization, socialization, externalization, and combination. This social interchange is the key to the production of new knowledge.

Nonaka and Takeuchi (1995) revealed that tacit knowledge is personal and deeply rooted in experience. Consequently, tacit knowledge is not easily expressed in words. It can take on a technical dimension which they summarize as "know how" or a cognitive dimension as in an individual's image of what is (reality) and what ought to be (vision for the future). By contrast, explicit knowledge is easily transferable. It is explicit knowledge that researchers refer to in their discussions of capturing, storing, and transferring knowledge (Iverson & Burkart, 2007). Explicit knowledge is thus more closely related to information than tacit knowledge. Through their knowledge spiral, the internalized tacit knowledge is socialized (shared), externalized (made explicit), combined (networked across the organization), and internalized (operationalized). Nonaka and Takeuchi suggested this cycling of tacit and explicit knowledge channels through four different types of knowledge processes: sympathized knowledge, conceptual knowledge, systemic knowledge, and operational knowledge. Through this continual knowledge spiral, the organization can create new knowledge.

This transformation of knowledge through socialization is at the heart of Wenger's concept of communities of practice. Several researchers have explored knowledge as being generated through communities of practice (Brown and Duguid, 1991; Heaton & Taylor, 2002; Iverson & McPhee, 2002; Iverson & McPhee, 2008; Taylor, 2009; Vaast, 2004; Wenger, 1998).

According to Wenger (1998), practice is the "source of coherence within the community" (p. 73). It is the where and how of learning, or what Weick would label the place of *sensemaking*. The where is in the group's activity and the how is through the social production of meaning that comes through interaction. He summarized this concept as the "negotiation of meaning" (p. 53). Engeström's activity theory followed this concept of socially produced meaning, but suggests the need for a tool around which the conversation about meaning can develop. Activity theory thus grounds this study of social interaction in the study of a particular tool: the A3 report.

Fundamentally, this study is about human (inter)action. Lam (2000) took the interaction approach further in her explanation that knowledge exists *between* rather than within individuals. Stacey (2001) viewed knowledge as meaning that can only emerge through the interaction of people. As a result, Stacey has determined that knowledge is "not stored, but perpetually created" (2001, p. 97) similar to the here-and-now approach of vonKrogh, Ichijo and Nonaka (2000).

According to Heaton and Taylor (2002): "An organization is not a uniform cognitive domain but a multiverse of knowledges reflecting the existence of multiple operational contexts" (p. 213). In this way, interaction between individuals is complex. Kuhn and Jackson defined knowing as instrumental action and involvement in a struggle over meaning. Heaton and Taylor further explained, "Knowledge is not just a product of individual cognition, it typically arises in work through the intelligent practices of collaborating organizational members as they resolve the challenges they confront in dealing with their environment" (2002, p. 230). Wenger simplified this with the suggestion that knowing comes through participation. Similar to Wenger's definition of communities of practice, Weick argued that social forms of organization are maintained through continuous communication activity during which participants develop common understanding.

The Role of Management in Knowledge Management

In attempting to capture and recreate the means of knowledge creation, to handle, to harness and *manage* knowledge, researchers have identified the term *knowledge management* (KM). Alvesson, Kärreman, and Swan (2002) critiqued knowledge management, arguing that KM, "appears to be a term that provides rhetorical appeal to a broad and differentiated field that neither deals very specifically with knowledge nor with management, and even less with the two together" (p. 289). The authors perceived that *management* is a "bureaucratic phenomenon associated with hierarchy, formalization, control and direction from above through 'rational' measures" (p. 288). These traits presume a top-down approach to management.

Nonaka and Takeuchi (1995) theorized that the top-down management approach of planning, organization, and control is effective in the dissemination of explicit knowledge throughout an organization. In contrast; however, they suggested the more humanistic, bottom-up approach to management more effectively promotes the sharing of tacit knowledge. In their study of Japanese companies, Nonaka and Takeuchi identified a third approach: *middle-up-down* management. They suggested the middle-up-down approach best captures the "continuous iterative process by which knowledge is created" (1995, p. 127).

Heaton and Taylor (2002) proposed that the "role of management is not to impose a single conceptual framework but to construct bridges between communities of knowledge" (p. 213). Nonaka and Takeuchi (1995) would likely agree with Heaton and Taylor's assessment; they also used a bridge metaphor in communicating the role of the manager in knowledge creation.

From the perspective of communities of practice, the manager is more of a facilitator, or "catalyst," to use a Nonaka and Takeuchi term. According to Heaton and Taylor (2002): "The knowledge manager is not so much managing knowledge or managing knowledgeable individuals as he or she is managing communities of knowledge" (pp. 230-231). Iverson and McPhee (2002) also promoted the self-management of communities of practice. If the manager must get involved, they identified her role as to be supportive rather than controlling.

In conceptualizing the manager as authoritative, powerful, and hierarchical, Alvesson et al. (2002) suggested a disconnect between much of the KM literature and management in practice, arguing that the "organic" and "communitarian" approach taken by many researchers is "antithetical" to their (Alvesson et. al.) definition of *manager*. Alvesson et al. provided a relevant critique of KM and voiced a concern that KM literature does not address the traditional role of the manager as "an agent with considerable authority and discretion, grounded in a formal position, and with an asymmetrical relation to nonmanagers" (p. 286). In Alvesson's reality, KM research does not adequately address the inherent power dimensions present within the organizational hierarchy or speak fully enough to the implications of the top-down approach to management.

Wenger (1998) further problematized the top-down approach to management:

> Localizing decisions is a one-way process of alignment. It privileges the perspectives of those who define procedures and hides the knowledgability of those who apply them... By contrast an organization that functions in a sufficiently coordinated fashion without excessive recourse to privileging,

> thrives on intensive negotiation of meaning and is thus likely to be more dynamic and more persuasively creative. (p. 261)

Heaton and Taylor (2002) identified opportunities for managers to move beyond the traditional responsibilities of planning, organization, and control as well as the inherent power differentials that emerge through these activities. They stated that the communitarian approach (so labeled by Alvesson et al.) may delegitimize management's traditional position as the keeper of the expertise (Barley, 1996; Heaton & Taylor, 2002). Conversely, Heaton and Taylor argued that the hierarchical approach to management can be damaging to the manager's legitimacy within the knowledge-based organization. Heaton and Taylor suggested that in the minds of some employees the role of the manager is already tainted, held in disdain by nonmanagers, especially by those nonmanagers who hold technical and professional expertise as part of a specific community of practice. Heaton and Taylor recommended that managers of knowledge-based organizations need to learn new skills to successfully navigate their responsibilities in the so-called modern corporation where they may be called upon to manage employees who possess technical expertise of a different or more specific nature than they do.

Relational Considerations in Knowledge Management

In these cases, Iverson and McPhee (2002) recommended collaboration: "As managers work together with other employees, their management skills become situated within the repertoire of the community, allowing the manger to contribute to knowledge growth in sensitive and appropriate ways" (p. 284). *Sensitivity* is an unusual word to select when describing the role of the manager, especially as characterized by Alvesson et al. (2002). Yet, this use of the word *sensitivity* subtly reflects the concept of "care" articulated by vonKrogh, Ichijo, and Nonaka (2000). vonKrogh, Ichijo, and Nonaka argued that the ability to demonstrate a sense of care is crucial to management success.

Weick (1995) suggested another requirement for management success. He recommended that managers *talk* the walk. He wrote, "those best able to walk the talk are the ones who actually talk the walking they find themselves doing most often" (pp. 182-183). Weick's twist of phrase, to talk the walk, is similar to the "go to the gemba" approach articulated by lean management practitioners. Liker (2004) explained a key Toyota concept as *genchi genbutsu*, commonly referred to with the shortened term, *gemba*. *Genchi genbutsu*, a Japanese phrase, is translated as "going to the place to see the actual situation for understanding" (Liker, 2004, p. 224). Shook (2008) contended that *gemba*, or place, "reflects a philosophy of empiricism" suggesting that powerful knowledge can be gained by directly observing the site and process wherein the work gets accomplished (p. 27). This emphasis on empiricism, or experience, is a key difference between Eastern and Western approaches to knowledge and knowledge creation. Nonaka and Takeuchi (1995) identified a distinct emphasis on experience in Japanese companies versus a strong emphasis on analysis in the work of American companies. Not surprisingly, they found that Japanese companies place an emphasis on tacit knowledge while American companies place greater value on explicit knowledge.

VonKrogh, Ichijo, and Nonaka (2000) identified a phrase, *enabling context*, that furthers our understanding of "talking the walk" and "going to the gemba." vonKrogh, Ichijo and Nonaka used the phrase, enabling context, to communicate the "shared space that fosters emerging relationships" (2000, p. 7). They explained:

> Think of an enabling context as a place in which knowledge is shared, created, and used. . . an enabling context. . . combines aspects of physical space (such as the design of an office or dispersed business operations), virtual space (e-mail, intranets, teleconferences), and mental space (shared experiences, ideas, emotions). . . it is a network of interactions. (p. 49)

Arguing for context as "knowledge space" they required several key enablers to knowledge creation. vonKrogh, Ichijo, and Nonaka identified the right context as the key knowledge enabler because it affected each area in their knowledge creation process. According to vonKrogh, Ichijo, and Nonaka (2000), the role of the organization is to help structure communication in such a way that it creates this *right* context.

Wenger established a new conception of alignment that has strong echoes of vonKrogh, Ichijo, and Nonaka. Rather than letting the manager set the direction for critical activities, he suggested a team approach to organizational sensemaking:

> Alignment as negotiation of meaning. . . is a learning-based argument for participatory kinds of organizational designs focused on resources for the negotiation of meaning. . . Learning from this perspective is a very dynamic and systemic process in which mutual alignment continually plays the role of catalyst. This focus on the negotiation of meaning is focus on the potential for new meanings embedded in an organization. It is a focus not on knowledge as an accumulated commodity—as the ability to repeat the past—but on learning as a social system productive of new meanings. (Wenger, 1998, p. 262)

Wenger (1998) and vonKrogh, Ichijo, and Nonaka (2000) expressed an appealing ideal, but in the reality of fast-moving, competitive, and often chaotic environments, how does a manager facilitate this team-based alignment, or this *right* context?

Shook (2009) recommended the A3 report as a tool to help managers "establish alignment" (p. 33), allowing participants to manage up and manage down throughout the organization. Sobek and Smalley (2008) identified the A3 report as a tool for "3D" communication suggesting that the A3 report helped facilitate communication horizontally and vertically throughout the organization. Whether the A3 report is indeed a tool that can promote alignment and help achieve right context is a critical component of this study. Another closely related question is whether the A3 report can help facilitate communication across functional boundaries.

The Role of the Boundary in Knowledge Creation

As established previously through a discussion of Wenger's work, a lack of alignment across boundaries can cause confusion and inhibit the flow of organizational knowledge. Stacey (2001) explained that boundaries are important in sustaining organizational identity from a systems perspective: "if one is to identify a system, then it is essential to identify the boundary separating that system from others and from the environment" (p. 168). In this way the boundary may be both real, in terms of job descriptions and ownership of tasks, as well as perceived in terms of organizational status and stake. Wenger explained: "Boundaries—no matter how negotiable or unspoken—refer to discontinuities, to lines of distinction between inside and outside, membership and nonmemberships, inclusion and exclusion" (1998, pp. 119-120). Brown and Duguid (1991) detailed the role of boundaries more practically: "Work and learning are set out in formal descriptions so that people (and organizations) can be held accountable; groups are organized to define responsibility; organizations are bounded to enhance concepts of competition; peripheries are closed off to maintain secrecy and privacy" (p. 55).

Boundaries are created through practice. They establish norms for the in-group and can create recognizable points of difference for those who do not belong. Wenger conceptualized: "the boundary is not just for outsiders; it also keeps insiders in" (1998, 113).

Kuhn and Jackson (2008) identified the inherent challenges of these points of differences: "Heterogeneity can lead to conflict. . . and it can make displays of expertise an important facet of work because assertions of expertise via identification and legitimacy, may be necessary to validate personal knowledge against that of others" (p. 473).

Some employees may display their expertise with such force they appear to be preparing for battle. Hutt, Walker, and Frankwick (1995) described positional and competitive "turf" battles. Wenger (1998) used the term, *invested*, to communicate the intense emotion employees can display in protecting the nature of their expertise. Kuhn and Jackson (2008) referred to "vested" knowledge. Carlile (2002) used the phrase, "at stake," to communicate how employees often privilege their knowledge as superior to those across the boundary. In this way, Carlile identified how this turf battle over knowledge primacy is a both a source of and a barrier to innovation.

The concept of turf war as hindrance to innovation is fairly straightforward, but other less dramatic conceptions of positional knowledge exist. Kuhn and Jackson (2008) spoke more innocently of the misunderstanding that can occur across boundaries, which they explain as indeterminate situations:

> if the actors do not agree about the meaning of their activity, or if they do not understand the requirements or resources needed to realize a capacity to act...interpretations of and responses to a problematic situation are less clear when there are multiple and conflicting identities, when the validation of action is uncertain, and when ambiguity marks both role requirements and action scripts. (p. 459)

New knowledge can be created at this ambiguous site, where no previously held knowledge applies. Kuhn and Jackson explained: "Indeterminate situations. . . need not be studied merely as thorny problems but can instead be seen as sites in which innovative knowledge accomplishment can occur" (2008, p. 462). Wenger described this phenomena similarly when he explained that boundaries are the site of "new interplays of experience and competence. . . the likely locus of the production of radically new knowledge" (1998, p. 254). This is knowledge transformation, or what companies prefer to call innovation. For Nonaka and Takeuchi (1995) this was a key difference between knowledge and knowledge creation. As they argued, knowledge creation fuels innovation, where knowledge in and of itself, does not. Carlile (2002) explained the boundary spanning requirement of knowledge transformation as "a process of altering current knowledge, creating new knowledge, and validating it within each function and collectively across functions" (p. 445).

The Place of Knowledge

Brown and Duguid also defined a sort of *ba* (place) of knowledge. They located that the source of innovation, "lies on the interface between an organization and its environment" (1991, p. 51). This source of innovation is very similar to vonKrogh, Ichijo and Nonaka's concept of enabling context. The result of this interface is *innovation*, defined by Lewis and Seibold as an "entity, such as a new technology, idea, product, policy, or program that is introduced to potential users in the organization" (1993, p. 324).

Carlile (2002) suggested that only when one can suspend his or her belief in the supremacy of his or her specialized knowledge can he or she learn something new, yet paradoxically, the individual needs to hold on to this knowledge enough to teach it. Carlile explained participants "have to be willing to alter their own knowledge, but also capable of influencing or transforming the knowledge used by the other function" (2002, p. 445). He identified the boundary object as the "infrastructure," the place or process of knowledge transformation. Similar to the concept of reification, yet without its implication of permanence, participants must be able to "alter, negotiate or change the object or representation used" (Carlile, 2002, p. 452). In this concept, the benefit is knowledge transformation, "where individuals represent, learn, negotiate, and alter the current knowledge and create new knowledge to resolve the consequences identified" (Carlile, 2002, p. 453). In Carlile's view, knowledge comes in stages. It must be "represented, learned and transformed" (2002, p. 454).

This process of knowledge transformation is what vonKrogh, Ichijo, and Nonaka (2000) referred to as cross-leveling knowledge. The knowledge must be represented (through the sharing of tacit knowledge), learned (through the creation of boundary objects), justified (accepted as reality, a form of internalized knowledge) and transformed (into a prototype of new understanding). vonKrogh, Ichijo, and Nonaka (2002) believed that the outcome of the four steps: sharing tacit knowledge, creating concepts, justifying concepts, and building a prototype "results in one of two things: a possible product/service innovation or raw knowledge" (p. 90). This approach is the catalyst of knowledge creation.

Through the cross-leveling of knowledge throughout the organization, "the prototype, therefore, becomes a source of inspiration across organizational hierarchies and for other business areas, markets, or microcommunities developing their own products and service offerings" (vonKrogh, et. al., 2000, p. 90).

