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The evolution of a learning organization: the evaluation of corporate learning groups in a knowledge management effort

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THE EVOLUTION OF A LEARNING ORGANIZATION: THE EVALUATION OF CORPORATE LEARNING GROUPS IN A KNOWLEDGE MANAGEMENT EFFORT

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ABSTRACT

There exists considerable interest in the development of successful knowledge management program initiatives across every industry. This research aims to improve the overall discipline of knowledge management within the context of a corporate environment, so that competitive advantages can be realized from cultivating and sharing tacit knowledge routinely among a company's employees. The analysis of a well-resourced knowledge management program will allow guidelines to be developed to prescribe successful future knowledge management programs. Prior studies may have missed the human factors elements related to how employees learn and build knowledge in the workplace. Specifically, the learning group (LG) portion of this company's knowledge management program was studied to understand if this tool made advancements in the human behavior change needed for a successful knowledge management effort.

Three main research questions focused on the communication, support, and evidence of successful collaboration were studied through a qualitative evaluation. LG focus, maturity, and connection to the business processes were considered. This provided evidence of patterns in the infrastructure, scope of the effort, focus of curriculum and workflows that were considered in the LG establishment.

For technological companies, LGs are a good vehicle to augment knowledge management efforts. These drive awareness of the effort, help produce content, and establish an atmosphere of collaboration for ongoing professional development and education. The LGs are a compulsory tool to take an organization through the change management needed to generate and utilize the appropriate content of a knowledge management system. Leadership style is a key factor to evolve into a learning organization.

A strong organization centric leader seems to provide the interconnectivity to the overarching knowledge management effort. Strategies that connect the LGs to the knowledge database provided a catalyst to change the standard behavior with how information about tacit knowledge was stored/shared. This provided awareness to begin using the knowledge management database as a resource. The LGs are the people based infrastructure required to break down the barriers of collaboration in a corporate setting. The human and social aspects are the most important considerations to address for organizations trying to evolve into learning organizations for strategic benefit.

CHAPTER I. STATEMENT OF THE PROBLEM

Overview

This research reviews the effectiveness and applicability of knowledge management in the corporate environment. Specifically, one science-based company will be studied to observe the effectiveness of an organizational learning effort to support the company's goal of transforming its operations division into a learning organization. The research aims to improve the overall discipline of knowledge management within the context of a corporate environment, so that competitive advantages can be realized from cultivating and sharing tacit knowledge routinely among a company's employees.

There exists considerable interest in the development of successful knowledge management program initiatives across every industry. The fact that most companies still have not been able to successfully translate a vision of a knowledge management program into an effectively implemented program that is widely utilized by employee end users suggests that there is still a critical need for a study to understand and codify the success factors needed to realize the vision and cultivate a corporate learning organization. The large cost and investment in these knowledge management programs also provides a basis for interest in a study that will reduce the risk of wasted resources for suboptimal or failed programs. The hope is that the proposed analysis of a well-resourced and supported corporate knowledge management program using the suggested framework of categorization will allow clear guidelines to be developed to prescribe successful future knowledge management programs given a company's specific goals. Looking at the studied company's learning groups in this manner will likely distinguish the study from prior case analyses that have only focused on knowledge management systems and tools. These prior

studies may have missed the human factors elements related to how employees learn and build on knowledge in the workplace. Looking at the learning groups in this company's knowledge management program in a categorical manner may reveal patterns for successful future programs at other organizations based on the focus of the knowledge management effort.

Introduction

Organizational learning and corporate knowledge transfer has developed into a multimillion dollar industry (Wintergreen, 2003, pp. 114, 375). Companies are quick to state that communication of information across their organizations is critical to the success of their goals and projects. Over the past decade numerous reports of corporate initiatives to implement knowledge management programs have demonstrated that these programs failed to deliver the desired end result of free information flows across an organization which would facilitate sustained organizational learning (MacCormack, 2004; Voelpel, Dous, & Davenport, 2005). Most of the knowledge management programs involved large monetary investments and took many resource hours to prepare. A brief review of the available case studies indicated that most of the time and money invested in the design and planning of these programs was heavily focused on the infrastructure or the tools of the program (Burrows, Drummond, & Martinsons, 2005; Casper & Whitley, 2002; Falk, 2005; Goodson, 2005; Hemre, 2005; Junnarkar & Levers, 2005; Kannan, Aulbur, & Haas, 2005; Katz & Lugmayr, 2005; Kumar, 2005; Pickett, 2004; Weiss, Capozzi, & Prusak, 2004; Zemke, 2004).

Very little attention has been placed on rational mechanisms for selecting cogent implementation schemes that will allow these organizations the ability to integrate these

tools into their daily operations (Banerjee, 2005). Many organizations are reluctant to dedicate resources to subsequent knowledge management programs until clear results can be demonstrated. Ironically they shortchange the investment in the training and implementation phases of subsequent knowledge management programs as a cost reduction measure to minimize the loss if the knowledge management program is suboptimal. The end result is that programs continue to fail to meet the goal of organizational learning and thus organizations are reluctant to embrace knowledge management as a real effort. Employees become complacent, apathetic and unwilling to invest their time to learn and utilize these enterprise wide applications and systems.

Statement of the Problem

Success of knowledge management in an organization may be tied to engagement of all employee participants. Does the way in which knowledge management or organizational learning efforts are implemented (learner centric vs. leader centric) impact ultimate success? Social learning, communities of practice and adult learning theories would suggest that participant engagement is essential to ensure that information sharing is harnessed and assimilated as knowledge.

Research Questions

The following specific research questions (RQ) shall be the focus of the proposed study:

RQ1. How were the plans and goals of the learning groups communicated to the learning group members?

RQ2. How were support and resources provided in the implementation of the learning groups to achieve collaborative knowledge sharing environments?

RQ3. How were the critical success factors identified among learning groups that achieved collaborative knowledge sharing environments?

By focusing this research on these three questions a framework will be constructed to view the company's knowledge management effort from the lens of the learner/participant in order to review the effectiveness of knowledge creation, transfer and evolution. Since learning groups were the core structure established to share, shepherd, and evolve knowledge, these will be the central focus of study in this research.

Purpose

This study will to explore processes that are utilized in a corporate knowledge management program and will determine relationships among the design of infrastructure, deployment training, and daily operational workflow integration. From concept to deployment of the knowledge management program, the issues related to organizational barriers to the change effort will be investigated. This study will focus on a science-based corporation that is striving to evolve its operations organization into a mature learning organization. The company has made commitments to organizational learning and the current knowledge management program has been well supported and resourced. The active knowledge management program is in the implementation phase. A major component of the knowledge management program is learning groups. These learning groups were mandated and architected by executive sponsors in the operations division to drive information sharing in order to ensure that process improvements and lessons learned were appropriately shared and available to cross-functional teams that may embark on related efforts/projects. The main purpose of this study will be to explore how the learning groups have impacted the success of the knowledge management program implementation

from the perspective of communities of practice and social learning principles in order to see how this relates to learning group members' opinions of the impact of the learning group on the knowledge management program. The learning groups shall be assessed and categorized into one of the following:

- Organization centric: Learning groups that were developed in direct response to an organization direction, where the curriculum and purpose was set by the organization leadership. This is the top-down mandated approach where little consultation of participants occurred
- Leader centric: Learning groups that have a curriculum set by the leader of the learning group, where little consultation of the participants occurred. The learning group leader may be a thought leader on the topic/discipline or viewed as the technical authority of the disciple.
- Learner/member centric: Learning groups that had significant thought, planning and support for the training of general staff to utilize the knowledge management program/process and subsequent distribution of shared organizational information, where the members contributed to the curriculum/direction of the topics discussed.