Likely this prototype becomes the "artifacts, documents, terms, concepts and other forms of reification around which communities of practice can organize their interconnections" (Wenger, 1998, p. 105) or what Stacey referred to as "tools in the process of negotiation" (2001, p. 184). Wenger called this social process the negotiation of meaning. vonKrogh, Ichijo, and Nonaka (2000) contextualized this concept as shared knowledge space. Nonaka and Takeuchi (1995) explained it theoretically as a knowledge spiral. Kuhn and Jackson (2008) described it pragmatically as knowledge accomplishment. In every case, there is participation, sharing, and collective action. In this way, vonKrogh, Ichijo, and Nonaka's concept of enabling context is much like a community of practice. Yet vonKrogh, Ichijo, and Nonaka cautioned against drawing this conclusion:

> A community of practice implies that members of a group learn through participating in the practices of that group and by gradually memorizing jobs—as in an apprenticeship program. However, there are important differences between this concept and enabling context. While a community of practice is a place in which members learn knowledge that is embedded there, an enabling context helps create new knowledge. The boundary of a community of practice is firmly set by the task, culture, and history of that community, but an enabling context is determined by the participants and can be changed easily… Instead of being constrained by history, an enabling

> context has a here-and-now quality—and it is this quality that can spark real innovations. (2000, pp. 179-180)

To fully understand the ways in which a CoP either creates or fails to create an enabling context, we need to look further into the form and function of the CoP.

Knowing Through Communities of Practice

Iverson and McPhee (2008) advanced the understanding of CoPs beyond a way to understand a particular group, but instead focus on how "the elements of a CoP can be used to analyze knowing as communicatively constituted in practice" (p. 195).

In their 2008 work, Iverson and McPhee opened the door for researchers to examine a different type of CoP arguing that CoP membership goes beyond having some knowledge in common or a common role. Using Wenger's concepts of mutual engagement, shared repertoire, and joint enterprise, they offered a broader conception of how to examine communities of practice. According to Iverson and McPhee, *mutual engagement* suggests communication and social interaction as well as a boundary spanning function; *shared repertoire* is a common understanding of the others' language and practice; and *joint enterprise* is the common goal toward which the participants work. Iverson and McPhee explained the critical activities of the CoP are to engage, share, and negotiate.

According to Iverson and McPhee (2008): "The sharing process and engagement in practice enacts the repertoire while also enacting the CoP" (p. 195). Iverson and McPhee suggested that organizations benefit from communication practices that break free from bureaucracy. They recommended that organizations find ways to promote community within the organization. The Iverson and McPhee prescription reads: "The time together must be enacting practice by developing repertoire and negotiating their joint enterprise.

The communication processes of enacting a CoP must be nurtured, rewarded, and developed clearly" (p. 197).

In this way, Iverson and McPhee provided direction for the goal promoted by Barge, Lee, Maddux, Nabring and Townsend (2008) to "bring in the voices of (others) in a way that they can be heard, valued and respected" (p. 385). This honoring of organizational multivocality is at the heart of vonKrogh, Ichijo, and Nonaka's concept of care.

Brown and Duguid (1991) synthesized the inherent challenge of restructuring the organization to better enable knowledge creation. They wrote: "Conceptual reorganization to accommodate learning-in-working and innovation, then, must stretch from the level of individual communities-of-practice and the technology and practices used there to the level of the overarching organizational architecture, the community of communities" (p. 55). According to Brown and Duguid, this is a challenge of "enormous difficulties from the perspective of the conventional workplace" (1991, p. 55).

Varey (2006) suggested this challenge can be met. He explained:

> Managing is the authoring of a conversation in which the task is not choosing solutions to a self-serving, self-evident problem, but the generating of a shareable linguistic formation of current actualities and further possible actions. Thus the managerial text is a string of statements focused on a topic or expressing a point of view. Management is a community of practice in which certain forms of account are institutionalized. (2006, p. 195)

Varey reflected the more communitarian approach to management, allowing the manager to string together statements that more accurately reflect the ideas of the organizational membership. According to Cooren, Taylor, and Van Every (2006):

> Practically speaking, this shift means that managers move beyond the role of controller to that of steward; that is, to a role that consists of taking into account the different communities of practice that constitute their organization: to, in effect, referee which accounts (or texts) are given precedence. The manager's role therefore has to be conceived as integrative: observing and reworking in conversation the many different accounts originating from various communities of practice to synthesize what can be considered by members the organizational text or an account. The leader must... manage differentiation in the search for integration. (p. 13)

Brown and Duguid (1991) implied that the manager's role is to help establish a community of communities, which they described as, "An organization whose core is aware that it is the synergistic aggregate of agile, semiautonomous self-constituting communities and not a brittle monolith" (p.54). This goal can only be achieved by open communication and shared understanding across boundaries.

The Communal Nature of Narrative

Shook conceptualized the A3 report as "standardized storytelling" that communicates facts and meaning in a commonly understood format. Shook explained: "Like any narrative tale, an A3 tells a complete story. There is a beginning, middle and an end, in which the specific elements are linked, sequential, and causal" (Shook, 2008, p. 16). In this way, the A3 report attempts to promote organizational sensemaking albeit through a narrative form. Boje (2001) explained that narratives are acts of sensemaking. Brown and Duguid (1991) relayed similar understanding, through the term *enacting*: "Like storytelling, enacting is a process of interpretive sensemaking and controlled change (p. 51). This sense of controlled change relates to the goal of organizational management.

Weick and Browning (1986) communicated a challenging goal of management communication:

> The implied advice for managers who try to solve problems is that when they try to be rational, they may overemphasize logic and forget that there are multiple logics and multiple rationalities, and that stories incorporate much of what argument leaves out. If a manager can argue logically with facts and then cover the same points with stories that ring true and hold together, then he or she has understood the issue more thoroughly. (p. 255)

Similarly, Brown and Duguid posited that "enacting and innovating can be conceived of as root sense-making, congruence-seeking, identity-building activities" (1991, p. 53). In this way, enactment promotes *ringi*, a careful set of consensus building negotiations in which different viewpoints are considered and accommodated. Heaton and Taylor explored the concept of *nemawashi*, as did Liker. It is the Japanese practice of behind-the-scenes discussion that allows participants in a formal meeting to draw conclusions beforehand. During prior discussions, participants work toward agreement and avoid the risk of losing face during the final stages of project closure. This type of interaction is communicated through the concept of circles of meaning, the knowledge-creating conversations articulated by vonKrogh, Ichijo, and Nonaka (2000).

The A3 report has its roots in Japan, where concepts like *ringi* and *nemawashi* originated. Can the A3 report structure communication to encourage "shared understanding out of bountiful conflicting and confusing data" (Brown & Duguid, 1991, p. 46)?

For Shook and promoters of the A3 report, the A3 is a problem-solving tool for managing organizational challenges. It is a different approach to management communication. Weick and Browning provided distinctions between the ways different communication practices structure the organization. In their work, they found that argumentation has "structural consequences." They wrote: "As a result of this focus on technical contexts, argumentative rationality emphasizes yes/no answers, categorical logics, winning an issue, detecting fallacies, separating facts from conjectures, demonstrations, propositions and deliberations" (Weick & Browning, 1986, p. 247).

By contrast, Weick and Browning explained the role of narrative: "Stories connect facts, store complex summaries in retrievable form, and help people comprehend complex environments" (Weick & Browning, 1986, p. 255). Clearly, in the work of Weick and Browning, stories are powerful. Stories are valuable because they are "catchy" and memorable, but they are especially salient due to their relational qualities.

According to Stacey, "Focusing attention on narrative and storytelling immediately brings the relational aspect of knowledge to the fore because narratives and stories are socially constructed between people rather than being simply located in individual minds" (2001, p. 36). Weick and Browning suggested that the value of narrative goes beyond the fact that the story is told. To whom the story is told matters, as well: "what they say and to whom they say it creates the working structure of the organization" (Weick & Browning, 1986, p. 255).

In the introduction to this work, I wrote of the inherent complexities of organizational life that is not always organized. Boje (2001) described a fanciful analogy to organizational life in relating the play *Tamara*. He related an environment of multiple characters "unfolding" their stories before an audience in constant motion. The audience takes the effort "to chase and co-create the stories that interest them most" (p. 4). Organizational life is no different. Multiple characters coexist on the same "stage" and try to entice key audiences (co-workers, management) to take interest in "their story" and support their cause with much desired resources. No universal narrative exists.

Boje used the term, *antenarrative*, to describe this phenomena, defining antenarrative as "constituted out of the flow of lived experience" (2001, p. 4). He argued: "Antenarrative directs our analytic attention to the flow of storytelling, as a sensemaking to lived experience *before* the narrative requirements of beginning, middle and end" (Boje, 2001, p. 4; emphasis mine). Boje was relating narrative in a traditional sense, but his concept of the antenarrative—the "narrative" before "coherence is rendered" (2001, p. 4) is unique. According to Boje, "[there exists a] plurivocal interpretation of organizational stories in a distributed and historically contextualized meaning network—that is, the meaning of events depends of the locality, the prior sequence of stories and the transformation of characters in the wandering discourses" (2001, p. 4). Boje's concept of characters wandering across a stage beckoning for the attention of a constantly moving audience is appropriate. Within any given organization, each individual actor is experiencing their own "wandering discourse" with no linear connection to the experiences of their co-workers. Each organizational actor inhabits the same space at the same time, yet each actor's experience is unique. This plurivocality and prior sequence of story and character transformation establishes the rationale for the Japanese sentiments of *ringi* and *nemawashi*. The rationale may be different (Boje does not account for face saving), yet conceptually Boje illustrated the story before the story, or the pre-birthing of narrative. Out of many voices rises one: the narrative that remains after coherence is rendered.

Boje's analogy is compelling. His analogy accounts for the lack of uniformity and the lack of linearity that exists in organizational experience. But what ties those characters and their wandering discourses together? Are they bound together as one organization? If so, how? What communication processes must be present to constitute the organization (if any exists at all)?

McPhee and Zaug (2000) introduced the concept of the four communication "flows" that work together to constitute organization. These flows of membership negotiation, reflexive self-structuring, activity coordination, and institutional positioning work in an independent, yet overlapping manner to constitute the organization. The four flows detail how the characters are recruited to the organizational "stage" and developed within that organization (membership negotiation), how the characters establish their norms for what movements are acceptable on the stage (self-structuring), how the characters resolve any drama that happens on the stage (activity coordination), and how the characters work together to sustain the show by securing the necessary means of continuing their performance (institutional positioning).

The four flows detail the communicative constitution of organizing (COO). According to Putnam and McPhee (2009), COO approaches describe the 'whole' and depict how the whole comes to be in different ways (p. 189). In this work, I will argue that the A3 is a sort of stage, a gathering place, or *ba* through which organization is established. Organizational actors who participate in ongoing, semi-independent "wandering discourses" are brought together as organization and *in* organization through the communication processes that are structured through the A3 report process. The A3 process captures the overlapping activities of the antenarrative, promoting organizational sensemaking as the actors negotiate meaning into a compelling narrative. Through the process of creating this narrative, the characters establish practice and engage in activity to respond to their organizational challenges. This "performance of pragmatic action" in the face of possible threats or ambiguity is what makes knowledge useful (Kuhn & Jackson, 2008, p. 461). According to Kuhn and Jackson, this knowledge-accomplishing activity occurs when organizational actors "frame, reframe and resolve perceived problematic situations" (2008, p. 461).

Boje's Tamara analogy is very fitting to organizational life. Yet there is a key difference. The Tamara characters can wander across the stage indefinitely (Boje does detail it as Los Angeles' longest-running play). The Tamara characters exist to provide entertainment and have no need for pragmatic action, yet the organizational characters for which Tamara is a metaphor experience a very different reality. When problems and ambiguities occur, the organizational show must go on. The organization must overcome the threats to its existence. The organization must focus on pragmatic aims and knowledge accomplishing activity. An existence of wandering incoherently across a stage with limited focus and limited commonality is not an option.

Research Questions

Can the A3 report facilitate this birth of coherency through narrative? Does this method of "standardized storytelling," as Shook explained it, structure a process whereby the plurivocal is raised and the univocal emerges? Through this work, I will explore how and in what ways the A3 report serves to structure the process of organizational problem solving and create knowledge-accomplishing activity. From this position, I present the following research questions:

RQ1: What is the communicative nature of A3 reports and related A3 thinking?

RQ2: In what ways do A3 reports enable or constrain organization?

In this work, I will address these questions specifically. My goal is to research how the A3 report structures communication. The findings from RQ1 reveal the ways A3 reports contribute to knowing and knowledge accomplishment. In addition, RQ2 elucidates the ways A3 reports structure the communicative elements of CoP enactment, that is, promote engagement, create repertoire and facilitate negotiation.

Summary

Organizational meaning is socially produced. Researchers have identified specific communities of practice wherein meaning is coordinated amongst sets of individuals who work together in shared activity. Organizations have boundaries, formal and informal borders that facilitate the inclusion and exclusion of particular members and their practices. In this way, activity within the organization is complex. Boundaries create separation and specialization that can cause problems when lines are crossed in conflict, and can likewise inspire unexpected innovations when boundary lines intersect meaningfully.

Managers seek to understand how to facilitate these meaningful interactions within their organizations. The goal of this process is to harness knowledge. Some knowledge management theorists postulate that knowledge can be captured and collected. In this view, knowledge is an object that can be possessed and stored. An alternate view of knowledge as accomplishment suggests that knowing and knowledge "do" something. Knowledge as accomplishment describes knowledge as a response to an organizational need. Researchers who approach knowledge management from a social interactional perspective detail specific concepts of how knowledge can be produced. These researchers question which organizational actors are responsible to coordinate, or manage, meaning within an organization.

For many researchers, communication is the organization. In this study of knowledge management, I analyze the specific case of the A3 report to determine how the A3 process structures communication to facilitate the production of organization in both the noun sense and the verb sense of this significant word. Chapter Three details the specific methods I undertook in seeking answers to my research questions through the completion of this study.

CHAPTER 3. METHOD

Organizational communication scholars approach their research from many different perspectives—so much so that Bryman and Buchanan (2009) referred to it as the "Balkanization of organizational research methods," suggesting the field is "fragmented, geographically, epistemologically, and methodologically" (p. 706). I imagine this challenge of vast paradigmatic diversity exists throughout most areas of scholarly focus. In many ways these scholarly differences are helpful; diversity of any kind often serves to challenge the status quo, to question perceptions of reality in a way that promotes new ways of thinking and much needed understanding.

At the same time, categories of the different schools of thought can help scholars understand the guiding perspectives that inform the work of their peers. Many of us are familiar with and comfortable using the term *paradigm*. From the research perspective, however, Deetz (2009) is not:

> I do not believe that different research programmes are usefully referred to as 'paradigms.' Such a spatial bounded metaphor favours building boxes and placing individuals and their work in them. Rather, most of us ask and answer very different questions at different points in time. (p. 22)

Deetz uses the appealing word *discourses* to describe "research programmes. . . as community-based ways of engaging and talking about the world" (p. 22).

Guiding Methodologies

I have mentioned previously in this work a reluctance to adhere to strict labels of perspective, but I do so cautiously because it is necessary. There is a research community with distinct ways of engaging in their work and "talking about" their findings. This research community forms the basis of much of my review of literature and provides the foundation for and grounding of much of this work.

Deetz, himself cautious in labeling, suggested:

> . . . understanding our alternative research approaches from a constructionist stance leads us to be less concerned with the relation of the constituted subject and constituted world, and more with the *constituting activity*, the original codeterminative interaction from which subjects and objects are later abstracted and treated as natural. (2009, p. 24; emphasis in original)

This focus on constituting activity makes sense for this study.

Method

McPhee and Iverson explained that, "communication is a dimension of social interaction and practice" (2009, p. 52); therefore, the focus on *constituting activity* is ideal. Interviews are an appropriate method to achieve this focus. According to Lindlof and Taylor (2002):

> Social actors also produce explanations of their behavior. They explain how they apply what they know in certain areas of their lives, how they negotiate certain issues, how they moved from one stage of their lives to another, how they interpret certain texts, and so on. The interviewer's goal is to draw out the individual, interpersonal, or cultural logics that people employ in their communicative performances. (p. 174)

Qualitative, or ethnographic interviews, are an ideal approach for this study:

> Ethnographic interviews provide information about communication not accessible through other research methods. They allow researchers to ask

> about communication events too time-consuming or too private to observe. A study of communication, for instance, in long-term, satisfying marriages would best be conducted by interviews. Observers could not spend years with such couples, nor could they observe their most intimate moments together. Consequently, asking the couples to recall and describe their interactions over the years would be the best way to discover communication characteristics common to satisfying marriages. (Frey, Botan, Friedman, & Kreps, 1992, p. 285)

Business partnerships have often been described using metaphors involving marriage. In the case of the A3 report, the illustration by Frey et al. is especially appropriate. The development of a single A3 report can take weeks. Much of the discussion will take place in meetings, but other key conversations will occur spontaneously, in the corporate cafeteria, in the car on the way to a client meeting, or in a late night email. For the researcher to observe all of these activities is not feasible. Additionally, work in corporate environments is often highly private and confidential. The contents of the A3 and surrounding discussions are sensitive for their company and may involve details of an organization's internal challenges and plans for future strategy. As with a marriage, corporate representatives cannot be expected to share *everything* with an outsider. Some events just are not accessible. Qualitative interviews, then, are an appropriate alternative.

Semi-structured interviews are ideal for this research. According to Lindlof, interviews allow the researcher to "elicit the distinctive language—vocabularies, idioms, jargon, forms of speech—used by social actors in their natural settings" (p. 168). Using interviews as opposed to surveys provided me with rich data, including the language and terminology used by the respondents in their natural settings. Iverson and McPhee (2008) explained that their framing of CoP theory identified key processes which were "observable," "often articulated by participants," and "have clear implications for knowledge development and organizational process" (p. 197). Interviews enabled me to gather the necessary data to conduct this study.

A3 report creators and participants typically work in technical roles such as product development, product management, manufacturing operations, and manufacturing management, often for manufacturing companies but also for other large organizations in areas such as health care and higher education. As I have communicated previously, the A3 report is a tool of lean processes and strategies. Most early adopters of lean first began applying lean principles to their manufacturing environments. Consequently, lean processes and tools, like the A3 report, tend to emerge from the more technical and process-driven areas of the organization.

I work as a change agent who uses A3 reports from a marketing communications perspective, one of the first in my company (a large, publicly traded manufacturing company) to do so. Having worked alongside engineers and product management types for several years, I understand their world, but have my own perceptions and ideas surrounding their practices. As an individual with experience using A3 reports, I have my perceptions on how the A3 should be utilized. This is a benefit to my ability to conduct this work, as well as a challenge.

Having some familiarity with the A3 report and the concepts of A3 thinking enables me to ask questions and understand the specific context of what I learn from my interviews.

Having some familiarity with the A3 report means that I have preexisting ideas surrounding the subject.

To combat bias, I incorporated negative case analysis, also referred to as *analytic induction* (Lindlof 1995). Negative case analysis involves closely evaluating and carefully incorporating the responses that appear to negate the study findings. Focusing on the negative cases and seeking explanation for them not only strengthened the quality of the study, but also greatly reduced the potential for bias.

My study focus also helped prevent bias. I studied the A3 report as a process, not a product. I examined the perceptions of those professionals who experienced the A3 report and how it structured communication within their organizations. My interests were not specific to the A3 report as a particular product, but were aligned more closely with the communication processes it may (or may not) facilitate. Additionally, the A3 report may be a "flavor of the month" trend that captures attention for awhile but fades when the consultants who fuel innovation by helping to champion new organizational processes switch to "new" or "better" methods. Focusing primarily on the process of the A3 report gives me a greater picture of what the A3 report does from a communication standpoint. The A3 report is merely the specific case in my question of the process of how knowledge is communicatively enacted.

Kuhn and Jackson (2008) referred to moments of problems that make knowledge more usable. In this study of knowledge accomplishment, I asked the participants questions to learn when the A3 is more salient and helpful as well as when is it frustrating and harmful. I explored when it created clarity as well as when it created confusion.

During the interviews, I provided minimal self-disclosure. If asked, I answered that I had used A3 reports in my professional work. I was cautious not to speak with such detail that I might inadvertently bias the interviewee. The fact that I also work for a technical company helped establish rapport in my initial conversations with the A3-report-generating change agents that I met via the Lean Enterprise Institute's Connection Finder. I expected to hear the question, "How did you begin studying the A3?" I answered it in a straightforward manner and remained conscious of being careful not to prompt the interviewees in any way that could be leading. I took further precaution against bias by researching organizations different from my own. Interviewing people with whom I had no history on subjects in which I have limited technical expertise created a newness of experience that allowed me to focus on the experiences of the subjects rather than my own.

My attitude toward engagement with the interviewees was in line with Cassell (2009): "Within social constructionist approaches, the interview is seen as the coproduction of a text, rather than as an account of any real world phenomenon" (pp. 505-506). The qualitative interview is about generating descriptive data in the form of interviewee experiences. In order to elicit quality in the data, I needed to establish *rapport*, defined by Lindlof (1995) as "clarity of purpose" (p. 181). According to Lindlof, "participants should be given clear, succinct, and honest reasons why they have been contacted, the aims and value of the project, and how the interviews will be conducted" (1995, p. 181). This communal sense of trust and partnership is a key part of the qualitative interview.

To establish this trust, I prepared a detailed informed consent document and shared it with each participant in advance of the interview. In support of the best practices in research involving human subjects and the North Dakota State University (NDSU) Internal Review Board (IRB), I also followed the guidelines and requirements set forth by the IRB.

While I expected that the interviews would not generate data of an especially personal nature, I took steps to promote subject privacy as much as possible. An interviewee could mention improvements they would like to see in their employer's implementation of the A3 process, for example. These and all comments were treated with respect and confidentiality. Names were changed on transcripts and in the study report to provide confidentiality to the participants.

Population

To gain an understanding of the A3 report, I needed to interview individuals who had experience using this process in their professional work. Locating A3-report-using organizations and specific individuals within them was a challenge. The A3 report is a relatively new innovation and the companies who use them are early adopters to A3 thinking and other lean implementations. The total population of individuals using A3 reports within companies and the number of companies using A3 reports is unknown, thus convenience sampling was necessary. Additionally, few organizations broadcast the details of their inner-workings so there was no logical starting point to identify a group for sampling. As this was a qualitative study, I was most interested in gaining access to individuals and organizations that enabled me to have a greater understanding of how the A3 report works. My goal was to yield rich data to discover the deepest possible insights that can be achieved through this particular study.

Using the online "Connection Finder" of the Lean Enterprise Institute, a non-profit organization that aims to promote lean tools and lean thinking in corporate environments, I identified 16 corporations that were using A3 reports in the upper Midwest. I sent quick queries to representatives of those companies seeking their possible involvement in a study. Of those 16, four responded positively on the same day I made my request. From this group, I identified individuals within two of the four organizations that were willing to participate. Using the "snowball" approach, I asked each person if they could connect me with someone else who has experience using the A3 report (Miller, et al., 2008). From these additional names, I sought additional participants. In the end, 12 individuals participated in the interview process.

A key concern with any convenience sample is whether the sample is representative of the whole. Since the individuals on the Lean Connection Finder wanted to know more about the A3 and network with others on the subject, I assumed they had a positive orientation to the topic of the A3 report. Other A3 participants within the organizations may have been more neutral. I anticipated working with a change agent who saw the A3 report as an effective tool, and interviewing other organizational participants who had a wide range of views on the A3 report ranging from neutrality to extreme like and dislike.

Procedures

I conducted twelve interviews. The shortest interview was 35 minutes and the longest was one hour and a half. I spoke with two of the participants (separately) on two different occasions, totaling close to two hours of contact with each of them.

As the first companies that I identified were in the range of 200 miles from my geographic location, I conducted the interviews over the telephone. According to Cassell (2009):

> within the organizational field, telephone interviews have been used in numerous studies in a wide variety of areas and there is a particular tradition within the marketing field. Research considering the quality of the output from different types of interview strategies (e.g. Quinn et al. 1980) has found few differences between the two modes. (p. 504)

The telephone interview adds value in this study; the sample size of A3 report users in organizations is relatively small. Logistics prevented me from interviewing each participant in person. For the sake of consistency, all interviews were conducted by telephone.

Limitations of the telephone interview may include an inability to read nonverbal responses in interviewees, but it can also provide some benefits. Face-to-face interviews may provide more opportunities than telephone interviews to introduce interviewer bias due to the behavior and approach of the interviewer. According to Lindlof and Taylor: (2002):

> The absence of visual cues can also benefit the interview by reducing reactions to the recording equipment or to signs of the researcher's cultural identity and body presentation… telephone interviews should not be dismissed out of hand as inferior. For some purposes, the phone interview may do just as well, if not better. (p. 187)

Grand tour questions, such as, "Tell me about your first experience with an A3 report," are not particularly personal or sensitive. The interview guide consisted of questions related to the subject's feelings about the A3 report and his or her perceptions of it. These questions are appropriately asked (and answered) over the telephone. I asked for a description of his or her experience using the A3 report in his or her own words (how he or she felt, what he or she thought, what was important in working with the A3 report, and what was more helpful from the interviewee's perspective). I asked whether the communication using the A3 report was better than expected, was as expected, or worse than expected. I asked about the communication amongst the A3 participants. I inquired whether the A3 participant felt his or her perspectives were heard, whether he or she felt more or less connected to the other participants through the process, and whether he or she felt the ideas and suggestions of other participants were incorporated through the process. Did the interviewee find himself or herself communicating with different people and in different ways? All questions were open ended. I probed further as needed throughout the interviews to prompt each participant to share stories that explained his or her version of what the A3 report means.

Summary

To gain understanding of how A3 reports structure communication, I spoke at length with people who use them in their professional work. In listening to each individual, in hearing their stories, accounts, and explanations (Lindlof 1995), I gained insight into the perceptions of these social actors regarding the A3 report. This type of insight is at the core of interview research.

According to Trethewey (1999): "The value of interview research lies precisely in its ability to capture participants' articulations of their (always discursively constituted) realities" (pp. 428-429). Through this research, I aim to identify and understand the constituting activity of the A3 process. In this study, I emphasize the experiences of the participants as relayed though their stories in order to generate rich and revealing data. To gain an understanding of how A3 reports structured communication; in Chapter Four, I present and analyze the data.

CHAPTER 4. RESULTS

The A3 report is a relatively new organizational concept, especially in the United States. Popularized by its use at Toyota motor company, the A3 process is frequently implemented by managers who desire to improve the operational efficiency of their organizations.

In the course of my research I interviewed twelve individuals. Some like Aiden, an engineering manager at a 4,600 person plant in a major Midwestern city, had very little understanding of A3 reports when his company first mandated their use. According to Aiden, "We didn't have much experience with it. Somebody had heard that A3s were a good thing and that lean companies did that. So they said, 'Well, we're going to make people put proposals on one sheet of paper.'" Others like Paige, a process expert and certified Six Sigma black belt (a quality management methodology originally developed by Motorola corporation), received formal training. Paige explained: "I was a product launch engineer for (company) automotive company, and my customer was Toyota so I did them [A3 reports] in my sleep." Paige received her training directly from Toyota headquarters:

> They have supplier conferences where they bring in all the suppliers for the car. They'll give you their supplier quality manual, and within the supplier quality manual is the A3 requirement. They will offer A3 training if you need it. . . Basically they brought a problem in and showed how you would go through the A3 process and use the form to come up with the root cause of the problem and corrective action.

Each of the subjects I interviewed, irrespective of his or her background, expressed great interest in describing and defining the A3 report.

The A3 Defined

The question, "what is an A3," was a consistent priority for most of the interview subjects. This focus on definition is likely because the A3 is a new innovation in many of their organizations. In some organizations, the A3 is used frequently, but only in certain functional areas such as product development or engineering. Members of these functional areas often need to explain the A3 process to their colleagues in other functional areas, such as manufacturing, marketing, or accounting. In other organizations, like the one of Aiden, use of the A3 has been mandated, prompting employees to have an immediate and urgent need to understand the A3 process.

In Chapter One, I briefly defined the A3 report as it is described in the business press. I will now define the A3 as discussed by the individuals I interviewed. Through my analysis of the data generated from the interview transcripts, I coded several dimensions of the A3, such as how interview subjects described the A3 as a consensus building tool, for example. My discussion of each dimension will offer a richer and more complete definition of A3 reports, but I will first begin by examining the A3 report in a general sense.

The A3 report is a catch-all phrase for many different types of A3-sized documents. A3s can be used to document strategic plans, proposals, budgets, status reports, and communicate virtually any organizational process or requirement. In the minds of the individuals I interviewed, as well as in the business press, the most common type of A3 report is the A3 problem solving report. While the specific categories addressed on the report may vary from organization to organization, individual to individual, or even problem to problem, in most cases the left side of the report details analysis of a problem in its current state and the right side of the report examines a possible solution. Subjects referred to this solution using many different terms, including countermeasure, target condition, and future state. The heart of the A3 report centers around a concept called root cause analysis wherein the team digs deeply to get to the "root" of the problem often using a concept called five-why analysis, literally asking the question, "why?," at least five times as a procedure to drill to the root cause of the problem.

Luke is a software engineer for an organization that has mandated the use of A3 reports for the engineers in the product development area of their company—a group consisting of more than 150 employees. Luke described how he and his coworkers use the A3 report in their software development work:

> Whenever we find defects of a high enough magnitude, we perform root cause analysis to see what went wrong and why this defect happened and why it got to the customer as a defect. And as part of the process of root cause analysis, we need to provide a report in A3 format.

Luke and his coworkers used A3 reports to identify the source of the software bug, or defect, to ensure that it did not happen again.

Root cause analysis is a key aspect of the A3 process. To illustrate the A3 and how it works, I share a specific example provided by Patti. Patti works as the nurse manager of a respiratory intensive care unit in a 500-bed, trauma I hospital in a major metropolitan area in the northwest. As a manager, Patti is responsible for training and supporting her staff to meet key objectives. According to Patti:

> One of the other things we did with A3s is we were trying to solve a problem with identifying how we could get rapid turnarounds, why we weren't able to get glucose measures on our patients as quickly as we

> needed to have them be done. And what we found through the process of doing an A3 and looking at it was that we only had two glucometers for the whole unit. The glucometer would go from one room to another room and then when the other nurse needed it, she had to go around the unit several times to find it. When she finally found it she'd get interrupted, maybe set it down somewhere else.

After identifying a potential problem, Patti led the group in an observation:

> We had this whole big tracking of this one poor glucometer for several hours. It was just amazing all the places it went. And we looked at the amount of time, how much of the nurse's time is spent just looking for a glucometer to do a glucose check. What we ended up being able to do was really look at that and detail it out. I could have gone to administration and said to them, 'We need a glucometer in every room,' and they would have said, 'Oh, be serious. You've got 12 rooms in your ICU. That's way too expensive. We can't afford it.'

Patti documented her observation and presented her analysis to management:

> But when we went back and said, 'We can't give care the way we need to give care. We can't do it in a timely way because we don't have enough glucometers. It's not only costing us in patient outcomes, it's costing us in the nurses' salary and because so many different people are using it and they are using it so much, we are having to replace the equipment more frequently.' We took that as a proposal to administration, and we proposed that we had a glucometer in every room. We did that and then we

> reevaluated it to see if it made a difference. It made a *huge* difference in the amount of time that it took. The nurses all really liked it, and so we kept that model.

Through this process, Patti identified her root cause and developed and tested her countermeasure:

> Sometimes you think you know what the solution is, 'The reason why we can't get the glucose readings done on time is because the nurses are sidetracked or they're lazy or they are out at the desk talking or they don't understand why it's important.' What we found when we looked at it is that they were trying to do it. It was just taking so much time because we had so many patients who needed them and there were only two glucometers. We could have wasted a whole bunch of time reeducating everybody, teaching everybody, helping everybody understand why they had to do it on an hourly basis. . . and never gotten to the real issues, and that was just that it was taking a significant portion of their time. The nurses would say to us, 'It just takes so long.' And we would say, 'Well, what takes so long? You just prick the finger. You put the blood on it. It takes 30 seconds. What takes so long?' Well, what takes so long is tracking it down, getting it back to the room, getting it done, that kind of thing.

Patti's example detailed many of the fundamental elements the subjects described as part of the A3 process: identifying a problem, conducting observations, determining the root cause, working as part of a team, conducting cost benefit analysis, seeking management approval, implementing the new plan, and testing its success. Not all of the interview subjects would agree that each of those requirements is necessary for having an A3, but each would likely include them as a possible part of the process. In general, the definitions were hazy. In many cases, the A3 was defined by what it is not.

A3 reports are named from the metric equivalent of the 11 x 17 inch international paper size, known as A3; yet for many individuals like David, the A3 thought process is most significant. David, a lean facilitator in a Midwestern-based location of one of the world's largest energy corporations, explains: "The actual paper report is actually the least important aspect in my mind of the A3 process."