By categorizing the knowledge management programs, characteristics of the implemented program will be established in order to provide guidance for successful planning strategies for knowledge management programs.

Conceptual framework

Corporations strive to ensure that knowledge transfer is fluid and continuous among employees in order to streamline processes and derive competitive advantages. Knowledge

transfer foundations are in the learning of individuals and the sharing of knowledge. The basis of knowledge transfer among individuals is described in social learning theory, communities of practice and in connectivism. The fact that these efforts rely on employee learning also drives the need to consider and include elements of adult learning theory. These will each be briefly described here to provide the framework for this research.

Social learning. The theory behind adult learning in corporations is largely supported by the tenants of social learning theory. The theory contends that as individuals we learn best through social interactions and experience. From these shared experiences, individuals build upon the written information or learnings to expand their ability to perceive situations and respond to them. Individuals seem to assimilate and internalize information into knowledge only through social interactions according to the theory. This would support the need for corporations to provide numerous opportunities to allow these social interactions among their employees to foster knowledge transfer and knowledge building. It also would direct corporations to focus less on the tools to store information and knowledge and focus more on the aspects that support learning interactions like environment and cultural norms of a company. Since individuals capture context about situations through the social experience of learning and the interactions that they have while understanding and processing the new information should be the focus of corporate knowledge management efforts.

Communities of practice. Lave and Wenger (1991) describe another aspect of building knowledge through interactions when individual come together in a community. They termed it communities of practice and expanded on the idea that individuals come together around a topic of interest and share information. Through their practice of the

discipline or topic the members expand their knowledge and experience on that topic. Each member benefits for the other members' experiences and as such is able to further expand their own knowledge in a more accelerated manner because they do not need to individually have the same experiences in order to benefit from those experiences. This is particularly true if the members are actively motivated to learn and in the self-directed learning mode. As such communities of practice are a great vehicle for learning and sharing tacit information within corporations. This is further supported by others (Hemre, 2005; Kannan et al., 2005; Lesser & Fontaine, 2004; Saint-Onge & Wallace, 2003).

Connectivism. The learning theory to support knowledge building presented by Siemens (2004) contends that knowledge is acquires only through the connections that are made in networks to interlink information and thus provide the context for why the information has relevance within a situation. Further this extends and augments the social learning theory and communities of practice theory as it provides the physiological aspect of how information is processed into knowledge. The networks are supported to grow and evolve through structures like communities of practice. In this research, the learning groups will be evaluated through the lens of the communities of practice to evaluate if sufficient support exists to allow the learning networks to flourish. Connectivism is a theory for how tacit knowledge develops.

Tacit Knowledge. When one thinks about trades and crafts, the notion of apprenticeship is commonly the natural mode of learning. This is a formalized concept of on-the-job training in which a novice is placed alongside a master of the trade or practice for a number of years. Through daily activity and practice the novice gains the insights and experience of the master until one day they have sufficient experience to practice the trade

independently. This is an example of a professional transfer of one's tacit knowledge. However this type one on one training is not practical in most professions and is not a scalable learning model as the greater community of practitioners will not benefit from other master practitioners' experience. The aerospace industry recognized in the early 1990's that the retirement of the baby boomer generation would leave their companies void of this master/expert practitioners of the engineering discipline and they attempted to catalog all of their tacit knowledge and professional experience into manuals and documents. These efforts while well intentioned were not as impactful as the companies may have hoped. The efforts fell short in that they did not focus on the method and modes that support the transfer of tacit knowledge among adult learners. Communities of practice and supported collaborative learning environments are well suited for the type of knowledge transfer that those aerospace companies were seeking. The documentation of master practitioner knowledge does produce knowledge assets, however there is no guarantee that these assets will be internalized and mentally assimilated by other employee in the appropriate manner to be beneficial future situations. While engineers go to a university and learn the theory of engineering principles, this intrinsic knowledge is insufficient to fully practice engineering. Companies want to accelerate this subsequent phase of learning and communities of practice are well suited to facilitate this knowledge collaboration and transfer among its employees.

Knowledge transfer. Simply writing an article about one's expertise isn't sufficient to complete the transfer of knowledge. This is less dependent on the author of the information that codifies and records their knowledge, and is much more dependent on the recipient of that knowledge. The recipient needs to receive the information in a manner the is most

impactful to their own learning style and it likely needs to be received at a time when it will appropriately trigger cognition to ensure that it will have relevant purpose at a later time. This all seems challenging and ambiguous to control and attach to specific business processes; however the theories of social learning would hold that providing supportive sharing environments will allow this organic learner driven assimilation time and opportunity to happen. If done effectively, these environments actually self-perpetuate the sharing of tacit knowledge and rampant knowledge transfer resulting in the learning organization which does provide the synergies of thought and innovation that companies strive to obtain for the purpose of competitive advantage.

Role of technology.

As presented the theories of social learning, communities of practice, and adult learning would seem straightforward to accept, so corporations should simply implement and reap the benefits of the authentic learning organization. Unfortunately, in the field of knowledge management, simplistic implementation has not been typical. As described above, many efforts fell short by focusing on the technology, tools, and infrastructure. These all took the information and knowledge and attempted to capture and catalog, but did not sufficiently address the social learning aspects associated with sharing tacit knowledge and supporting knowledge transfer. Perhaps that was due to the fact that supporting such knowledge management efforts to foster social learning and slow, deep learning are not trivial (Wenger, White, & Smith, 2009). In fact in today's global marketplace, corporations are spread across regions and countries and have employees that span many cultures. Bringing groups together regularly to support knowledge transfer could be cost prohibitive. Still corporations have the need to support required training elements as well as cultivate

retention of business advantages through the retention of tacit knowledge from employees. Far too often the "how" of a task is stored only in the mind of the individual that performs the activity. As companies try to serve more customers, they must also develop programs to train resources and support teams to interface globally across language and cultural boundaries. Much of the context around these interactions is tacit knowledge which is challenging to capture in a manual, job guide, or standard operating procedure. Face to face training is usually preferred, however staffing to do this globally is impractical (sources for cost of global training). In this way, corporations that are spread across geography face challenges to facilitate and foster interactions that drive social learning.

Technology is the bridge to provide more effective global training and information sharing. It is interesting that companies have turned to technology to support the delivery of mandatory training dictated by process and regulations, but yet they have not looked holistically at how technology might support the training or learning that supports knowledge transfer of tacit knowledge. In fact technology promises to be the way that just-in-time, just-in-context knowledge transfer can happen. It will open the access to global knowledge networks for companies to achieve the authentic learning organization state.

Technology enables multiple modes of learning. As adults, learning is doing and enabled in several formats or modes and technology facilitates the options to support a learner's preferred mode and timing of learning. Technology can also be used to assist with translations, remote participations via telepresence and video conferencing, instant messaging, and mobile devices to allow increased access to information and interactions in a greater context of situations. Creative use of the technology tools and infrastructure within a company may facilitate the slow-learning to push communities of practice to evolve into

thriving collaboration spaces where knowledge transfer and synergies of sharing experiences are able to happen more frequently and in proximity to the spatial need for these interactions to foster competitive advantages for corporations.

Summary of methodology

This research is designed as a descriptive evaluation of an implemented program. Qualitative research methods can be viewed as subjective or lacking in power. This research shall be strengthened to minimize those perceptions. In particular, a mixed methods triangulation of interviews, surveys and analysis of artifacts shall be used to provide strength of the research. Using only one of these modes would not provide sufficient strength and validity for the study. Further the experiential nature of the subject matter does warrant the qualitative data which will be obtained from individuals via interviews and surveys.