Lori, a regional director of a large healthcare organization in the Pacific Northwest, also focused on the thought process behind A3 reporting. She described an A3 process that transcended the A3 sheet of paper:

> We had a manager and a director that went through it and they were sitting and having a conversation about a problem. And they said, 'Look, let's just do an A3 on it,' and actually did the A3 on a paper towel. They sketched out what was the issue and what needed to happen. To me, how much easier can it get? They didn't even need the document or the template. It's an easy thought process. People think this way.

David further detailed the importance of the process over the piece of paper:

> I remember when I first started doing A3s. I was so concerned with how the actual physical report looked when I was done. My first sensei, working with him, he was retired from (company) in (city). They had been doing lean for about ten years when he retired. He pulled out an A3 for me that he had done. There were scratches on it. It was in pencil. You could tell that he

had erased the boxes several times. It was the final version of it too. It looked like someone had just been drawing, doodling over it, and then erased it and finally wrote some words on it for a report. He says, 'I don't care what this looks like.' That's where I got my reinforcement on the discussion: 'I want to know who you talked to, what you talked about, how you know this is the right thing.' So it took me about five or six months to get away from that 'I need this report to look like a report. I want to make sure it's typed up. I want to hand it in because that is what's going to impress people.' If the people are lean disciples, they understand that the purpose of the A3 is to facilitate discussion. They're not going to care what the report looks like. They want to know what you went through, who you talked to, what you talked about. That was very beneficial for me early on in my A3 exposure because it got me committed to it, because a lot of people can produce fancy reports. The software packages are out there. But it's the substance, the byproduct of those discussions that are contained in the report that are really most important.

Monica is a software engineer who first began using A3 reports in her work as an internal product development consultant for a global technology company with key leadership stakes in the areas of personal computing solutions, printing and imaging, and enterprise business solutions. Monica later founded her own company and she teaches A3 process regularly as part of her consulting business:

> The big mistake that I see companies make with A3s that tend to drive down their effectiveness is by standardizing on them. I go to companies and

> they've got these templates and if you don't fill out every box on the template, then it's somehow deemed to be not a good A3, or not an A3, or not a complete A3. I think that one of the wastes that we are trying to eliminate with A3s is the waste of unnecessary documentation. The fact is that on an A3 you just don't have room for anything you don't need. . . Realistically within an organization, all you need is the name, the title, the name of the author, some kind of a problem statement, and, if it's company confidential information, a company confidential flag. Everything else really needs to be put in the service of the author to tell the story. This is not an area where we want a high degree of standardization. It's an area where we want to maintain a high degree of flexibility. As long as it's 11 by 17, one sheet of paper, a few basic elements, and they call it an A3, I'm happy.

Monica's explanation of the A3 begins to introduce the first dimension of the A3 and what it does. In this view the A3 is a tool to eliminate communication excess.

The A3 as a Tool for Concision

In speaking with several individuals who use the A3 as part of their professional work, I heard stories of organizations struggling to stay afloat in a difficult economy and I learned of the great interest in many of these organizations to implement creative approaches to deal with new competitive challenges. I heard stories of people dealing with organizational challenges ranging from the most global and significant to the most (seemingly) mundane. I write seemingly, because for these organizations even the tritest resolutions were significant victories because they represented the progress of people streamlining the work of their organizations to literally "do more with less."

A large contribution of the A3 that many of the subjects identified was its ability to eliminate waste, or excess, in the communication of critical issues. Monica explained the A3 from her perspective:

> It's one single-sided sheet of paper. You have to think very carefully about what's on it because it's not a lot of real estate. You have to be very concise. You have to use visual models because there's not enough room for words. You have to think about how to visualize things. Once you put it in front of someone, all of the information is visible to them. I've seen companies try to adapt A3 reports by having an eight and a half double-sided piece of paper, but as soon as you flip the paper over, half of the information is missing. The A3 size fits really well into our field of vision. Even if I am looking at one corner of it, I don't lose the whole and I can go back to the whole at any point in time.

In Monica's view, the problem itself gets captured by the A3. The problem is defined and contained within her view, literally captured and laid out across one sheet of paper.

Bill, a doctor in large network of medical centers along the Pacific coast, explained a similar view of containment:

> It was easy for clinicians to see the project on one piece of paper and be able to get their head around that, their arms around it and say, 'Ok, I understand that. Here's your problem. Here's your root cause. Here's your current state. Here's where you're trying to go. Here is how you're going to get there. Here are the people responsible. This is what it's going to cost.' And then

> when we're done we can hang that on the wall and then go on to another one.

The A3 helped to focus attention on the key issues in problem solving. The single 11 by 17 sheet clarified a problem and a potential solution, but also detailed the high-level steps that are necessary for implementation.

Annette is an industrial engineer who completed the management training program of a highly diversified global corporation that employs more than 300,000 employees. She is a professional business advisor who helps companies implement lean processes and problem solving strategies. Annette explained one of the benefits of the A3 report as helping to scale projects down to a workable size:

> From the problem solving perspective, one of the biggest problems that we see with clients in their problem solving is they try to solve too big of a problem so part of it is you are bound by the size of the paper. So if you try to bite off kind of what I call a world hunger problem, it won't fit. It forces you to whittle it down into a problem that is small enough to tackle in one bite.

In Annette's view, the cliché is true: a well-defined problem is half solved.

Jeffrey is an electronic engineer, who works as a Process Pro for a large technical company in the agriculture industry. For Jeffrey, a key aspect of A3 problem solving is the Plan Do Check Act (PDCA) process typically credited to W. Edwards Deming, yet Jeffrey provided a definition of the A3 in which concision was critical:

> As a quality professional, what I am going to say is it has to have the elements of Plan Do Check Act and it has to be documented on an 11 by 17

piece of paper. The Plan Do Check Act is the structure and the 11 by 17 piece of paper is a constraint that people have to have so they focus and become concise on what they are presenting. So those two pieces really go together. . . a lot of times there is a lot of data about things, but it's not converted into information. When you have that case where most things are data and very little information, they're assuming, 'I'll give you the data and you'll look at it and you'll come up with the same information or same conclusion that I did or that I want you do.' When you have the 11 by 17 constraint, now it's really difficult for people to just give you data because chances are you aren't going to be able to give enough data in the space you have for people to draw the same conclusion. It's the Plan Do Check Act cycle that goes with a space constraint in which you have to present it to people that is an A3. I wouldn't say Plan Do Check Act by itself is an A3 and I wouldn't just say documenting your problem on an 11 by 17 is an A3. Although documenting it onto the piece of paper is probably going to follow Plan Do Check Act, but not always. I can follow Plan Do Check Act and I can write a 100 page book on a process improvement. That's not going to get any response from people. This whole thing. . . about sharing the knowledge and making it available to people, is to put it on that one page in a decent font that people can quickly read and look at and understand what's going on and not have to read that 100 page book or even that five page report.

In Jeffrey's view, the value of the A3 is its concision. He saw the A3 as a way for individuals to help focus their thoughts and share that knowledge concisely with other stakeholders within the organization.

Annette pointed out that the A3 was not only a tool to help organizational members accurately define a problem and its cause, the A3 also supported brevity when it was time for the presentation of results. She appreciated the brevity of the A3 as a reporting tool. She continued:

> You can quickly get up to speed with what the problem is about without having to wrap your mind around the way they are reporting it. You know, it's not PowerPoint, PowerPoint, PowerPoint. It's just a one pager. It makes people—it forces them to give you what I call the CNN headline version without all the details, because a lot of people really can't give you—they can't go through a problem and present it in a methodical, logical way, and that format forces people. . . who are not really systematic thinkers. . . to be systematic in their problem solving. It forces you to go through the steps.

Monica presented a similar view of the A3 as a precise reporting tool and explained some of the advantages managers see when using the A3 process:

> You also don't have the problem that you have a lot of times with very busy executives who are impatient, and they see that you've got forty slides and they immediately start peppering you with questions the moment you start presenting, and you never get to slide forty. Because they can't see the information in your presentation, they are asking you questions about things that may be much later. I've found that executives really love the A3 format

> because they can see everything they need to at once and if something's not on there, they can ask you, but they don't have to sit through a presentation to figure all of it out.

Many of the interview participants valued the A3 for the concision it brought to their communication. They appreciated being able to share a summary document with their management team.

According to Lori, the healthcare director, the A3 process was highly regarded by the chief executives in her healthcare organization. She explained:

> My boss—he's so engaged in this—he has identified that from the first moment he learned about it [A3], the easiest way for him to sell anything to his colleagues in the C-suite is utilizing an A3. He's been doing it as a way to communicate and work with his peers on the executive team. So they see it on a regular basis. When he comes to them with a problem or an issue, he brings it in an A3 format. Our COO, he's asking for it. A lot of requests that come from him are, 'Can you do one of those A3s for that?' They are asking for them.

Managers have considerable authority to direct the activities of individuals within their organizations. The interview participants shared several stories involving managerial processes and perceptions surrounding the A3.

The A3 as Facilitator of Management/Employee Communication

Management was a significant topic for the interview participants. Many individuals discussed the importance of A3 reports as perceived by management. Others discussed the value of using A3 reports to generate management support for their projects.

In some cases, interview subjects were critical of how A3 reports were implemented by management.

Monica detailed an experience of introducing the A3 to an executive management team:

> I was at a client site and I was doing a project with the directors of the engineering group and we were preparing for a presentation to the leadership team of this company. This was a mid-size company, maybe $250 million in revenue so it was a relatively simple organization; but a sizable one, not a small business by any means. We were getting ready to present to the president of the company who was sort of the founding family of the company and then kind of a crusty old guy who'd been around forever who was an executive VP and then the VP of marketing and the VP of engineering and VP of operations. So a pretty high powered group we were going to present to. We had been at the client site all week doing a value stream mapping and we needed to present a summary of results to the executive team so I grab a blank sheet of paper, 11x17 paper, and a black pen and I start writing my A3. I do it handwritten, and my client guide, my contact who had been with me all week, was getting ready to make this big PowerPoint presentation. And I'm like, 'No, I don't want to do that. We're going to do this instead.' And he's like 'They're never going to go for that. What are you doing?' and I'm like 'Well, it'll be ok. Just trust me.' So I handwrite this A3 out that kind of summarizes what has happened during the week, where we started, what the current state was, what elements of the

> future state we identified that were important for them to know about, what we were going to do, what we were going to ask them to do to provide support for implementing future state, some things about timeline and budget. I put all this stuff on the A3. And we go in and I go to the photocopier and I made copies of it and that's what I handed out and that's how I gave my report. And the president of the company was so happy that he started asking everybody to do A3s for him. We had such a better discussion about it. He could take it away. He could think about it. It was very concise and concrete and that was important to him.

For Paige, the management value of the A3 was very simple: "Management—they like to see everything on one nice page." Several participants expressed many of the same benefits of concision I discussed in the previous section and related these benefits to their interactions with management.

Luke, the software engineer, saw the benefit of the A3 from a management perspective, but he also hinted at a more critical position. He stated:

> The way I think about it is management wants us to do this so the data they get is neat and tidy and everything they get is consistent. I am not a manager, but I can certainly see their side of things. If they are going to get 100 of these reports, there is some benefit to having them done consistently. But, one might also argue from a development side that management should be able to read any report they get whether it's consistent or not.

Luke was not certain that the value of A3 reports from the management perspective outweighed the structure it forced upon his coworkers and him. He explained:

> I am 100 percent behind a detailed root cause analysis process. I am just against constricting it to a sheet of paper, or any sort of format for that matter. I really think we should use the best tools to convey the information we think needs conveying. . . . We may want to use a lot of pictures for instance. How would you bring pictures into a two page format? If you have several photographs that you want blown up in large detail? We have a lot of manufacturing that goes on here. You could have a five step process and you want detailed photographs along every step of the way. You just couldn't get that in an 11 by 17 piece of paper.

Luke's managers mandated use of the A3 just as the leadership did in Aiden's organization. Aiden recalled his early experiences trying to understand A3 reports:

> What an A3 is, it's just a single piece of paper. We knew that. Basically you want to put your business case on it and clearly define the current condition and the target condition and then the action plan. There are some general guidelines like use pictures instead of words whenever you can. . . . The training was better than the application. What we'd learn in any kind of training was ok, but then when we'd actually create an A3 we'd find that wasn't really what our leadership team was looking for. They just wanted all the information we could get on a single sheet of paper. They didn't know what to look for, so it lost all of its real meaning.

Like Luke, Aiden did not initially see value in the A3 report beyond fulfilling the management desire to see all of the information on one sheet of paper.

For many managers, it was not the paper; it was the process that mattered most in A3 problem solving. Kathleen, who has decades of experience in managerial nursing roles in ER and trauma environments, explained another benefit of the A3 from the management perspective:

> If you are a director, it's nonstop people coming into your office to whine about what's wrong. With A3 you can say, 'I will help you but I want you to fill out the left side and give me all of the background and I will help you get to the root cause and we will work through it together.' It's a really nice methodology to use to get people involved and not just whine.

In Kathleen's experience, the A3 problem solving process was a way for her to channel employee frustration into actionable work.

Aiden was promoted to a management position within the 12 months prior to our interview. Despite his initial frustration about A3 reports, he began to see value in the process over the course of his nearly five years of experience in working with A3 reports. Like Kathleen, he also saw benefit in using the A3 process to delegate problem solving work to his employees:

> What I can do now as a manager is I can assign someone an A3. And I can ask someone to solve a problem that I have no idea how to solve. I can say we need to improve this metric in this direction by this much in this amount of time. I have no idea how you are going to do that, but I need you to go through the A3 process and fill out an A3 on it so you can explain to me how you can solve that problem. In that way it becomes an amazing tool

> because I, without having to solve the problem myself, I can direct someone to solve the problem well.

Aiden placed great trust in the A3 process, believing it enabled his employees to solve a problem in the same way that he would.

Luke, the software engineer, was concerned about the A3 process for precisely the same reason that Aiden valued it. Luke did not understand why managers would trust an employee's summation of a critical problem. He would rather see managers make their decisions after evaluating all of the available data. According to Luke:

> The lazy side of me sometimes enjoys not having to write 10 pages or 12 pages. And also I am sure from management's perspective they like a concise report as well. But that is taking a leap of faith that the person writing the report is going to filter out only nonessential information. . . you are assuming you have the whole picture and you might make bad decisions based on your incorrect assumptions.

Luke was not willing to give away this kind of trust and he voiced some concern that any manager would be comfortable making important decisions without first reviewing all of the available information.

Aiden and Luke had much in common. Both men worked for large manufacturing companies that placed considerable emphasis on technology. Aiden and Luke both had the A3 process mandated upon them by their managers, and in the beginning neither of them liked it. According to Aiden:

> Our company actually mandated that A3s be used in order to propose for capital expenditures. That must have been four or five years ago. Basically,

> they said in order to ask for funding from our corporate group. . . we had to create an A3 to justify expenses. I guess if you really want to know what kind of experience it was, it wasn't very good. The fact that they mandated it meant that no one understood what the purpose of it was. It ended up just being another form that we had to fill out. Basically all that taught me was that you could put four squares on a paper and then you'd just fill in the blanks.

Aiden saw no purpose to the A3 process as it was originally explained to him. It was simply something he *had* to use. Aiden changed his perspective on the A3 process when he began seeking more information about it. According to Aiden:

> Things really changed for me when I read *Managing to Learn*. From that I started developing and going around and saying, this is what an A3 *really* is. This is a mentorship tool. It's not just about getting everything on one piece of paper and moving on. It's about having a mentor or a leader or your boss basically telling you how they want you to solve problems. After that book I did a lot of studying trying to understand it for us so I could improve how to apply that tool.

For Aiden, being a successful manager meant being a successful mentor. Traditional definitions of management prioritize the importance of planning, organization and control. The A3 process gives credence to an alternate management approach, one that privileges guidance and subtle probing in an attempt to educate and inspire right action.

Mentorship as a Management Goal

For Aiden, the A3 is all about intention. According to Aiden:

> The right way to me is with a mentor/mentee relationship as the purpose of the A3. The purpose is what makes it right or wrong for me. If you are using it for the wrong purpose, then it's not going to be used right. And the purpose has to be to develop the individual that's filling out the A3. In that sense, solving the problem is just a neat byproduct of an A3. The reason you use an A3 is to make sure that that person understands what's going on and can understand how to solve problems. If you go into the A3 process and you assign the A3 to someone with the expectation that you are doing this to develop them and make them a better problem solver, then it will be the right way, and you'll figure it out from there.

David felt similarly. In his view successful use of the A3 process required a close mentor/mentee relationship. He explained:

> You definitely want two people to do it. If you're just getting out a piece of paper and saying you're doing an A3 because it is on an A3 sheet of paper, I don't think that's the case. I mean it is a nice thought and it is good that somebody would be investigating, trying to branch out, but I don't think that is something that can be done without some kind of a mentor/mentee relationship at some point.

Aiden, Annette, David, Kathleen, Lori and Gail expressed the importance of the A3 as method for managers to empower the workers within their organizations. Annette recognized that not all organizations are ready to embrace the management through mentorship approach. According to Annette, "It's hard. . . The culture still needs a lot of work. There is a lot of power. They [some managers] don't want to recognize that the people doing the work may actually know the work better than anybody else."

Challenges remain for managers who are supportive of the mentorship approach. Despite the expressed altruism of these managers and their intentions, the A3 process may still be frustrating for some employees. According to Aiden:

> If you were my mentee, you wouldn't know the rules until you come back to me with an A3 and I tell you it's wrong. But that's the whole point. So filling out an A3 by yourself and going through the process without having someone who at least knows what the purpose is, you're probably not going to get to where you want to be.

Managers who use A3 reports express great confidence in using the process to help coach and guide employees, yet there are still challenges with the process.

A3 as Stressful and Constricting

While many individuals relayed appealing examples of mentoring managers, some interview participants expressed difficulty meeting the requirements that management has set for A3 documents. According to Bill, the medical doctor:

> We have pretty strong CFO-type folks that say, 'Don't waste any employee time or your time until you can give me a pro forma.' So from my standpoint I am much more comfortable working with an A3 format because you learn what you need to know before you go to the next step. With our current way we deal with the dollars, they say 'No. You give me something so I can put it into the budget for next year.'

For many individuals, the frustration centered on the actual formatting of the A3 report. According to Luke, the software engineer whose company mandated the use of A3 reports: "It's constrictive. Working within the limitations of Word… making it fit within the A3 sheet of paper is frustrating. . . What it really comes down to a lot of times is people feel like they're spending their time formatting instead of writing down information." Even Monica, a self-stated A3 advocate, recalled some early difficulties in working with A3 reports: "Most of the frustration I felt was trying to figure out how to get what was in my head on paper using the software tools that were available."

Luke saw little benefit to using A3 reports:

> The right way to use an A3? I don't know that there is in my mind a right way to do an A3. From my experiences working with the people who've done them is that this is a tool that is preferred by management. Management likes A3s because they are a consistent format and, and there's a feeling among the development community that A3s can stifle innovation and can be constricting and can be just a difficult format to follow. The thought there is the development needs to provide a report to management about something, whatever the A3 is being used for. And to place a restriction such as it has been be on this piece of paper—Now, the ideas are good. We enjoy that you should fill out this type of information. The way (company) has done it is we have put boxes into our A3 template and we have labeled each one of the boxes and say we need to feel out all of the information, so that's good. It gives us some direction on what we need to fill out, but a lot of times we'd like to add supplemental information that may not fit into those boxes so we

> cram it into the box where it first best. We may want to add more information but it doesn't fit on the page. . . In which case, it becomes difficult to work with in this format. . . My experience is that I don't really think that it's in anyone's best interest for management to dictate the form of the data that gets directed to them.

For Luke, the most frustrating part of the A3 was the constraint it placed on the report development process. According to Luke:

> That really boils down to a large part of my frustration. I realize when I have more information than can fit into an A3 that I would rather just present all of my information. They can have it at their disposal and make highlights of the important stuff for the future. I know that if I were requesting somebody to give a report to me, I would want them to give me all of the information they knew and then I would walk through and pick out what I deemed important. I wouldn't want them to give me the abridged version based on what they felt were the important details.

Luke's frustration centered around the creation of an A3 report as product, a completed report on an 11 by 17 sheet of paper. Aiden, who has made the transformation from A3 skeptic to A3 advocate, experienced similar frustration when he first began working with A3 reports. He explained:

> I get really disappointed in its application. As a tool there can't be anything wrong with a blank sheet of paper. There can't be anything wrong with developing people as a purpose. And there can't be anything wrong with giving feedback. I can't fault anything about A3, but it's such a vague term.

> What I fault often is different people's application of the tool. Like I said, my first experience with A3 is when a leader said you guys will all fill out A3s and they didn't care what the A3 looked like...No one ever looked at it.

Neither Aiden as an A3 proponent nor Luke as an A3 opponent appreciated the focus on the piece of paper as product. Universally, the interview participants agreed that excessive emphasis on the single sheet of A3 paper was counterproductive. In their view, overemphasis on the paper created a damaging situation: the creation of an A3 report in isolation.

A3s in Isolation

One common understanding from the perspective of most participants was that A3 reports should never be completed in isolation. According to Jeffrey, one of the greatest challenges within his organization was getting people to understand that the A3 must be done with a partner:

> Some people said, 'Well go ahead and write the procedure and then we can have Joe go off and do an A3.' And that's when I sat up and said, 'Guys, it's really not that way. That's not how it works. You have to have more than one person involved.' And about that time—I forget who it was, but you'd see in the lean community as they started to recognize that A3 was being looked at by a wider audience—They started to say, 'Well it takes two to A3, like it takes two to tango.' . . . That was one of the earlier things that was somewhat of a barrier for us here to have that understanding that to get the best bang you really have to get two people involved for an A3.

According to Paige, who was originally trained on the A3 process at Toyota headquarters:

> You don't want to do one by yourself. I've seen that happen before where a customer will want one. You want to get it done, down and dirty, to satisfy their requests. Those don't turn out very well. . . because an A3 is really a communication tool. For one person to know what the issue is and fill out the problem, if that's the case then you wouldn't really need an A3. They would know what the problem is and just fix it. If that's the case, then just fix it and don't do the A3.

David recalled his experience with employees who worked through their A3 reports in isolation. He explained a situation of a young employee who was asked to solve a problem of missing parts on a production line:

> At the last place I worked we hired a guy. He was starting to work right out of college as an entry-level leader. . . . When he first started working on the A3, I think he tried to turn it in after about three hours. He said, 'This is what the problem is. This is what we need to do.' I don't think he even talked to anyone. I think he just observed the process for a couple of hours and then came back. I think that is one end of the spectrum. And then, conversely, I had a guy here—Again, he wasn't quite as new. . . It took a really, really long time for him to make a decision as to what the root cause was. Almost to the point that it was stagnant. . . . I think he was more nervous than anything else about making the wrong decision.

The employees in both examples needed to partner with other employees within the organization in order to succeed with the A3 process. David explained that the first employee needed to engage his co-workers in the process, but the second employee could also have benefited from a partner to help coach him through his stagnation.

Lori, the healthcare director, explained further:

> There are probably people who are doing A3s on their own, but we are not encouraging it. Part of what we are really pushing is in order to do this work you need to engage and validate the work with everyone around you. People can start to formulate an A3, at least the left hand side, until you get to the problem analysis and you really need some group thinking around the whys and I think you need some group thinking around what the target condition should look like.

For Lori, the right way to produce an A3 is to engage all of the employees who are going to be affected by the change. Multiple approaches exist that would facilitate the kind of participation that Lori described. Stakeholders from all of the affected areas could gather together and meet in a room to discuss the problem, but the A3 process is different. Monica explained:

> A3s work best when there's one primary author, when it's not something written by committee. That primary author has responsibility for gathering feedback and putting together the initial A3. I encourage people to start showing their A3s to others when they literally might just be working on their problem statement. The rest of the A3 might be blank, and they might just have the top statement but it might be worth going up to somebody and saying, 'This is the problem I'm trying to solve, what do you think?' before you go forward. When I talk about getting feedback, I talk about getting

> feedback very early and going and gathering feedback, consolidating that feedback and the ideas that develop out of those discussions into the A3, and shepherding either the proposal or the knowledge that's been documented through the A3 process, eventually presenting it to the decision makers. If it is for a proposal, who is involved? You have the author and all of the stakeholders who need to give feedback and then you have the person who's ultimately going to decide, if it's a proposal, whether or not the proposal's going to need to be implemented. Sometimes—this actually happens to me quite a bit with my business—I'll ask my assistant to write an A3, but I'm not the decision maker. Maybe we're all the decision maker or maybe it's something that is personal to them and they're going to be the decision maker, and they ask me and I say, 'Well, let's put this in an A3.' There's kind of a requester role.

Aiden saw similar roles in the A3 process. One person is responsible to carry the A3 forward and that individual's goal is to recruit others to help with the process as needed. In Aiden view, "the team is ad hoc continuous," meaning that members of the team are added and dropped as needed. The person who is responsible to lead an A3 forward needs to be pragmatic. He or she focuses on the problem at hand, but engages others as needed to succeed with the work. As David explained: "If you are considering a countermeasure to solve a problem you need to talk to all of the people it's going to impact because you don't know what kind of impact it's going to have on them. You know, kind of along the line of the law of unintended consequences."

Patti, the nurse manager, identified a potential problem with the approach taken by her hospital to manage patient charts, the physical collection of a patient's clinical documents and care records. The charts affected representatives of several different units, but she used the A3 process to draw attention to a more critical concern. Patti explained:

> At the time we were taking all of the guts out of the chart, taking it out of the chart itself, and wrapping an elastic band around any alerts or reminders or any information that needed to go along with that chart. The information that was taped to the front of the chart was peeled off and then taped onto some paper and then put in with this elastic band. It became so obvious how potentially dangerous that was, that we just have all of these things floating around that are important for the chart, but what if they fell off and never got put back on the chart when it went to the floor?... The problem was all of the potential problems that could happen as that chart moved from one unit to another with things just sticking into it and sticking out of it and things taped on. All I had to do was show the A3 to the group of nurse leadership and we all agreed that we needed to transfer the whole chart with the patient and get an empty chart from the floor where we transferred the patient to bring back to the unit. It sounds so simple, but it's just one of those things that you've always done it that way so you don't think about improving it. It was amazing. You'd have this little piece of paper sitting underneath this elastic band that had 'allergy to this,' 'don't do this,' and then it had 'Dr. So and So will you please' and they're all sitting there and if they would have fallen off nobody would have known.

Patti used the A3 process to demonstrate a problematic current state and identify a potential solution, but first she needed to identify the root cause:

> So anyway it ended up being kind of funny because it was pretty simple. It was easy to change. I mean, we did have to order new charts. We'd gotten into this mode of thinking every unit had a different color chart to go with the décor, the motif of the unit. And we decided that that was pretty silly and that we'd all have the same color charts throughout the hospital. That's why people were feeling that they had to keep their plastic chart covers and just send the guts of the chart out because it matched their unit. We laughed about it pretty hard and we were obviously pretty grateful that we were not aware of any major issues that have occurred but the potential was so huge that everybody's mouth was hanging open when they saw it.

Patti's problem was not particularly complicated, yet it had potentially significant consequences for her organization. Patti used the A3 to bring focus to a common occurrence that had previously gone unnoticed. She used the A3 as a tool to persuasively document a potential problem and capture the attention of the nurse leadership team in her hospital. Together they came to a new understanding of a common activity and worked together to create change.

A3s as Discussion Stimuli

The A3 process enables individuals to work as facilitators to help their coworkers further define and resolve their shared problems. According to David, this is a key requirement of the A3 process:

> The right way for me, when I use it, is I try to ask as many questions as possible. . . I am constantly asking questions. . . I want to understand their thought process because maybe I don't have a firm grasp of the problem myself. So I am very questioning in the way I use it: 'How do you know this is the root cause? What other things did you consider? What measuring tools are you going to use to know you are successful? How will you know when you get there?' Those sorts of things. I'm probably somewhat frustrating. I never seem to run out of questions. . . I've had people say, 'man you ask a lot of questions in the workplace.'

Like David, Monica also carried the questioning role with honor:

> What I do is ask really annoying questions. The questions I ask are things like 'Who is involved? Who is impacted? Who are the experts in this field? Who might already know something about this that we can leverage? Who is ultimately going to decide?' There may be some people, but then there is one person who's really going to decide.

A3 facilitators ask these questions for two reasons. One reason they question A3-report-writers is to get to the root cause of the problem and further progress on the path to problem solving; second, facilitators ask detailed questions to determine which organizational members need to be involved with the process. Kathleen provided an example of needing to isolate the root cause of a serious ongoing problem in an operating room:

> I had one OR that every single day, they had eight OR rooms, and every single day, every single case started 21 minutes late. They went and did

> some observation and some analysis and they figured every minute that was wasted was $89.89 of lost revenue for the hospital. *Every* minute times 21 minutes times eight cases a day. The people say, 'yah but they can just do this at the end of the day,' but what happened was at the end of the day they either had to bump cases because they didn't have time or they had to pay overtime which was hugely expensive. So they investigated why there were 21-minute delays and they found all sorts of things they could fix. And they wound up saving $1.3 million. This was a 50-bed hospital, just changing the OR start time. But they had to find out why, first.

A3 practitioners use the A3 to define the problem and continue through the process to resolve the issue by working in concert with others.

A3 as Consensus Builder

For participants, the A3 was used to guide discussion. The professionals I interviewed set high expectations for their communication outcomes as they worked through the A3 process. According to David:

> The A3 form itself is—Toyota started using it because they wanted concision, but Toyota also espouses—Are you familiar with the concept of nemawashi? Consensus building?—Well, that's embedded in their culture. They know they have to build consensus before they can put together a countermeasure or solution. I'm not sure that we necessarily have that engrained in our culture. In fact, I am positive that we don't. So if you're talking about just communicating all reports in A3 format just for the sake of being concise without the engrained culture of the nemawashi, talking to

> people and gaining consensus on this, you probably aren't going to get the full benefit that you would have otherwise.

According to Aiden:

> It's a consensus building thing. What we end up with is either better than what I thought—and sometimes we've got to compromise, right? My perspective is one way, but we've got to figure out a solution. So it is pretty rare that I go in with one perspective and then I come out with that perspective. It usually sends me in a new direction. It changes us; it changes me professionally and personally in that I try not to, very purposefully, think about what I think the solution is. I try not to have a mind to change. I try not to even think about what I want to do because I know it'll mess things up if I do.

The focus on consensus was not intuitive for many of the interview subjects. Several of the interview participants commented that the A3 process has changed their approach to communication in ways they did not expect.

A3 as Boundary Object

Many of the participants were responsible for key business processes within their organizations. Some were managers, but all of them had a high stake in the success of their respective organizations. These individuals are pragmatic and much of their focus is on achieving successful outcomes. For many of the participants, the A3 process has fundamentally redefined their approach to problem solving. Aiden explained:

> Before, the team was the engineering team, the quality team, the operations team. We've got the maintenance team. So everybody's team centered about

> their function. When you do an A3, you are building a team where function is irrelevant. The problem is all that matters. And you bring everybody together that you can to solve that problem.

Aiden described the A3 as a boundary object, a document that organizational actors from different functional areas can use to discuss the full dimensions of their problem.

Aiden detailed how A3 problem solving in a cross-disciplinary team helped to create a solution to an ongoing organizational struggle. Many individuals had a role in the process, but few were willing to take ownership of the issue. Aiden was asked to facilitate meetings on behalf of the IT group and create an A3 on the process of getting computer hardware and software delivered to employees in the plant. The process was long and difficult, a key frustration for many employees. According to Aiden, "The perception of the entire plant is that it was slow. . . . It takes months to get a computer at somebody's desk and it was ridiculous."

In Aiden's organization, the IT group was held responsible for this frustration since they were the group that delivered the computers. Aiden explained further:

> Buying computer equipment is very simple to anybody that has a computer, but when you try to standardize it across it 2,000 people, it gets a little more complicated. Buying computer equipment isn't even something you even need IT for, necessarily. It's a purchasing thing, an acquisition. You have to budget for it and all that stuff. All of these things would affect IT's ability to get you a computer...We got three or four groups together that all had a hand in approving and then shipping and delivering a computer to an office, or software. We got them in a room and starting asking, 'Why do you care

> about this? Why should the business care about this? What is this costing us?'…And then really going through and filling out the current condition. These are all the things we have to do in order to get that computer to a desk. I asked, 'I have somebody who needs a piece of software. What does she have to go through to get this?' There were like 20 ridiculous, stupid steps in order to get that piece of software the person obviously needs. By doing that we were able to bring all of these resources together. None of them felt like this was their problem until they saw that 'hey, I actually do have a part of this problem'…everybody understood real quickly that this is what we need in order to build consensus on it. With that current condition they were able to develop a new target condition. And then you've got resources from all these groups that matter and see for the most part that they have their hands in it…"

In Aiden's situation, the first step in improving the IT process was recognizing the involvement of other groups. Spreading ownership of the problem across several functions allowed each representative to see how he or she could contribute to a solution.