The artifact review across the learning groups will provide objective information from which to draw insights from the learning group member surveys. This will serve to provide insights into the characteristics of the learning groups that its members define as successful. Further, the review of the knowledge assets will help to identify which phase of collaboration the learning group is in and the relative maturity level of the learning group from the lens of community of practice. This portion of the research shall be the more quantitative mode and as such is more objective than subjective.

The methodology shall be further strengthened by submitting the interview script questions and the survey to a knowledge management subject expert for input. Feedback shall be appropriately incorporated to ensure that the interview and survey questions are soliciting the intended data. Evaluations of free responses and open ended questions will be done by the researcher and an independent observer in order to minimize bias.

Significance

As seen in prior cases and studies, corporations have been challenged to derive tangible benefit from large investments in knowledge management efforts. This research is important to the field as it explores the fundamental links between social learning, communities of practice, and adult learning theories and the effectiveness of employees building, sharing and transforming knowledge across global networks. Corporations that are able to do this effectively will have a competitive advantage in solving challenges, driving continuous improvement, and retaining core expertise within the organization as employees rotate through roles.

Most companies at one point have fallen into the classic knowledge project pitfall, "Let's put the…manual on-line!" (Davenport & Prusak, 1998, p. 173). The goal for this research shall be to identify elements needed to achieve a successful learning organization state through a knowledge management effort supported by learning groups. As such this has the potential to provide the missing elements for successful corporate knowledge management efforts through the exploration of the social learning aspects that may have been absent from other work.

Limitations

The study scope focuses on one organization and as such is limited to its experiences. The results and conclusions may not be directly transferable to all corporate environments or all knowledge management efforts. It is expected that this study should serve as a model for other corporations that strive to be learning organization and that share similar characteristics as the studied company. The mixed methods approach is largely qualitative in nature and as such is somewhat subjective. Efforts shall be made to reduce

this impact by using multiple modes and mediums of data collection and analyses.

The researcher may have bias from prior experiences with building collaborative learning environments or with knowledge management efforts. In order to reduce bias, efforts shall be made review subjective responses from participants with an additional rater. Bias shall be further minimized by the use of the quantitative analysis of the learning groups' artifacts. The triangulation of the data source shall serve to strengthen the research.

Definitions of terms

In order to avoid ambiguity in the data collection and analyses, it is important to align the definitions of key terms that will be utilized in the study. This is particularly true for the field of knowledge management as even within the discipline there are varying interpretations of what discipline itself represents. Stephen Denning struggled for years to champion knowledge management efforts within the World Bank organization, finally drawing upon storytelling to reinforce his interpretation of the discipline and to adequately communicate his vision of the authentic learning organization (Denning, 2001). So for clarity, a discussion of definitions is presented below to state how these shall be used in this research.

The distinction between information and knowledge. The terms information and knowledge are often used interchangeably, but this leads to confusion among participants in an organization. For this research, a relevant distinction between the terms was provided by Wilson (2002) in his article 'The nonsense of knowledge management':

'Knowledge' is defined as what we know: knowledge involves the mental processes of comprehension, understanding and learning that go on in the mind and only in the mind, however much they involve interaction with the world outside the mind, and interaction with

others. Whenever we wish to express what we know, we can only do so by uttering messages of one kind or another - oral, written, graphic, gestural or even through 'body language'. Such messages do not carry 'knowledge', they constitute 'information', which a knowing mind may assimilate, understand, comprehend and incorporate into its own knowledge structures. (Wilson, 2002, para. 7)

Knowledge Management Initiative. A knowledge management initiative is defined as a companywide effort to gather organizational information in such a way as to facilitate the efficient transformation of that information into personal knowledge for the company's employees.

Knowledge Building. Building knowledge is more than reading manuals or taking tests. It is the process of collecting, collating, and cataloging information and knowledge assets. This is typically organization based and requires input from multiple participants. Effective knowledge building will also include attributes about the knowledge assets that will provide context to reviewers to establish the "why" and the "so what" purpose for including the knowledge asset in the system. This context is important so that future reviewers can may connections to how that knowledge may be leveraged in future situations. If the knowledge building does not include those relevant attributes and annotations, then the system is just a database of information.

Knowledge Transfer. Simply put, the process by which one individual shares their knowledge with another and the recipient processes that information transforming it into personal knowledge. Within corporations this term can be misinterpreted as it can be confused with technology transfer. Technology transfer differs from knowledge transfer in that the knowhow associated with assimilated knowledge does not happen in technology

transfer that is limited to transferring information or a process/procedure to another group or organization. It does not include the wisdom or knowhow that experience of doing the process/procedure provides.

Tacit Knowledge. Typically the information and common sense knowledge an individual acquires by experience and self-exploration of a topic. Sometimes this is referred to as the art of doing something, much like the lasagna of a world renowned chef that tastes different than the same recipe prepared by a culinary student. Both follow the same recipe and use the same ingredients, yet there is some amount of experience that the chef has from years of practice that translate into distinctly different tastes to the palette. The tacit knowledge is the experience obtained through the regular practice of any given discipline.

Implicit Knowledge. Is the knowledge that has been written done and codified. However it may lack the context necessary for an individual to assimilate and incorporate into their personal knowledge.

End users. All employees that will utilize the knowledge management program tools and processes within the company regardless of frequency are designated as end users.

Summary

In this chapter, it was highlighted that knowledge management efforts have been elusive for corporations who have been desperate to harness their most basic asset, human experience as related to their business. This research proposes to provide insights into the aspects of social learning and communities of practice that are necessary foster successful environments for companies to share and harness the tacit knowledge and experience of their employees. This shall be done by studying a company that has committed to transform its operations division into a learning organization. In particular, this company established

learning groups across various disciplines which are intended to foster this knowledge sharing and synergistic learning. These learning groups shall be studied to look for aspects that support the authentic learning organization state. This research is essential for the field of corporate knowledge management systems in order to provide the element that has been lacking in so many prior corporate knowledge management efforts, namely the social learning experience.

CHAPTER II. REVIEW OF LITERATURE

Conceptual Grounding

Corporations have been interested in knowledge management programs in order to add a competitive edge to their organizations and to add enhancements to attract and retain the most talented employees. The necessity for knowledge management initiatives and current struggle to implement these will be developed in this section in order to further articulate the need for clear guidance for successful knowledge management programs. First it is important to distinguish knowledge and information, as the use of these terms can affect the success of any knowledge management program. Wilson (2002) succinctly stated this in his article *'The nonsense of knowledge management'*:

'Knowledge' is defined as what we know: knowledge involves the mental processes of comprehension, understanding and learning that go on in the mind and only in the mind, however much they involve interaction with the world outside the mind, and interaction with others. Whenever we wish to express what we know, we can only do so by uttering messages of one kind or another - oral, written, graphic, gestural or even through 'body language'. Such messages do not carry 'knowledge', they constitute 'information', which a knowing mind may assimilate, understand, comprehend and incorporate into its own knowledge structures.