Patti experienced a similar situation within her healthcare organization. She initially perceived the A3 as a tool to resolve the relatively straightforward process concerns of the frontline staff. As she gained experience with A3 problem solving, she identified a greater significance of getting people involved across disciplines:

> One problem is that all of our areas in healthcare are so interdependent on each other and so related that it is never as simple as step A, B, C and D, and what you find as you get deep into a problem is you have multiple,

> different departments that are involved. And you don't have ultimate control over those other departments to make a change in those departments. A3s are supposed to be real big time savers. Push it to the frontline. They solve the problem immediately. The reality is in healthcare there's so much interdisciplinary, interconnected, interdependence between other departments, for example, the lab, or pharmacy or blood bank or whatever that once you make that original observation you end up needing to sit down with those different departments involved and allow them to make that same observation so everybody sees what's going on that's invested in that. That can sometimes be a little bit time consuming. We've been solving problems, or trying to solve problems, without A3s for a long time, but the reality is the A3 really gives you a way of visualizing and really getting to the root of the problem. All too often we are just content to slap a band-aid over the top of the problem and feel like we have it solved for now, when in fact we haven't solved anything. It just comes back and sort of raises its ugly head time and time again and again. An A3 can be helpful in identifying the root of a problem.

In Patti's experience, the A3 process helped to solve complex, cross-functional problems. The A3 problem solving process helped her organization to have richer conversations about the root cause of their problems, enabling the organization to create deeper, more fundamental change rather than apply simple, short-term "band-aid" fixes. Paige found a similar situation within the technology company where she works: "If I do an A3, it is definitely going to be cross functional because I don't think there's a problem out there that is not. I'll bring in anybody that I need to, like subject matter experts, anybody that can help me."

David attributed his improvement in cross-disciplinary communication directly to his experience working through the A3 process. In answering a follow-up question I asked him regarding how working with A3 reports had affected his teamwork, David explained:

> I would say ten years ago, I wasn't talking to people across disciplines. The A3 encourages you to get outside of your comfort zone. It's probably not normal for people who don't rely on this methodology, but for the people who have embraced it, it is probably very normal.

Like Aiden, David recognized the value in seeking input from individuals from different functional groups. Inherent in this value is a strategic factor as well. A3 facilitators are pragmatic; they use the A3 to reduce "pushback" by creating "buy-in."

A3 as a Tool to Facilitate Buy-in

Aiden told of a situation when he had already determined his preferred course of action at the beginning of a new A3. He explained his rationale for continuing with the process anyway:

> We did a case study on defining inventory between two processes...There was really no control over our inventory at that stage. So we went in and did that A3 and the idea was that we needed to increase the quality and reduce the amount of inventory we were holding on hand so we had to create connections between these processes. I think the reason what I thought ended up being what was right was because I went in having experience with dealing with very close to the same situation before. I had a very clear

> understanding of what condition needed to be and I think for the most part my role was to get the team to agree. The A3 at that point became a tool for me to get the consensus on how to do it. I was, 'Do you understand this is a mess?' By developing the A3 from scratch and explaining it, I was able to get the team to agree...This is what I had known the whole time, but if I had skipped that current condition and doing all that analysis with the team, it would have never have worked. They would never have believed me. We could have implemented it, but it would not have sustained for more than a few months.

Aiden was as sensitive to the needs of his coworkers to express their opinions as he was to the realities of human nature. He successfully implemented his change by allowing others to feel they had just as much stake in the process as he did. By concealing his position, he gave others the opportunity to influence the issue.

Patti saw benefit in the converse of this rule. She has found success using the A3 process as a way to increase her influence. She believed the A3 process helped her to communicate more persuasively with management. According to Patti:

> It helps you to go and look back and quantify, 'How many hours did this take? How much time did this take? Can that be translated into dollars?' When I go to administration or whoever, arguing for this thing I want to do, I have some financial information under my belt. I've got some time and motion information under my belt. I've got some patient outcome information under my belt. And it gives you that information to share with whoever it is that gets to make that final decision.

By arming herself with key information on costs, time and outcomes, Patti shows herself as knowledgeable and prepared. She found she had greater influence in communicating with the management team.

Gail recognized value in using the A3 as a tool to communicate with management, but she was more interested in how it helped managers facilitate the process of gaining agreement with their employees. Gail explained:

> I say this to leadership all the time: 'What are you thinking? You were dealt this dirty deal for thirty years.' People think that you go into the boardroom and make smart decisions about work that you are not even remotely intimate with. Meanwhile all those people out there who are doing whatever you told them to are rolling their eyes and going, 'Oh my God, I know that's not going to work. If he ever came out here and did this job, he'd know it would never work either.' It turns that around and it takes the responsibility of the leader *off* the leader to make the good decisions and it mines the good ideas of the talent that they hired for. It's kind of crazy that it ever happened the other way that all of the decisions happened inside the boardroom instead of out where the work happens.

Annette explained succinctly: "Always, *always*—a must have—is the people that are doing the work *have* to be on the team. . . You don't have outsiders going in and solving somebody else's problem. . . If you don't get the workers involved, you are just setting yourself up for failure." As conceived by Gail and Annette, the A3 process improved managerial effectiveness. In their view, when managers delegate aspects of the work to frontline employees, the managers make better decisions and gain more respect from their employees.

Lori gave an example of an A3 process gone wrong. Some individuals within her hospital failed to get buy-in early enough in the process which later created problems for the organization:

> One of our central supply techs was looking at how to streamline the stocking and how people came down and got supplies from our central supply area. She came up with some great ideas to limit access and change the times of day when the people that were stocking supplies up on the floor could access the central floor area. I think she alerted her manager to it. But she ended up getting a lot of resistance from her coworkers because she hadn't fully involved them or the manager. That was one where the manager said, 'gosh I wish I would have gone through the course with her.' The manager is very supportive of what she came up, but it was really difficult to sell to the rest of the team because it hadn't been fully endorsed all the way through.

In this situation, the tech's coworkers felt they were getting a solution pushed on them, and they resisted. The tech failed to create buy-in prior to introducing her solution and according to Lori the tech is still struggling to implement her change. Buy-in is a key concept. Paige relayed a light moment she shared with her boss as they discussed how to work cooperatively with another group. Paige shared her boss' words: 'It's just human nature. They could have the best problem solving process in the world, it could solve world peace, but if I wasn't in the room when they made it, boy, I'm not going to like it.'"

The concept of buy-in is important in peer to peer communication. Pushing an agenda without management buy-in is even more precarious. Lori explained a negative consequence that occurred after the "report out," a presentation given to leadership by various frontline staff regarding their progress in completing A3s:

> We have the report out where people share their A3s with leadership. And we have had a couple who have shared either some data or some process that leadership had no idea that the data was as bad as it was or the process was as screwed up as it was. That's been just kind of a challenge. You don't realize that we've had x number of inspections for example. The director of the department was like 'I had no idea.' The manager knew, the person doing it knew, but somehow we had forgotten to fully communicate it up the chain so it was a bit embarrassing. In another case we had things that were being filed alphabetically and then worked alphabetically when it really needed to be filed and worked by the date. And that was kind of, 'why were we doing that?' That was a silly process to work things alphabetically when it is time sensitive, when it really needed to be worked first in, first out. And to have those shared in that public report out was a little bit embarrassing. That's one of our improvements moving forward is to say before a report out we really need to have a report out to the immediate supervisor and the manager so that there are no surprises.

Lori's situation details a fact of reality for many employees. The opinion of management matters and it is never a good idea to make the boss look bad (even inadvertently). Throughout the interviews, issues of power rarely emerged. Power was addressed explicitly by Gail, Kathleen, Annette, and Aiden, but their suggestion was that the A3 process is an opportunity for managers to empower their workers and delegate authority. These individuals advocate the "communitarian" approach chided by Alvesson, Kärreman, and Swan (2002). The situation that Lori recounted is a reminder that power differentials are a key reality within organizations of all sizes and types.

One benefit of power and authority is the ability for managers to direct their organizations as necessary to focus and grow in good times and overcome challenges when difficulties arise. David detailed an experience where the A3 was beneficial to management in order to get the organization aligned together and working toward one goal. According to David:

> Before we started using A3 in that regard with my previous employer, they had gone through a long spell with no profit sharing; costs were running rampant and we had an overall lack of ability to meet objectives. In around 2004 when we started our lean transformation, we really started to align our objectives and our tasks to those company goals. Our activities became much more focused and much more concentrated. We were working on the right things for a greater portion of the time. There is a book by, I think it's Pascal Dennis, called *Getting the Right Things Done*. That's along the lines of Plan Do Check Act management—again, in an A3 format. It was very valuable to us as far as making sure we were working on the right things that we needed to achieve company goals. We started hitting quarterly profit goals and paying out profit sharing to employees. Management was able to see the direct benefit of our efforts as far as reducing waste from the

> manufacturing process, why we were doing the things we were, how we decided to work on the tasks and objectives that we were as it related to the profit sharing goals. I think it made a big impact on the profitability of the last employer, making goals and objectives transparent, posting it so everyone could see it, and aligning everyone towards that common goal.

David's example of the A3 as an alignment tool reflected the potential power of the A3. David's former employer used the A3 in a similar way to what Aiden's organization is doing now, using A3 reports in series (cascading A3s as stated by Aiden) to communicate company-wide objectives. Aiden explained:

> Our objective right now for our company in order for us to stay in business is to reduce our costs of quality by 80 percent over the next three years. It's an enormous number. So right now it's a huge deal and very dramatic. We don't even know how it's going to work. It's all being managed by A3s and cascading A3s. There's probably 50 A3s associated with that goal. One A3 describes how we are going to meet that objective. We all understand what the goals are and they are going to allow us to reduce quality in order to manage a lot of systems without a lot of levers. Some of them are project A3s. Some of them are proposal A3s. In that sense it is an aligning tool that we can all understand. We have a very clear message for what our goals are as a team. It's not a great example in one sense because it's not done yet . . . It's a BHAG, a big, hairy, audacious goal.

In this sense organizations are hopeful that A3 reports can deliver accomplishment.

A3 as Accomplishment

The interview participants told me many stories of how the A3 process had impacted their organizations. As professionals, the subjects were interested in "bottom line" results. In many cases, results meant action and the resolution of minor and major problems. Gail relayed an example of a critical process concern:

> When we started looking at it, there were like seven ways you could order lab work. And for every way you could order it, there were that many ways for it to fail. It could get missed because somebody didn't order it through the computer. Maybe they could order through the computer or they could stop the guy in the hall and say, 'I need blood work on the guy in room three,' or they might put a sticky note on their monitor on their computer, or do a paper requisition and then leave it on the counter. There were a million ways that you could order lab work, not all of which worked very well. We kind of got into this habit of trying to accommodate everybody or just get the work done and not really think about the best way to do it, or standardizing and clarifying for everyone the best way so they could be supportive of that. What happens when lab work doesn't show up for a trauma patient in the emergency department is that people are spending time on the telephone or trying to find the lab tech, or trying to find the results, or calling around to confirm that it was done. A lot of redundant work that doesn't add any value to the patient. So the patient is sitting there waiting while we are trying to figure out where are the lab results. Was it drawn? If so, was it lost? Was it the right patient? That's one of a million processes that go by every day in the hospital.

Gail's comments communicated the urgency of receiving accurate lab results in a timely manner in the ER. Her use of the term "value" further highlighted the "bottom line" necessity of the situation. For A3 report users, the problems are the central concern. The A3 process is a tool to facilitate action and craft a successful response to a problematic situation.

Problem solving is an important aspect of A3 reports. As discussed earlier, many A3 users support getting to the root cause of an issue; yet, it is the "solving" portion of problem solving that most excites the A3 users. Jeffrey explained:

> You think about it, and you know, we collect all kinds of data. And if you aren't going to do something with it, if you don't have a plan for it, you really shouldn't be collecting it. And, you know, some people will get into circular logic in that thought process, that, 'Well, if we know what we are going to do with the data, we don't need to collect it because we already know what's going on.' No, you need to collect it. You need to confirm what you think is happening, what your model is or whatever the situation is. And if that data isn't helping you anymore, then you need to look and say, 'OK, what data will help me and how am I going use it and turn it into information?' You think yourself out of collecting the data just because you know how it's going to turn out, but chances are it's not going to turn out the way you think it is. I know here and in other organizations I've worked with, data collection happens all the time. But doing something about it, analyzing it, and taking action on it, doesn't.

Jeffrey's definition of knowledge could easily be summarized as knowledge as accomplishment. For Jeffrey, information is useless until it is incorporated as part of organizational action.

Kathleen explained an unlikely use of the A3 in the case of a hospital security guard who frequently had to investigate situations where patients had lost their false teeth. In Kathleen's environment the A3 education process often involved doctors and nurses, but also included employees from the lab, housekeeping, maintenance, and security. The hospital security guard was given the opportunity to conduct an observation. He was directed to observe a process and take notes on a subject that mattered to him, but cautioned not to get involved until he could formally work it through the A3 process. According to Kathleen:

> He decided that lost false teeth was his pet peeve so he went and looked and he realized that all the beds in the patient rooms were set up for a right handed person. There is the bedside table and your little nightstand and the trashcan all on the right side. And what he realized is if some little old person is taking their false teeth out at night and they go to put them on their nightstand and they fall in the trash, nobody sees it because the cleaning people come at night, take the bags out of the trashcan and they're gone. And he just said, 'Let's try moving the trashcan on the left side of the bed. That way, if they miss the bedside table and the teeth fall on the floor, we will see them. And it worked, something very simple.

The case of the security guard and the missing false teeth is a very simple problem indeed, but it underscores the use of the A3 as accomplishment.

Kathleen provided another example of a complex situation in which the A3 was used to brainstorm a creative solution to a critical need. Kathleen explained:

> There was a hospital in California, and they were building a brand new ambulatory care building for outpatient appointments. The two biggest problems in most of healthcare, universally, are finding parking and finding your way to where you need to go. They decided this was a problem they wanted to work on. They were brainstorming in the class and they said the problem is there was no place to park. Someone said, 'Well, there is a parking lot near that building but anybody can park there.' Then they started brainstorming: 'Why can anybody park there? Well, it's not designated specifically for ambulatory care patients.' 'Well, why not?' 'Because we've never done that before.' So the countermeasure was 'let's designate that for ambulatory care patients.' Then they said, 'how are we going to do this? What is the implementation plan?' And someone said, 'well if we put a fence around it and people have to get through a gate to get in; they can, if they have their hospital card—it has a bar code on it—they can scan the bar code. And if the computer recognizes that they have an appointment—because it goes into the system the gate will open—and they can have a parking spot and someone else said, "Well if it can do that and it has the barcode, why can't it preregister the person?. . . And then we have a little desk by the door, somebody saying, 'Has anything changed?' and if not you go right to your appointment. And then someone else said, 'well but then they still don't know where to go. So can we have it print out on a little

> sheet of paper like you get at your ATM machine at the bank, but it gives you directions on where you need to go for your appointment?' So it was the coolest thing and they were just brainstorming what they want it to look like if they came in for this appointment.

The group took the two issues of parking and way finding and used these problems as stimuli to generate a creative solution, demonstrating once more the concept of knowledge as accomplishment.

Summary

The interview participants shared many examples of how the A3 report served to structure the process of organizational problem solving and create knowledge-accomplishing activity. In analyzing the data I generated on A3 reports through my discussions with the participants, I categorized and presented several themes that emerged through this study.

The A3 report structures communication in multiple ways: the A3 promotes concision in problem identification and presentation, facilitates discussion and consensus, centers employee-to-management and management-to-employee communication, and facilitates accomplishment. The A3 structures how, how often, and with whom A3 users communicate. In this way, the A3 "creates channels of communication among practices" (Wenger 1998). The result of the A3 process is often accomplishment. In structuring communication in such a way that A3 users can isolate problems, focus conversation on the root cause of each issue, and establish agreement with individuals from across the organization, the A3 meets the salient test of knowledge accomplishment. As Kuhn and Jackson (2008) wrote, "Accomplishing connotes the performance of pragmatic action geared toward a sensed deficiency (or threat) in capacity to act" (p. 461). The A3 process focuses attention on organizational deficiencies. The result of the A3 report is often pragmatic action; the A3 process *does* something.

In the final chapter of this work, I will address the research questions in detail and share the conclusions of this study. I will share the potential impact of this study on the field and recommend areas for further research.

CHAPTER 5. CONCLUSIONS

A universal tension within organizations is the need to provide balance between stability and change. The organization needs some level of predictability to strategize effectively and undertake right actions, but change is often the key to responding to unforeseen challenges. The organization needs to be stable and "organized" in order to function well, yet it needs to be nimble in order to respond to unpredictable and indeterminate situations.

For A3 report users, the A3 is a communication tool that constrains information (concision) and enables knowledge production in social ways (discussion, consensus). Above all else, the A3 is valued because it takes organizational representatives from diverse practices and brings them together to take action on organizational issues (accomplishment).

The benefits of the A3 are to assist organizational actors in identifying problems, isolating their root cause, streamlining the problem-solving reporting process, enabling concise presentation of results, and promoting understanding, alignment, and consensus. The A3 report helps to bridge communities of practice, facilitates understanding between employees and management, and most important, helps organizational members solve problems though the knowledge sharing process of accomplishment.

My interests in undertaking this work were to examine how the A3 report changes the way people communicate. My goal was to determine how and in what ways the A3 report serves to structure the organizational problem solving process and create knowledge-accomplishing activity.

The professionals I interviewed in this research viewed the A3 as consequential to their organizational processes. In the final chapter of this work, I address the A3 as it relates to the scholarly concerns of knowledge as a result of communication (though social interaction and practice) as well as its implications for knowledge management and its role in facilitating knowledge accomplishment.

The Knowledge Spiral and the A3

The A3 report facilitates the knowledge spiral as presented by Nonaka and Takeuchi (1995). Through the A3 process, internalized tacit knowledge is socialized, externalized, combined, and internalized. A3 users express their opinions, sharing and socializing their (internalized tacit) knowledge. These ideas are reified and made explicit by the A3 users through the action of documenting them on the A3 sheet of paper. At this stage, where the internalized tacit knowledge is made explicit, it is closer to information (knowledge as object) than at any other point in the process. The information on the A3 sheet of paper is shared across the organization (combined), and through the consensus building process known as nemawashi, the knowledge is internalized (operationalized) as new organizational knowledge. The A3 is a tool through which organizations can repeatedly activate the four different types of knowledge processes as identified by Nonaka and Takeuchi. Through the spiraling of sympathized knowledge, conceptual knowledge, systemic knowledge, and operational knowledge, the A3 process creates new knowledge.

Nonaka and Takeuchi developed a critical foundation in the understanding of knowledge and knowledge management, but they did not account fully for the communicative processes inherent in the knowledge spiral. Through their identification of several types of knowledge, Nonaka and Takeuchi only hint at the communicative elements of knowledge production.

The professionals I interviewed in this research were universally concerned with results. In their view, the A3 report is a tool to get something done. The concerns of most of the professionals reinforced the definitions of knowledge and knowing through the pragmatic (and communicative) ideal expressed by Kuhn and Jackson (2008). In their view, knowing and knowledge flow as a response to problem-oriented action (Kuhn & Jackson, 2008).

I call attention to this "interactive character of knowing" to reveal a key insight of this study (Kuhn & Jackson, 2008, p. 476). The professionals that I interviewed voiced varying levels of praise and disdain toward the A3 report. Some, like Monica and Aiden, had views that changed over time. Universally, when the professionals relayed situations and stories that recognized the A3 as a method to respond to an indeterminate situation or to facilitate action in response to a problem, they saw value in the A3. The individuals who expressed frustrations with the A3 were focused on the documentation aspects of the A3 report. A3 users who objectified knowledge as information saw little value in the activity, labeling it as "stifling" and "constricting." In their view, the A3 process stopped at the reification stage, what Nonaka and Takeuchi label as externalization. A3 users who continued through the knowledge spiral expressed a practice-oriented view of knowledge as accomplishment. These users viewed the A3 as liberating. Many of the professionals ended their stories with comments that their solution was so "easy" and "simple."

For many of the professionals, the A3 report serves to connect practice with practices. In Wenger's (1998) view, practice is the "source of coherence within the community." It is the where and how (the gemba) of learning. For many of the A3 users, the A3 process creates coherence though the engagement of representatives from disparate communities of practice, literally connecting practice with practices. The A3 report serves as a tool, in the sense of Engeström's activity theory, around which the conversation over meaning can occur. To use the language of Kuhn and Jackson, the A3 report isolates a struggle over meaning (problem) and creates a focal point around which members can build consensus on an approach to instrumental action (knowing). As Heaton and Taylor explain, "Knowledge. . . arises in work through the intelligent practices of collaborating organizational members as they resolve the challenges they confront in dealing with their environment (2002, p. 230). The A3 has value and meaning when it is used as a tool to facilitate "knowing" and knowledge as accomplishment. When the A3 is used merely as a tool for documentation, or in isolation, it short circuits the knowledge spiral and creates frustration for all involved.

The Role of Management in A3

The A3 structures a unique position for management. In one sense, the subjects continued to defer to the power and authority of management. Countless stories relayed the idea that management is responsible for overseeing budgets and making decisions; yet, many of the subjects I interviewed *are* managers. In their view the A3 is a way for them to redistribute responsibility and promote individual action for their employees. This approach to the A3 reflects some of the more communitarian views of management as expressed by Heaton and Taylor (2002) who suggested managers as bridge-builders, Nonaka and Takeuchi (1995) who proffered the middle-up-down approach to management where the manager served as a facilitator or catalyst, and Iverson and McPhee (2002) who called for managers to cultivate knowledge through the processes of articulation, collaboration and celebration. Each of these descriptions focuses on the role of the manager as being supportive rather than domineering and controlling.

Many of the stories the professionals shared described the A3 as a tool to empower frontline workers. Patti, Gail, Annette, Lori, and Kathleen's explanations of their work in healthcare explicitly reflected Iverson and McPhee's (2002) position on the self-management of communities of practice. For these individuals, healthcare was a specialized field and the managers were too far removed from the process to effectively direct the work. They rationalized that because of the specialization and complexity of the work, managers must delegate authority to garner accuracy and validity in proposed solutions. The second expressed reason to involve frontline workers is to gain compliance and create buy-in for organizational practices.

In conceptualizing the manager as authoritative, powerful, and hierarchical, Alvesson et al. (2002) suggested a disconnect between much of the knowledge management literature and management in practice, arguing that the "organic" and "communitarian" approach taken by many researchers is "antithetical" to their (Alvesson et. al.) definition of *manager*. Alvesson et al. viewed the manager as "an agent with considerable authority and discretion, grounded in a formal position, and with an asymmetrical relation to nonmanagers" (p. 286). The A3-using managers I interviewed would agree with the Alvesson et al. definition of management, but they purported to delegate their authority away. The example in Lori's hospital of the managers who gave their frontline employees latitude to solve organizational problems—until the resolution of those problems reflected poorly on some of the managers—reveals that power is still power. The manager remains in control. While A3-using managers may appear to give away some aspects of power, a power differential still remains between frontline workers and management.

Many of the professionals I interviewed would likely agree with Wenger's explanation of the top-down approach to management. According to Wenger, "Localizing decisions is a one-way process of alignment. It privileges the perspectives of those who define procedures and hides the knowledgability of those who apply them" (1998, p. 261). The A3 managers who recommend delegating authority seek to reverse the trend in Wenger's statement. The A3 management philosophy seeks to reveal the knowledgability of those who know the work best. This redistribution of authority is likely why the application of the A3 process helps resolve long-standing organizational problems. The A3 process may structure communication to promote the sharing of ideas across the power lines, but power remains an organizational reality. Some organizational actors' positions are still privileged, and as this study reveals, those privileged positions are likely the positions of members of management. A3 managers may delegate power allowing frontline employees to tell the story from their point of view, but if that story conflicts with the manager's perspective, the manager has the choice to re-privilege his or her perspective.

The benefit of the A3 process is that it grants frontline employees the ability to expose a problem in their work. They have the opportunity to bring forth issues of their concern, to engage others in the discussion, and to participate in the process of organizational change. This is a significant gain for nonmanagers, even though the decision making authority still lies with management. Many individuals indicated through their stories that this ability to "have voice" and to tell their story was enough to create satisfaction amongst employees. Having a stake in the process and an increased ability to influence management was enough for many of these individuals to feel they were being heard. These individuals perceive an increase in influence, control, and involvement. In this way, the A3 process provides a positive restructuring of employee and management relations.

The A3 process redistributes expectations for who gets to be the "keeper of the expertise" (Barley, 1996; Heaton & Taylor, 2002). The A3 process seems to balance the hierarchical tension that Heaton and Taylor address as potentially damaging to manager legitimacy in the knowledge-based organization. The A3 process seems to be a method for managers of knowledge-based organizations to implement Heaton and Taylor's recommendation for managers who direct employees who possess technical expertise of a different or more specific nature than they do. The A3 process gives employees greater voice, flexibility, and authority to navigate within the organization and share their perspectives. These non-managers gain the power to investigate problematic situations and present their findings to others. In this way, the A3 report helps nonmanagers perform a key managerial role as conceived by Cooren, Taylor, and Van Every (2006):

> a role that consists of taking into account the different communities of practice that constitute their organization: to, in effect, referee which accounts (or texts) are given precedence. The manager's role therefore has to be conceived as integrative: observing and reworking in conversation the many different accounts originating from various communities of practice to synthesize what can be considered by members the organizational text or an

> account. The leader must… manage differentiation in the search for integration. (p. 13)

In gaining the power to cooperatively and productively vocalize problems within the organization, the A3 seems to facilitate shared responsibility across boundaries. For organizational actors, the first cross-boundary responsibility is to address organization-wide problems, and the second is to include others in the process. Rather than giving into the ambiguity of indeterminate situations (Kuhn & Jackson 2008), the A3 allows individuals to take ownership when they see a problem. These organizational actors have ownership to observe, to bring others into the process and to propose a solution. This role is a persuasive and potentially powerful position.

The A3 process structures the organization in significant ways. The A3 process encourages individuals to reach across the boundaries, helping to overcome the barriers that exist as a result of formal divisions of work or existing practices. The A3 report users establish connections through the negotiation of their joint enterprise and work together to accomplish knowledge. The A3 is impactful because of its ability to structure organization in ways that promote problem solving and accomplishment.

The A3 process helped the professionals transcend boundaries. Through boundary spanning, employees transcended the competiveness and blame that can often result from heterogeneity in the workplace. Because the A3 process brings value to diverse perspectives, organizational actors may have less need to deliver "assertions of expertise" and "validate personal knowledge against that of others" which Kuhn and Jackson (2008) wrote is so important in many organizations (p. 473). This boundary spanning is a recognized method of creating new knowledge (Carlile 2002, Wenger 1998).

The A3 report serves as an enabling context, which is, "determined by the participants and can be changed easily… Instead of being constrained by history, an enabling context has a here-and-now quality—and it is this quality that can spark real innovations" (vonKrogh, Ichijo & Nonaka, 2000, pp. 179-180). The A3 process structures communication in a way to promote organizational multivocality and help form the "community of communities" as expressed by Brown and Duguid (1991).

The A3 as Knowledge Accomplishment

Pragmatic action around problematic situations is the key to knowledge as accomplishment. The action must be coordinated within the scope of the organization's reality for it to be enacted. Brown and Duguid (1991) echoed the Weickian concept of sensemaking in their representation of enactment. In this way, enactment promotes *ringi*, a careful set of consensus building negotiations in which different viewpoints are considered and accommodated. To "ring true," ringi must meet a unified, organizational standard of narrative fidelity.

Boje's concept of *antenarrative* described, "a sensemaking to lived experience. . . before coherence is rendered" (2001, p. 4). In Boje's view, meaning within organizations is contextualized and highly fragmented. The antenarrative is a way to illustrate the process of sensemaking *before* sense is made. The A3 process helps to facilitate this birth of coherence in real time (the "here and now" of vonKrogh, Ichijo, and Nonaka). The A3 provides structure to the disparate organization and helps promote organizational constitution.

McPhee and Zaug's (2000) concept of the four communication "flows" of membership negotiation, reflexive self-structuring, activity coordination, and institutional positioning are central to the communicative constitution of organization. The A3 creates new organizational qualifications for membership negotiation, often widening the organizational net to span previously existing boundaries. The A3 process has many "rules" and practices that help organizational actors structure themselves and their activities. At the conclusion of the process, the A3 is used to secure institutional resources and position particular projects. The A3 is a gathering place, or *ba* through which organization is established. Organizational actors who participate in the process (who fully complete the knowledge spiral) are brought together as organization and *in* organization through the communication processes that are structured through the A3 report process. The A3 process helps to facilitate a performance of pragmatic action that produces knowledge accomplishing activity.

The A3 report has many dimensions relating to communication. The A3 process facilitates discussion and consensus, or nemawashi. A3 reports contribute to knowing and knowledge accomplishment through their focus on pragmatic action. A3 reports structure communication, and consequently organization, in significant ways. The concision of the 11 by 17 paper size serves to constrain and focus attention on a specific problem. The discussion and *nemawashi* enable organizational actors to span their traditional boundaries and engage in the knowledge spiral. Through this process knowledge is shared, made explicit, networked across the organization and operationalized. Organizational use of the A3 process serves to continually re-activate the knowledge spiral creating an organizational atmosphere that promotes engagement, creates repertoire and facilitates negotiation.

The A3 process structures the organization in significant ways. The constraining and enabling aspects of the A3 process help organizations to uniquely balance the tensions between stability and change. According to Brown and Duguid:

> Large, *atypical*, enacting organizations have the potential to be highly innovative and adaptive. Within an organization perceived as a collective of communities, not simply of individuals, in which enacting experiments are legitimate, separate community perspectives can be amplified by interchanges among communities. Out of this friction of competing ideas can come the sort of improvisational sparks necessary for igniting organizational innovation. Thus large organizations, *reflectively structured,* are perhaps particularly well positioned to be highly innovative and to deal with discontinuities. (p. 54)

The A3 process facilitates organizational enactment through the structural realignment of organizational actors from across different boundaries. This structuring is key to demonstrating both practically and theoretically the communicative constitution of the organization (CCO). This structuring may be the enduring legacy of the A3 report. Management fads come and go, but the A3 appears to have significant implications for organizational problem-solving provided that the A3 is properly implemented.

Limitations

A limitation of this study is the limited number of interviewees. While qualitative methods do not focus on questions of validity in the same way as quantitative approaches do, qualitative work should reveal insight and further understanding of particular phenomena. The narratives expressed by the interview participants were consistent. I used negative case analysis to provide further validity to the study.

A challenge in this study was securing participants. Companies do not publicly promote their internal operations so I needed to convenience sample the interview subjects from the online communities where A3 users gather. The individuals I interviewed were generally well informed on the A3 process. Many of them expressed their desire to further understand the A3 with the goal of helping their organizations reach goals of operational efficiency. In this research, I interviewed people with diverse perspectives on the A3 report ranging from A3 advocates to skeptical individuals who had the A3 mandated as part of their work.

Further Research

This research contributes to academic literature as a specific case of knowledge theory. This study reveals further application of the knowledge accomplishment paradigm and sheds additional insight on foundational knowledge management concepts such as the knowledge spiral. This study contributes to communication research as an additional application of the structurational approach revealing its implications for understanding organizational communication in practice.

These findings stimulate additional areas for research. The A3 report is relevant for study in a number of significant ways. Since the A3 process originated in Japan, what are the implications of implementing its use in the United States? What variances could be made to smooth the implementation process as this innovation continues to diffuse?

From a knowledge management perspective, there are a number of areas for further research. This study raised awareness of some of the critical implications of A3 reports, but more research is needed. What are the implications of a study in which the interview participants are comprised solely of nonmanagers? More research needs to be conducted on the implications of the manager as mentor role. How does the emphasis on mentorship affect employee and management relations? What are the implications of conducting this type of study ethnographically? How does the A3 report structure communication within a single organization?

Summary

Communication is vital to the constitution of organizations. Communication facilitates the processes though which people come together as organizations and in organization. Organizational actors prefer to work in stable and familiar environments and they naturally cluster with the individuals with whom they share similar activity, or practice. By their institutional nature, organizations create organizational borders that set expectations for who can do what, where. Organizational hierarchies vary in their complexity, but organizational boundaries often set expectations for who can do what, when and where they can do it, and with whom they can talk about the work. This organizational framework provides structure and stability.