Rationale to support knowledge management program initiatives

Information explosion in the digital age. In the past century the age of information has changed the way in which we as a society interact and conduct business (Drucker, 2001a). Companies today are looking to manage the overflow of information that workers need to deal with in the global digital age, and they are gathering insights from the leaders of the internet companies that have pioneered the digital age like eBay, Google, and Amazon

(Weiss et al., 2004). The successes of these companies stemmed from their ability to organize their business models around intuitive flows of information for both employees and customers. As Weiss pointed out, this is exceptionally difficult for most companies to do, and today most still fail in their efforts to implement knowledge management programs. When employees struggle to find information within the company's intranet, valuable time is lost and employees become frustrated. The value of this lost time for an average company of 10,000 employees was estimated at 400,000 hours and at a cost of $15 million US dollars annually (Weiss et al., 2004, p. 84). The frustration to find and manage information is often the source of an employee's decision to leave an organization. The resulting turnover further perpetuates the challenge to maintain and evolve organizational knowledge and learning. Thus the explosion of the digital age of information can be a factor for a company to pursue a knowledge management program in order to reduce employee turnover and the organizational exposure associated with the loss of key employees.

Shift toward the knowledge engineer. There has been a new focus of activities within companies toward outsourcing in response to the emergence of single global economy (Kakabadase & Kakabadase, 2002). Companies in the United States of America and in the European Union now are comprised of higher numbers of individuals that serve as knowledge engineers in order to support this shift in the economy. These knowledge engineers manage projects across multiple nations and at times across a variety of third party partners and collaborators. This shift in business focus necessitates a new collection of tools to support the flow of information in the knowledge engineer's daily work. Sharing information quickly and in a meaningful way is now essential for the new demands of competing in a global economy. Another motivation for investing in knowledge

management programs is employee turnover. Much information and knowledge is tacit knowledge that is not recorded or transferred to others in the organization when employees transfer or leave. Often this means that companies have to invest duplicate resources to recapture the lost organizational knowledge.

Regulatory. A variety of global markets require regulatory compliance across industries. Since these regulatory agencies differ from country to country, companies have turned to enterprise wide knowledge management systems to ensure compliance. It only takes one project failure due to regulatory violations for a company to see the value in preventing future delays or violations. Knowledge management program initiatives frequently have embedded regulatory components to facilitate fluid product development in compliance with regulatory agencies in the various target markets. The regulatory management tools and processes in knowledge management programs offer the promise to share the information of how to process regulatory filings from one team to another, so that subsequent filings in a country would be streamlined.

Rationale for the challenges in achieving a successful knowledge management program initiative

Resistance to organizational change. People have a tendency to resist change and knowledge management program initiatives tend to require process and organizational change. The core of a knowledge management program usually involves new tools and consequently new processes. A major challenge during the implementation phase is employee cooperation to learn and interact with the new tool.

Global consolidation of companies. Industries have undergone significant consolidations over the past decade. These mergers and acquisitions resulted in rapid

growth of the resulting companies. In the wake of these transactions the companies were left with numerous disparate data sources and stores, and often project teams with duplicate functions via differing processes. The pre-merger companies typically had knowledge management program initiatives in place or in development. Unfortunately these programs had little likelihood to integrate smoothly because of the highly customized nature of the enterprise software solutions. The strong need to realize the projected synergies of a merger or acquisition often initiated integration efforts across the duplicate project teams and necessitated significant revision to either pre-merger knowledge management program in order to produce an effective integrated knowledge management program. Cost conscious executives typical fell into the trap of selecting one of the existing knowledge management programs as the superior one. They believed that modifications to the superior program would capitalize on the prior investment in the program development. Unfortunately this was a shortsighted approach because they were in effect assuming that one of the pre-merger organizations had a superior process or practice of business that would be equally effective for the merged organization. Since many of the consolidation efforts involved rapid growth in personnel and different markets, it was unlikely that one of the prior company's processes would provide the maximal efficient in sharing and building knowledge across the combined organization that likely had a different landscape. So knowledge management programs failed in the consolidated companies where a prior knowledge management program was shoehorned into the new organization. A good example of this was the DiamlerChrysler merger (Kannan et al., 2005). In this case, the engineering teams of the former Diamler organization believed that they had a superior process to knowledge transfer and organizational learning. The Diamler team justified this

because they produced higher end products and often was the first to introduce new car safety features to the industry. So the merged company took the Diamler processes and adopted these for the merged organization. Unfortunately they did this without considering that these processes may not be as effective the low cost, high sales volume areas of the former Chrysler organization.

Cultural barriers among the merged organizations also proved detrimental to knowledge management program initiatives. When the merged company involved companies from different operational styles (high end or luxury products versus modest or commodity products) or different styles due to different national ties, the style of common communication differed to such an extent that the content of the knowledge management program was fundamentally different. These cultural differences resulted in knowledge management programs that would accentuate cultural norms of one of the pre-merger companies and would neglect those of the other. So the end result would be a poorly integrated program from a utilization perspective, because a portion of the employees would be challenged to interact with it and conduct business fluidly with a tool that neglected their preferred style of communication (Guillory, 2001).

Maturation of the technology behind enterprise wide knowledge management program initiatives. Over the past five years the industry of knowledge management has matured to cover more than 100 companies that supply tools and services to provide corporations of all sizes knowledge management program software solutions. The variety of scale and consequent investment has allowed more companies the opportunity to consider enterprise wide knowledge management program initiatives that were once only possible for companies whose core business revolved around information technology. Previously a

company would have required significant technical staff in-house to develop, implement, and maintain the software to support an enterprise wide knowledge management program initiative. While today the software is not completely standard, it is far more feasible to purchase packages that are suitable frameworks that can be customized to a company's need with periodic consultants. Unfortunately the sales tactics mislead companies into assuming that the enterprise software is straightforward and will magically transform the way that a company conducts business. Most employees are not conditioned to conduct business and share information in a digital eCommerce workplace, so while the enterprise software packages may allow a business the ability to transform the way in which they conduct business, they fall short in training staff to learn new workflows and processes that would harness the advantages of eCommerce. This new environment places a high premium on the ability of a company to select the appropriate knowledge management program for its needs. Currently there is little objective guidance for companies to rely on when designing their knowledge management program initiatives and implementation plans.

Common factors among unsuccessful knowledge management programs

Focus of the program. Often the terms of information technology and knowledge management can cause differing expectations among key stakeholders in a knowledge management program. Schlögl (2005) recently this challenge was clearly described. He articulates the common interchangeable use of the terms information technology and knowledge management, and the resulting misunderstandings that can arise. Knowledge management programs can consist of document management and record retention, but the true power of a knowledge management initiative is the ease to find and share information

in an enterprise wide software tool. The main focus should be on the ability of the organization to maintain and evolve their corporate knowledge. So the terminology can often cause confusion during the design and development phases, resulting in a poorly developed knowledge management program which is underutilized or obsolete quickly.

Development time. The extensive customization of commercial knowledge management tools requires lengthy development timelines. When an initiative is conceived the end user employees are consulted for their preferences and requirements, but then they are usually uninvolved during the development process. Since the development period can range from 6 months to a year, the end users can lose interest or belief in the program long before the application is implemented. This lack of interest and investment on the part of the end users can be a challenge during implementation because the enthusiasm to learn the new tool and process that was generated during the requirements gathering phase has long since waned. Employee end users are also quick to understand that pace of organizational change is so fast that the knowledge management program will also likely need to change in order to remain current for the company. Thus the employees can become apathetic to enterprise wide knowledge management programs because they view these as just another fade tool that will soon be replaced. Attitudes like these can be the reason that knowledge management programs fail before they ever get off the ground.

Future work processes and workflows. Understanding the "to be" workflows is a critical factor in the actual function and value of a knowledge management program. Far too often teams focus only on the tools or the infrastructure (Pickett, 2004). So much so that people do not take time to study the realistic future workflows or processes that will be utilized once enterprise software packages are installed. If an 'extreme programming'

(Beck, 2000) or iterative design approach (Fullerton, Swain, & Hoffman, 2004) was taken to the level of the end user, then the benefits of learning what new features would be required to make the tools more easily adopted can be achieved.

Additionally, Wilson's (2002) distinction between knowledge and information is a classic example of a common management gap when designing a knowledge management program. Just because one individual is able to assimilate information into cogent thought, does not mean that simply publishing or sharing the information that one person has transformed into personal knowledge will ensure that another individual will be able to transform the information in the intended way, if at all.

Fundamentals of adult learning

Companies have often failed to recognize that their employees need to have concrete guidance to encourage learning in the workplace. Most employees would look at workplace training as an annoyance and not a fundamental need. This attitude is repeated in the development of enterprise wide knowledge management program initiatives. When companies fail to create an environment of constant learning, it is difficult to create an atmosphere that is receptive to new tools or processes. If an environment of lifelong learning is a consistent corporate goal and culture, then the dilemma of overcoming the challenge to get employee investment in learning and adapting to the new tool can be overcome. Weiss et al. (2004) described it as:

> Organizational efforts to make knowledge more valuable rarely begin with assessments of employee ("customer") needs. Many organizations assume their employees are a captive audience willing to seek out the content they need, regardless of where, or in how many repositories, it is stored. Yet for many

> employees, the cost of finding and qualifying knowledge in a repository often exceeds the benefits — even if the additional knowledge could help them do their jobs better. (p. 80)

The idea that employees are simply waiting to do everything that management demands is also dispelled by Chen, Lee, Zhang & Zhang (2003) when they describe the effort to transform individual knowledge into organization knowledge as 'sometimes grudgingly' done by employees, despite the fact that everyone is invested in doing a job in the greater organization. For some reason employees simply do not enjoy or like the activities required in documenting and sharing their personal knowledge. Likewise, they also find it equally unpleasant to look in-depth across a greater group of individuals for input on how to alter their current skills and experiences when this is highly structured. Global employee motivation is currently lacking in most knowledge management program initiatives because the considerations of the needs of a working adult are seldom addressed when designing the implementation plans of the knowledge management programs. Heavier emphasis is typically placed on tangible elements and the learning strategy considerations are left neglected.

Self-directed adult learning: Malcolm Knowles' work establishes that adult learning is primarily self-directed once the learner is engaged on the topic as the desire to improve propels the learner (Knowles, 1955, 1970, 1973, 1975). The catalyst is not so easily prescribed though and must be achieved to shift into that self-directed mode. In the workplace much training is delivered to satisfy a requirement and is dictated. As such, these do not present environments to cultivate this self-directed process.

Forced learning theory – adults engage in learning because they have to by work, culture, social pressure, etc.

If you subscribe to forced learning theory then prepare prior to training to engage the learner: "Why will the adult learner sincerely appreciate this training opportunity? How will the adult learner apply what he learns immediately, and for what personally identifiable gain? What approach to engagement will the adult learner respond to most favorably?"(Phillips, 2005).

Knowledge Building/Sharing is linked to the learning organization via the training model because the ask to train/learn is implied so forced learning theory should be considered and accounted for in establishing the support strategy for the learning environment. "Only through a critical self-reflective approach and thoughtful, learner-centered implementation of their programs will trainers have a shot at tapping the natural self-directed inclination of the adult learner"(Phillips, 2005). Thus it is important to establish a learning mode where learning is both cognitive and emotional and not just physical to achieve learning in the adult learner (Tweedell, 2012).

The central challenge for a knowledge management effort is to get groups of these adult learners to engage within a corporation. But to truly set in motion the cultural change within a company, a cultural shift is needed to have a knowledge management system take root and become a tool commonly used by its employees. This type of change can be challenging to ignite. Malcom Gladwell's work describes this as the optimal target population or "tipping point" and recommends that 150 people are needed to get a movement started (Gladwell, 2002). Perhaps that was an area where other knowledge management efforts did not appropriately capture the necessary coalition of support to drive

the change and have it take hold.

To avoid the pitfalls of knowledge management efforts that could not achieve the necessary coalition that harness the learning organization state, it is important to support these efforts on the social front and to help drive the integrity of the knowledge assets that they hope to create. The most critical of these, is that:

"[N]ot every engineer can or will do a good job at writing down what he or she knows. Every person should reflect on life, but not everyone can write poems or novels about their musings. Knowledge management will not succeed if there are no workers and managers whose primary jobs involve extracting and editing knowledge from those that have it[.]" (Davenport & Prusak, 1998, p. 175)

Knowledge management efforts will evolve (Baria, 2005). If dedicated personnel are working on it the knowledge management efforts will begin to flourish. Organizations must be mindful that support infrastructure is required to keep stewarding the value and benefits of these efforts.

Necessary leadership to support knowledge management

The studied company thrives in an environment of continuous change and as such its leadership should avoid habitual innovation (Fullan, 2001). Innovation should be purposeful and not just attempted at every opportunity as this will negatively impact the company's ability to become a learning organization. As adults, employees seek to understand and assimilate information. Adult learning theory point out that achieving the self-directed learning state requires a catalyst or personally owned motivation by each employee in order to drive the sustained learning mode. A consequence of habitual innovation is the potential undermining of that catalyzed learning state or learner threshold. Leaders within any

organization that strives to be a learning organization need to be cognizant of this balance. Continually having motivated learners (employees) shift out of that catalyzed, self-directed learning state detracts from realizing the flourishing learning organization state.

Understanding the change process as described by Fullan (2001) is fundamental to implement any knowledge management effort including the introduction of learning groups. He explains:

Understanding the Change Process

- The goal is not to innovate the most.
- It is not enough to have the best ideas.
- Appreciate the implementation dip.
- Redefine resistance.
- Reculturing is the name of the game.
- Never a checklist, always complexity. (Fullan, 2001, p. 34)

When leading change, Hamel (2000) may argue that it is better to "be a novelty addict" (p. 126). However his leadership model for the company would be detrimental to the simple fact that the company is in constant change and revolution. Following this advice prescriptively without consideration to the nature of its business, the company's leaders would fail to address the deep cultural undercurrents in the organization that may exist as a result of numerous process improvement efforts and multiple prior process changes. As such, Fullan's model is more pertinent to the challenges facing the company to be studied and the constant change they experience.

Lead through organizational learning

Another aspect to be considered is leading through organizational learning

(Davenport & Prusak, 1998). This supports advancing cultural change through thoroughly understanding change, developing widespread commitment, the "need for slowing knowing, the importance of learning in context, and the need for leaders at all levels" (Fullan, 2001, p. 121). Davenport and Prusak described four elements that should be mastered in order to lead with organizational learning: building and facilitating communities or practice, personal mastery, self-organizing organizational structures, and planning with scenarios (Davenport & Prusak, 1998, p. 169). The learning groups will be evaluated with these aspects in mind to see if the relative effectiveness of a group is related to the aspects of the learning groups that map to Davenport and Prusak's four elements. Kotter (1996) further described that guiding a collation will also propel change within an organization. This allows participants the time to assimilate information and transform their understanding of information which supports the idea of providing the motivation that adult learner need to remain motivated and in the self-directed learning mode. Another tool that supports this is the 'extreme programming' (Beck, 2000) approach to implementing a change through rapid prototyping with both tools and with processes. This can be seen in mature communities of practice as participants at the core are typically testing out new means to solve newly identified challenges or topics of interest to the community.