Knowledge-based organizations value that structure, but seek ways to suspend the rules on occasion and to bring together talents from diverse practices. Management in these so-called modern organizations requires a new set of strategies that focus on developing individual employees into the larger "community of communities" as described by Brown and Duguid. Within knowledge organizations, managers are no longer perceived as the masters, or keepers, of the expertise. Nor do they wish to be.

Managers in the so-called modern organization choose to give away a key portion of their authority. In many cases, these managers delegate to frontline workers the authority to identify problems, draw conclusions, and work across boundaries to build consensus on the development of a new practice. The A3 report is a specific tool of lean that seeks to eliminate the wastes of rework due to ineffective meetings, stagnated decision making, and excessive documentation in the reporting as well as the presentation stages of a particular project. The constraint of the 11 by 17 sheet of paper helps to isolate and frame discussion around a particular problem, eliminating the waste and struggle of problem identification; and enables A3 report users to focus their energies more fully on the problem at hand.

The A3 process helps representatives from diverse practices engage together, share their perceptions with one another, and jointly negotiate satisfying, consensus-driven solutions. When completed, the A3 process is powerful, enabling organizational actors to complete the knowledge spiral of Nonaka and Takeuchi. Going beyond the knowledge spiral, the A3 process promotes the communicative enactment of knowing and knowledge in concrete and pragmatic ways through the creation of accomplishment. When either process is subverted through the creation of A3 reports in isolation or via a belief that the A3 is complete at the point that some information is documented on an 11 x 17 sheet of paper, the A3 fails to create knowledge. This knowledge failure occurs when part of the process circumvents the social realities that are essential for knowledge creation. To be successful, A3 report users need to utilize the A3 as a tool, a boundary object, around which representatives from diverse practices can gather, engage in consensus-building conversations, and negotiate new meanings that are later enacted through practice. Professionals recognize the A3 for its applied nature and pragmatism. At the conclusion of the process, A3 participants are aligned together in pursuit of a specific course of action. These professionals have crafted a response to a perceived problem or threat within their organization. In completing the A3 process, they achieve accomplishment.

The A3 report is both simple and complex. In one sense, it is a simple piece of paper. Alternatively, it is the culmination of activity and the result of a negotiation of meaning. It is knowledge accomplished. It is sense made.

REFERENCES

Alvesson, M., Kärreman, D., and Swan J. (2002). Departures from knowledge and/or management in knowledge management. *Management Communication Quarterly, 16*, 282-291.

Ballé, M., Beauvallet, G., Smalley A., & Sobek, D. (2006). The thinking production system. *Reflections*, *7*(2), 1-12.

Barge, J.K., Lee, M., Maddux, R.N., & Townsend, B. (2008). Managing dualities in planned change initiatives. *Journal of Applied Communication Research, 36*(4), 364-390.

Barley, S. (1996). Technicians in the workplace: Ethnographic evidence for bringing work into organization studies. *Administrative Science Quarterly*, 41, 404-441.

Boje, D.M. (2001). *Narrative methods for organizational and communication research.* London: Sage.

Brown, J.S., & Duguid, P. (1991). Organizational learning and communities of practice. *Organization Science*, *2*(1), 40-57.

Bryman, A., & Buchanan, D. A. (2009). The present and futures of organizational research. In D.A. Buchanan & A. Bryman (Eds.), *The sage handbook of organizational research methods*. London: Sage.

Carlile, P.R. (2002). A pragmatic view of knowledge and boundaries: Boundary objects in new product development. *Organization Science*, *13*(4), 442-455.

Cassell, C. (2009). Interviews in organizational research. In D.A. Buchanan & A. Bryman (Eds.), *The sage handbook of organizational research methods*. London: Sage.

Cook, J. (1993). *The positive book of quotations*. Minneapolis, MN: Fairview Press.

Cook, S.D.N., & Brown, J.S. (1999). Bridging epistemologies: the generative dance between organizational knowledge and organizational knowing. *Organization Science, 10*(4), 381-400.

Cooren, F., & Fairhurst, G.T. (2009). Dislocation and stabilization: How to scale up from interactions to organization. In A. Nicotera, & L. Putnam (Eds.), *The communicative constitution of organization: Centering organizational communication.* Mahwah, NJ: Lawrence Erlbaum.

Cooren, F. (2006). The organizational world as a plenum of agencies. In F. Cooren, J.R. Taylor, & E. J. Van Every (Eds.), *Communication organizing: Empirical and theoretical explorations in the dynamic of text and conversation.* Mahwah, NJ: Lawrence Erlbaum.

Cooren, F., Taylor, J.R., & Van Every, E.J. (2006). Introduction. In F. Cooren, J.R. Taylor, & E. J. Van Every (Eds.), *Communication organizing: Empirical and theoretical explorations in the dynamic of text and conversation.* Mahwah, NJ: Lawrence Erlbaum.

Corman, S.R., Kuhn. T., McPhee, R.D., & Dooley, K.J. (2002). Studying complex discursive systems: Centering resonance analysis of communication. *Human Communication Research, 28*, 157-206.

Deetz, S. (2009). Organizational research as alternative ways of attending to and talking about structures and activities. In D.A. Buchanan & A. Bryman (Eds.), *The sage handbook of organizational research methods*. London: Sage.

Frey, L.R., Botan, C.H., Friedman, P.G., & Kreps, G.L. (1992). *Interpreting* *communication research: A case study approach.* Englewood Cliffs, NJ: Prentice-Hall.

Groleau, C. (2006). One phenomenon, two lenses: Understanding collective action from the perspectives of coorientation and activity theories. In F. Cooren, J.R. Taylor, & E. J. Van Every (Eds.), *Communication organizing: Empirical and theoretical explorations in the dynamic of text and conversation.* Mahwah, NJ: Lawrence Erlbaum.

Güney, S. (2006). Making sense of a conflict as the (missing) link between collaborating actors. In F. Cooren, J.R. Taylor, & E. J. Van Every (Eds.), *Communication organizing: Empirical and theoretical explorations in the dynamic of text and conversation.* Mahwah, NJ: Lawrence Erlbaum.

Heaton, L., & Taylor, J. (2002). Knowledge management and professional work: A communication perspective on the knowledge-based organization. *Management Communication Quarterly, 16,* 210-236.

Hoffman, M. (2003, January). Transformation by design: An interview with Dee Hock. *Ki Net Limited.* Retrieved from http://www.scribd.com/doc/2534950/Dee-Hock-Transformation-by-Design

Howard, L.A., & Geist, P.G. (1995). Ideological positioning in organizational change: The dialectic of control in a merging organization. *Communication Monographs, 62,* 110-131.

Hutt, M., Walker, B.A., & Frankwick, G.L. (1995). Hurdle the cross-functional barriers to strategic change. *Sloan Management Review,* 22-30.

I collaborate. (2000, October 16). I collaborate, therefore I know. *Knowledge Management*

(KM) Magazine. Retrieved from http://www.kmworld.com/Articles/News/Breaking-News/I-collaborate-therefore-I-know-12397.aspx

Iverson, J.O., & Burkart, P. (2007). Managing electronic documents and work flows: Enterprise content management at work in organizations. *Nonprofit Management and Leadership, 17*(4), 403-419.

Iverson, J.O., & McPhee, R.D. (2002). Knowledge management in communities of practice: Being true to the communicative character of knowledge. *Management Communication Quarterly, 16*, 259-265.

Iverson, J. O., & McPhee, R.D. (2008). Communicating knowing through communities of practice: Exploring internal communicative processes and differences among CoPs. *Journal of Applied Communication Research, 36*(2), 176-199.

Kuhn, T., & Corman, S.R. (2003). The emergence of homogeneity and heterogeneity in knowledge structures during a planned organizational change. *Communication Monographs, 70*, 198-229.

Kuhn, T., & Jackson, M.H. (2008). Accomplishing knowledge: A framework for investigating knowing in organizations. *Management Communication Quarterly, 21*, 454-485.

Kuhn T., & Nelson, N. (2002). Reengineering identity: A case study of multiplicity and duality in organizational identification. *Management Communication Quarterly, 15*, 5-39.

Lam, A. (2000). Tacit knowledge, organizational learning and societal institutions: An integrated framework. *Organization Studies, 21*, 487-513.

Lewis, L.K. (2007). An organizational stakeholder model of change implementation communication. *Communication Theory, 17*, 176-204.

Lewis, L.K., & Seibold, D.R. (1993). Innovation modification during intra-organizational adoption. *Academy of Management Review, 18*, 322-354.

Lewis, L.K., & Seibold, D.R. (1996). Communication during intraorganizational innovation adoption: Predicting users' behavioral coping responses to innovations in organizations. *Communication Monographs, 63*, 131-157.

Lewis, L.K., & Seibold, D.R. (1998). Reconceptualizing organizational change implementation as a communication problem: A review of the literature and research agenda. In B. Burleson (Ed.), *Communication Yearbook* 21 (pp.93-151). Thousand Oaks, CA: Sage.

Liker, J.K. (2004). *The Toyota way: 14 management principles from the world's greatest Manufacturer.* New York: McGraw-Hill.

Lindlof, T.R. (1995). *Qualitative communication research methods.* Thousand Oaks, CA: Sage.

Lindlof, T.R., & Taylor, B.C. (2002). *Qualitative communication research methods, second edition*. Thousand Oaks, CA: Sage.

McPhee, R.D., & Iverson, J.O. (2009). Some perspectives on the communicative constitution of organizations. In A. Nicotera, & L. Putnam (Eds.), *The communicative constitution of organization: Centering organizational communication.* Mahwah, NJ: Lawrence Erlbaum.

McPhee, R.D., & Zaug, P. (2000). The communicative constitution of organization: A framework for explanation. *Electronic Journal of Communication, 10* (1/2), www.cios.org/www.ejc/v10n200.htm.

Miller, K.I. (2000). Common ground from the post-positivist perspective: From 'straw person' argument to collaborative coexistence. In S.R. Corman & M.S. Poole (Eds.), *Perspectives on organizational communication: Finding common ground.* New York, NY: The Guilford Press.

Miller, K.I., Shoemaker, M.M., Willyard, J., & Addison, P. (2008). Providing care for elderly parents: A structurational approach to family caregiver identity. *Journal of Family Communication, 8*(1), 19-43.

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science, 5*, 14-37.

Nonaka, I., & Nishiguchi, (2001). *Knowledge emergence: Social technical evolutionary dimensions of knowledge creation.* New York: Oxford University Press.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge creating company: How Japanese companies create the dynamics of innovation.* New York: Oxford University Press.

Poole, M.S., & McPhee, R.D. (2005). Structuration theory. In S. May, & D.K. Mumby (Eds.), *Engaging organizational communication theory and research: Multiple perspectives.* Thousand Oaks, CA: Sage.

Saludadez, J. A., & Taylor, J.R. (2006). The structuring of collaborative research networks in the stories researchers tell. In F. Cooren, J.R. Taylor, & E. J. Van Every (Eds.), *Communication organizing: Empirical and theoretical explorations in the dynamic of text and conversation.* Mahwah, NJ: Lawrence Erlbaum.

Shook, J. (2008). *Managing to learn: Using the A3 management process to solve problems, gain agreement, mentor and lead.* Cambridge, MA: The Lean Enterprise Institute.

Shook, J. (2009). Toyota's secret: The A3 report. *MIT Sloan Management Review, 50*(4), 30-33.

Sobek, D.K., & Jimmerson, C. (2006). A3 reports: Tool for process improvement. Proceedings of the 2006 Industrial Engineering Research Conference, Orlando, FL.

Sobek, D.K., & Smalley, A. (2008). *Understanding A3 Thinking: A critical component of Toyota's PDCA management system.* Boca Raton, FL: Productivity Press.

Stacey, R.D. (2001). *Complex responsive processes in organizational learning and knowledge creation.* London: Routledge.

Taylor, J.R. (2000). A common ground, common grounds, or footbridges? In S.R. Corman & M.S. Poole (Eds.), *Perspectives on organizational communication: Finding common ground.* New York, NY: The Guilford Press.

Taylor, J.R. (2006). Coorientation: A conceptual framework. In F. Cooren, J.R. Taylor, & E. J. Van Every (Eds.), *Communication organizing: Empirical and theoretical explorations in the dynamic of text and conversation.* Mahwah, NJ: Lawrence Erlbaum.

Taylor, J.R. (2009). Organizing from the bottom up: Reflections on the constitution of organization in communication. In A. Nicotera, & L. Putnam (Eds.), *The communicative constitution of organization: Centering organizational communication.* Mahwah, NJ: Lawrence Erlbaum.

Taylor, J.R., Flanigan, A.J., Cheney, G., & Seibold, D.R. (2001). Organizational communication research: Key moments, central concerns, and future challenges. *Communication Yearbook, 24,* 99-137.

Taylor, J.R., & Van Every, E.J. (2000). *The emergent organization: Communication as site and surface.* Manwah, NJ: Lawrence Erlbaum Associates.

Trethewey, A. (1999). Disciplined bodies: women's embodied identities at work. *Organization Studies*, *20*(3), 423-450.

Vaast, E. (2004). O brother, where are thou? From communities to networks of practice through intranet use. *Management Communication Quarterly*, *18*(5), 5-44.

Varey, R.J. (2006). Accounts in interactions: Implications of accounting practices for managing. In F. Cooren, J.R. Taylor, & E. J. Van Every (Eds.), *Communication organizing: Empirical and theoretical explorations in the dynamic of text and conversation*. Mahwah, NJ: Lawrence Erlbaum.

vonKrogh, G., Ichijo, K, & Nonaka, I. (2000). *Enabling knowledge creation: How to unlock the mystery of tacit knowledge and release the power of innovation*. New York: Oxford University Press.

Wenger, E. (1998). *Communities of practice: Learning, meaning and identity*. New York: Cambridge University Press.

Weick, K.E., & Browning, L.D. (1986). Argument and narration in organizational communication. *Journal of Management*, *12*, 243-259.

Weick, K.E. (1995). *Sensemaking in organizations*. Thousand Oaks, CA: Sage.

APPENDIX

Overview Questions

Tell me about your first experience working with an A3 report.

What was positive about the experience?

What frustrations did you have?

Have you been involved in the creation of other A3 reports since then?

In what ways did your subsequent experiences differ from your first experience with the A3?

First Flow: Membership Negotiation

In your organization, who gets to participate in working with a particular A3? How is that determined?

Describe for me the process of recruiting someone to work with an A3?

Is there a label used to describe the people who are working on a particular A3? Explain.

Second Flow: Reflexive Self-Structuring

How are A3 reports used in your organization?

Explain for me the "right" way to use an A3.

Are there any "rules" for using an A3? What are they? How are those reinforced?

Tell me about a time when you originated an A3?

Describe your process to me.

Did you try to make sure all opinions were heard? How? In what ways?

Did you feel successful or unsuccessful? Explain.

In what way, if any, would you implement an A3 differently in the future?

Third Flow: Activity Coordination

Tell me about the impact A3 reports have had on your organization's ability to solve problems.

Describe a time when using an A3 helped your organization endure or adapt to contingencies.

Describe a time when using an A3 hindered your organization's ability to endure or adapt to contingencies?

How do you feel at the conclusion of an A3 report?

> How does that differ from other problem solving methods used in your organization?

Have you ever changed your mind about a course of action as a result of the A3 process? Explain.

Tell me about a time when you worked through an A3 and the end result was the idea you had in the first place.

In your opinion, what does the A3 do? How does it function in your organization?

Fourth Flow: Institutional Positioning

Describe a time when you feel an A3 helped you to gain cooperation or accomplish your group's goals.

Has using an A3 helped you to shape, define or *position* your project to others in your organization? To management? Explain. (face presentation)

In what ways does using an A3 help you to gather information about strengths, weaknesses, opportunities or threats? (environmental exploration)

Has using an A3 ever helped you to find or develop partners in achieving your project goals? Explain. (negotiation)

Describe a time when using an A3 helped you position your project strategically.

Does the A3 have any impact on organizational buy-in? Explain.

Has using an A3 helped you to secure resources, support or legitimacy for your group or its project? Explain.

I have read that the A3 helps to form a story or "narrative." Do you agree with that or disagree? Please share an example.

Closing Questions

Tell me about the impact the A3 has had on your organization's teamwork.

> Has using the A3 changed the way you interact with people across different functional groups (such as sales, marketing, engineering, manufacturing)?

Do you feel more connected or less connected to your team when you use the A3? Explain

Do you feel your ideas and opinions are being heard through the A3 process? Explain.

> How does that differ from other problem solving methods used in your organization? Do you feel *more* heard or *less* heard? Explain.

Please share with me any other comments you have.