What is knowledge management and Why have we missed the mark before

Knowledge management has many connotations and can elicit an equal number of reactions and interpretations (Davenport & Prusak, 1998; Davis, Subrahmanian, & Westerberg, 2005; Despres & Chauvel, 2000; Fensel, 2003; Firestone, 2002; Firestone & McElroy, 2003; Malhotra, 2001). This is somewhat in contrast to its predecessor effort, documentation. Just utter the word documentation with a company in the presence of

engineers or software developers and you will immediately feel the energy shift and hear the groans of displeasure. This is likely true in the company to be studied. Documentation is a key component in sharing information and in distributing the information across groups of individuals and these may be distributed geographically confounding the challenge. Knowledge management generates a broader spectrum of interpretations in corporate environments (Despres & Chauvel, 2000). Perhaps this was due to many unsuccessful knowledge management projects. Davenport and Prusak outlined nine factors leading to knowledge project success:

- A knowledge-oriented culture
- Technical and organizational infrastructure
- Senior management support
- A link to economies or industry value
- A modicum of process orientation
- Clarity of vision and language
- Nontrivial motivational aids
- Some level of knowledge structure
- Multiple channels for knowledge transfer

(Davenport & Prusak, 1998, p. 153)

Building the Successful Knowledge Management Effort

Phases of Collaboration to Support Knowledge Building Efforts

This research proposes some observation on how individuals progress through the resistance to any profound organizational culture or process change. It is proposed that

there are three phases in the spectrum of an individual's willingness to change. These will be used as a tool to assess each participant's ability to listen to new ideas and openly share their ideas with the learning group.

Phase 1 - "Have to do it…": This comes from an organizational mandate or policy requirement. In other words, staff members are told or instructed that they must comply. This can be encouraged by both positive incentives and on occasion by threats or fear. While this may not be the preferred long-term support strategy, it can effectively initiate a knowledge building effort if it is quickly transitioned into the subsequent phases of collaboration. Techniques of how this may be accomplished are discussed later in the "Create the Environment to Share and Build Knowledge" section. In this phase, the climate is usually negative and the staff members are likely crippled by some aspects of fear (Deal & Kennedy, 1999; Fullan, 2001; Taffinder, 1998). There may also be an element of mistrust and resentment that may be the result of leadership style (Blanchard, Carlos, & Randolph, 1999; Fullan, 2001; Northouse, 2004). Likely the employees have not found their internal motivation and are not operating in the self-directed learning mode.

Phase 2 - "Need to do it…": Employees discover that they want to participate in knowledge building efforts because they have become overwhelmed with supporting their tasks or the projects that they manage or need knowledge to solve challenges/issues. In this sense, employees need to participate and to cope, but they have not yet reached the phase of willingly sharing their tacit knowledge except under extreme circumstances of being overwhelmed (Bridges, 2003; Saint-Onge & Wallace, 2003; Wurman, 2001). When many members of a team or community are in this phase, there is an opportunity to transform the culture and organizational processes of the group if the leader is rooted in

slow knowing and leads with organizational learning because these are very supportive styles that will allow the larger group the time to move through this phase to the final phase of collaboration. If the leader is driven by technology innovation without considering the cultural and organizational aspects of the desired change, then the community members are likely to spiral further down the resentment path and will likely become completely apathetic (Bridges, 2003; Fullan, 2001).

Phase 3 – "Want to do it…": The optimal phase of collaboration is achieved when the sharing of tacit knowledge is done proactively by the community members. Saint-Onge and Wallace (2003) described this as "a culture of self-initiative, shared ownership, and collaboration" (p. 13). In this phase, the barriers to knowledge building have been successfully overcome, and the process is self-sustaining because the environment and culture of the organization's values encourage frequent, genuine sharing of ideas, questions, experiences, and knowledge. Collectively these four elements equate to the tacit knowledge of the organization and its members. When the "want to do it" phase of collaboration is the norm, this is a signal that the element of trust is embedded in the organization. This also helps its members to feel that they are collectively moving toward a shared and valued goal, thus achievement of a learning organization.

As the learning groups are studied it will be important to note which phase of collaboration the group and its members are in to direct the level of leadership and elements needed to guide the group toward the learning organization.

Figure 1.

Phases of collaboration

Create the environment to share and build knowledge. The most difficult part of a knowledge management system is not the technology or the structure of the information. These are simple tools, not the actual content. The most challenging aspect is the creation and organization of the content so that it will be meaningful to someone who accesses the information. Saint-Onge and Wallace (2003) describe 'Knowledge Capital' as the integration of an organization's human capital, structural capital, and customer capital. They further discuss the distinction between knowledge access and knowledge exchange, where access is a repository whereas exchange is the kind of sharing of experiential and tacit knowledge that is in line with the goals of the company to be studied. Just like Wurman (2001), they

talk about the transformation of information to knowledge. Saint-Onge and Wallace (2003) call this transformation learning or effective action, but simplicity of Wurman's (2001) explanation that we learn the things that we are interested in, at the time that we are interested in them is really more applicable to the achievement of a corporate learning organization. In this research it aligns with the notion of just-in-time, just-in-context training and information. Regardless, an element common to any description is the need for a nurturing environment to allow this type of transformation to occur. So the learning groups will be described with this context in mind.

Another common misconception is that knowledge management efforts need to be heavily designed or structured in order to realize the goal of being efficient warehouses of corporate/organizational knowledge and expertise. In work similar to Clayton Christianson's (1997) 'The Innovators Dilemma' and Gary Hamel's (2000) 'Leading the Revolution' where they speak about the mystique of leading efforts within technology rich environments, Beck's (2000) account of extreme programming would likely agree that over designing the infrastructure of a program is shortsighted.

Extreme Programming

Beck (2000) is a noted author whose works are related to leading software development projects. One of his most famous theories is that of "extreme programming" where he advocates more value in having two programmers share a workstation while they code small snippets and quickly return the product to the client who can touch and test the iterative products to provide immediate feedback to the programmers. In Beck's (2000) view the added cost of two sets of eyes on the code stimulates collaboration, competition, more robust code, and few misinterpretations of the client's vision. He chronicles of how

iterative programming is far more successful than waterfall methodology of software development, where the waterfall dictates that all requirements of a software application are collected and defined at inception. Once the application is completed, the user only sees the end product, and the user typically had not seen a prototype application to ensure that the initial requirements were not lost in translation.

This notion of rapid iteration can easily be applied to other technology development areas, particularly ones where software development and process improvement are intertwined, as in the case of the company to be studied. By following the extreme programming approach, the ability to rapidly prototype several scenarios of the possible future processes will support the evolution of the learning groups to support achievement of the full collaboration state of a learning organization.

He would likely support a less heavyweight approach in the initial iterations of a knowledge management process. The distinction here is that the main goal is not the collection of data and information, rather its focus is the capture of the organization's tacit knowledge in such a way that its members can continuously build upon it and collaborate as an efficient learning organization. The same principles of extreme programming apply for the studied company's purposes.

The true work is in creating an atmosphere where all team members are comfortable with an environment of sharing. This sounds quite basic, but it is actually the most difficult part of the knowledge management process. It is usually referred to as simply "gathering the content". Some organizations are closer to achieving this than others because they draft documents on how content should enter the system. They also invest in software and tools that will ensure that collaborative documents are not duplicated or overwritten. This

still doesn't really address the main barrier to share information or contribute content. The first step is to establish an environment where employees feel comfortable sharing their skills and expertise. The next is to encourage them to want to share their ideas and information often, without being prodded or coerced. This sounds like the kindergarten sandbox, or making sure that all of your friends get a chance to swing at the piñata at your birthday party. Well, that isn't far from the case in the area of knowledge building and gathering the all-elusive "content" for a knowledge management system. In short, it needs to become ingrained in the culture of the organization, and it needs to be self-perpetuating to a large extent. Coercion and incremental extrinsic motivators will not encourage an enduring environment of information sharing across an organization, and they are rarely successful in transforming an organization into a culture that supports the intrinsic motivators for sharing information to persist. This is like commanding a seed to spout petals. The desired outcome is not achieved.

Progressively Encourage Knowledge Building

An essential element that should be incorporated into any plan is sufficient time and resources to allow the knowledge building process to flourish, which was a common oversight in other knowledge management efforts (Argyris, 1982; Falk, 2005; Junnarkar & Levers, 2005; Kannan et al., 2005; Voelpel et al., 2005). Knowledge building typically is called the content development, and it can easily become intangible because the time and energy needed to collect and organize the content are often grossly underestimated (Firestone & McElroy, 2003). This occurs because all the stakeholders in the organization do not define "content" synonymously, the company to be studied being no different. The initial attempts at knowledge management projects within an organization may have been

blurred by the "content" definition spectrum. In subsequent efforts, it is important to allow participants/community members time to find comfortable and effective mechanisms to share their tacit knowledge and to help build the content for the knowledge management effort. This is the essence of knowledge building effort, and yet most organizations have completely neglected this element during their initial knowledge management efforts/projects.

Another element that is critical to mention is the time factor. Just as Senge et al. (1999) have previously described, you cannot command a seed to bear fruit, it is nearly impossible to simply select a database structure, a software portal package, and disseminate it to the organization and expect the "content" to appear, or worse yet expect that the "content" *that does appear* will be of any effective value in a rapidly changing learning environment. People are as much a part of the knowledge management effort as the tools and the design of how the tools will be used to navigate the "content". Just as a seed needs to be nurtured and cultivated to sprout into a seedling and to mature into a flowering plant that can then be pollinated in order to eventually bear fruit, so too must a knowledge management effort be organically guided to evolve into a culture that encourages the knowledge building and sharing of all the organization's tacit knowledge. Furthermore, this tacit knowledge must be in a format that allows all community members the ability to easily contribute and participate in the process in a time efficient and effective manner. Put simply, community members need to progress through the "have to do it" and "need to do it" phases in order to reach the "want to do it" phase of collaboration. This is not news to experts in the knowledge management business (Despres & Chauvel, 2000; Malhotra, 2001; Senge et al., 1999; Wurman, 2001), and many business units within

companies desire the extraction of the tacit knowledge contained in their employees, but fail to realize that a piece of software or a corporate memorandum cannot advance them toward this goal. In this sense, they are commanding the seed to bloom into the flower without following its natural and requisite lifecycle.

Barriers to the new Knowledge Building Efforts. Each individual may have all the answers to questions arising from a project or subject matter area, but they may discover that they are either overwhelmed with addressing all the requests for information or further work, or they may discover that they are not always involved in the discussions that would benefit from their information or experiences. In the past, most employees would see being a gatekeeper as a means of job security (Drucker, 2001b), but this is actually quite contrary to reality, particularly when the organization is growing rapidly as rapidly as the company to be studied, and in a very geographically distributed manner. When employees discover that their experiences are not sought or utilized, they become increasing more frustrated and potentially paranoid that their job security is in question. Thus, in the end they predictably arrive at their original position of fearing to share their content/tacit knowledge (Deal & Kennedy, 1999). The most likely reason for this outcome is that they individually cannot sustain the gatekeeper or one-man-show model for long periods of time. The slope toward becoming an ineffective or disruptive team member isn't far when one is being overwhelmed by additional tasks and responsibilities, particularly in the area of giving away ideas, information and areas of expertise. In general, people resist sharing information openly in areas of subject matter expertise because they fear losing their valued position of expert (Davenport & Prusak, 1998; Deal & Kennedy, 1999; Drucker, 2001b). In teams though, individuals who openly share are usually valued even more. Employees do not have time to

become experts in all areas, so the paranoia theory doesn't hold in the workplace. Sharing, and sharing regularly, simply establishes a person as a resource and a valuable one because the sharing and collaboration takes place in an open and genuine way. Once you share, your colleagues will come back for more insights on future ideas or for the continued collaboration.

Guidance for Others. The main key to a successful knowledge management effort is centered on iteratively examining the focus on the effectiveness of the tools and structure selected to encourage the knowledge building process. If the community members that possess the tacit knowledge of the community are unable, or unwilling to share their experiences, and to do so in manner to be meaningful for others to learn, then the knowledge management system or effort will not realize its full potential and likely it will fall short of the vision of the initiative champion. These champions need to realize early on that time is their main tool to achieve their vision (Deal & Kennedy, 1999; Drucker, 2001c; Fullan, 2001; Hamel, 2000). They need to exercise patience in a strategic way to allow all the community members the chance to learn to "want to" share their sage experiences. The initiative champion should periodically check to see if the focus of the effort has strayed down the paths of either glitz or structure tunnels. If the design and graphics take the focus of the overall initiative, it is highly unlikely that an effective and useful system will be achieved. Instead, the champion should remove the IT (Information Technology) roadblocks that tend to isolate control of information contribution to a select group of highly computer technically advanced staff members. Knowledge management starts with the organization's general culture of how it encourages the sharing of information and general collaboration among its members (Kaplan & Bartlett, 2002; Lave & Wenger, 1991; Saint-Onge & Wallace,

2003). As corporate colleagues, we do require some conditioning in the area of collaboration. Effort should be placed in modeling the behavior that sharing information in the organization and capturing all individuals' experiences and ideas are valued and required for success of the individual and the group. This is done by spending a significant portion of time encouraging the knowledge building process and consistently using the tools and processes to communicate with the group on the actual knowledge management effort and all other projects (Fullan, 2001). In other words, this means make usage of the system equally easy to use as it is to contribute (Krug, 2000). If all your own information is being routed through the knowledge management software/ framework, and you take the time to direct community members to your contributions, then they are converted or even encouraged to make their own contributions because they experience the ease of contributing just by accessing the information.

In summary, keep the real utility of the knowledge management effort in focus. Give the effort sufficient time to evolve. Impatience can actually lead to a wonderfully designed knowledge management system that is not dynamic and adaptable to changing information that is rampant in fast paced learning organizations. Such inflexible systems are typically not scalable because they require gatekeepers to modify the web pages or the "content". Function should take the focus, but only after a culture of "content" building and sharing is widely embraced by the community members. If the community members are not vested in sharing their tacit knowledge and context specific experiences, then "content" that is collected and stored in the knowledge management effort is likely lacking the depth and detail of information that was originally envisioned. You will likely have simply achieved a repository (Davenport & Prusak, 1998). Finally, once the culture of collaboration is

achieved, the design of the portal interface or the organization of the information can evolve and be optimized. It was this last realization that I had to empirically derive. The company to be studied like many others (Falk, 2005; Goodson, 2005; Junnarkar & Levers, 2005; Kannan et al., 2005; Voelpel et al., 2005), should be cognizant not to over plan and design the initial efforts so that their knowledge management system would be scalable and sustainable.

Summary

Given Chapters I and II, it is relevant that this research be done.

CHAPTER III. METHODOLOGY

Introduction to Problem

Knowledge management efforts have been a challenge in the industry and the previous efforts have looked at various aspects of implementation (MacCormack, 2004; Voelpel et al., 2005). This research will focus on the individual's learning experiences and motivations to engage and participate in knowledge management activities and collaborative knowledge sharing. The application of social learning, communities of practice, and adult learning theories will provide a fresh perspective on the effectiveness of knowledge management programs.

Research Questions

The following specific research questions shall be the focus of the proposed study:

RQ1. How were the plans and goals of the learning groups communicated to the learning group members?

RQ2. How were support and resources provided in the implementation of the learning groups to achieve collaborative knowledge sharing environments?

RQ3. How were the critical success factors identified among learning groups that achieved collaborative knowledge sharing environments?

By focusing this research on these three questions a framework will be constructed to view the company's knowledge management effort from the lens of the learner/participant in order to review the effectiveness of knowledge creation, transfer and evolution. Since learning groups were the core structure established to share, shepherd, and evolve knowledge, these will be the central focus of study in this research.

Research Design

The proposed study will use a program evaluation, a combination methods educational research methodology design. This study will to explore processes that are utilized in a corporate knowledge management program and will determine relationships among the design of infrastructure, deployment training, and daily operational workflow integration. From concept to deployment of the knowledge management program, issues related to organizational barriers to the change effort will be investigated. This study will focus on a science-based corporation that is striving to evolve its operations organization into a mature learning organization. The company has made commitments to organizational learning and the current knowledge management program has been well supported and resourced. The active knowledge management program is in the implementation phase. A major component of the knowledge management program is learning groups. These learning groups were mandated and architected by executive sponsors in the operations division to drive information sharing in order to ensure that process improvements and lessons learned were appropriately shared and available to cross-functional teams that may embark on related efforts/projects. The main purpose of this study will be to explore how the learning groups have impacted the success of the knowledge management program implementation from the perspective of communities of practice and social learning principles in order to see how this relates to learning group members' opinions of the impact of the learning group on the knowledge management program.

As part of the artifact review, the learning groups shall be assessed and categorized into one of the following:

- Organization centric: Learning groups that were developed in direct response to

an organization direction, where the curriculum and purpose was set by the organization leadership. This is the top-down mandated approach where little consultation of participants occurred

- Leader centric: Learning groups that have a curriculum set by the leader of the learning group, where little consultation of the participants occurred. The learning group leader may be a thought leader on the topic/discipline or viewed as the technical authority of the disciple.
- Learner/member centric: Learning groups that had significant thought, planning and support for the training of general staff to utilize the knowledge management program/process and subsequent distribution of shared organizational information, where the members contributed to the curriculum/direction of the topics discussed.

By categorizing the knowledge management programs, characteristics of the implemented programs shall be analyzed to establish any relationship between effectiveness of the specific learning group and the design of the learning group. Such relationships shall be used to provide guidance for successful planning strategies for knowledge management programs.

Proposed Methods

In order to achieve the stated research purpose, a descriptive evaluation method shall be used. This is an appropriate approach as the nature of social learning and interactions within a community that contribute to collaborative learning are by nature subjective and variable. The descriptive evaluation allows for the exploration of the environment to reveal a deep understanding of the implemented learning groups. Where

possible, criteria shall be established to evaluate the learning groups and provide a means to derive some semi-quantitative evaluation of the effectiveness of the learning groups in achieving the collaborative knowledge sharing environment of learning organization.

A qualitative evaluation is proposed due to the lack of information available on the area of successful knowledge management program initiative implementation. The proposed study will examine learning groups that have been established in support of the company's knowledge management program. Learning group focus, maturity, and connection to the business processes shall be considered and incorporated in to the proposed study. By deeply considering the aspects of learning groups that members/management perceive to be successful/effective, characteristics of the challenges encountered may provide the basis for establishing guidelines to plan and implement successful and effective future knowledge management program initiatives in other organizations. Direct study of the learning groups will provide evidence of patterns in the infrastructure, scope of the effort, focus of curriculum and workflows that were considered and included in the establishment of the learning groups. Further, the comparison between the learning groups and the respective focus of the learning groups in this knowledge management program may provide insights into guidelines that could shape a successful knowledge management program initiative for another company based on the desired program outcomes and goals.

Sample

People

People are proposed to be the main source of data. In order to understand how a learning group was designed, developed, implemented and utilized, it is critical to learn

about the experiences of the people involved in the knowledge management program from a variety of perspectives. The target population for the study is business managers, operational managers, and end users of the enterprise wide knowledge management program initiatives in corporations that meet the criteria of participating in one or more learning groups related to the knowledge management program. The study goal will be to look broadly across all established learning groups with the studied company and then narrow the focus to identify 3 to 5 that meet criteria of multiple knowledge management program initiatives and that have management teams that are willing to participate in the study. A non-probability sampling procedure will be used because there is no way to estimate that all members of the study have an equal chance to participate in the study.

Artifacts and Documents

A review of available artifacts and documents from the participating companies will be conducted. These artifacts will include organizational charts, roles and responsibilities statements for the project teams, the curriculum and schedule of meetings for the Learning Group, tools utilized by the learning groups to communicate and store information, standard operating procedures for interacting with the knowledge management program, training and support documentation used during implementation, statement of work documents delineating the intended scope of the initiatives, organizational memos and announcements related to the initiatives, and other related materials. In addition any information that can be gathered on the project budgets and reports on actual costs during the project will be collected.

Instrumentation and Data Collection

Since the goal of the study is to understand the complex environment necessary to

plan and carryout successful companywide knowledge management program initiatives, multiple data collection strategies were be used. These will include, survey, interview, and artifact review.

Screening Interview

In order to determine which learning groups have met the criteria for evaluation, telephonic interviews will be conducted. This will provide a cursory foundation to identify the learning groups that will be included in the study. It will also provide an opportunity to obtain any organizational approvals from the participating company.

Survey

A general survey focused on answering aspects of the research questions will be developed and distributed to the target populations at each of the participating learning groups. The survey will be electronically delivered in a web-based tool to facilitate future analysis. Open-ended questions will be included to solicit participation in follow-up interviews and visits. General questions will be included to collect relevant demographic information that related to the survey participant's: function within the organization before and after the knowledge management program; role in the design, development, implementation, and maintenance phases; general skill set and experience with technology tools and eCommerce; and the length of time in the department, company, and industry. Specific questions will be asked to categorize the learning groups and the survey participant's impressions of the phases of the knowledge management program, and the effectiveness of the learning groups. Since the main goal of the survey is to measure opinions and knowledge of the subjects, scoring will be secondary to the purpose.

Artifact Review

After receiving the survey responses, 3 to 5 learning groups will be selected to study in depth. Particular consideration will be given to learning groups that have been established for more than two years and to ones that are currently involved in the design, development, or implementation phase of establishing a Learning Group. Where possible visits will be made to gather the artifacts listed above in person. If this is not possible then the artifacts will be collected by telephone requests. The review process will also consist of discussions with the employees to clarify the artifacts and their importance to the organization and the criticality to the knowledge management program initiatives.

Leadership Interview

In the selected 3 to 5 learning groups, interviews will be conducted with the executive leadership that sponsored the initiative and with the lead team members in the business process, informational technology, and operational process areas. The goal of the interviews will be to identify the leadership strategies and overall project strategies that were used in the various learning groups to support the knowledge management program initiatives. A critical incidents method will be used to reveal areas where the program may have had opportunities for improved outcomes.

Data Analysis

Proposed Procedures for Data Analysis. The data will be collected and analyzed to determine whether there are identifiable relationships across the studied learning groups to provide guidance toward the establishment of guidelines to ensure successful knowledge management program initiatives. In order to find these relationships, it is proposed that the learning groups supporting the studied knowledge management program shall be

categorized into their respective strategic focus areas of either organization/management centric, leader centric, or learner/member centric. The hypothesis is that one of these strategies may have greater success in the organization based on the gathered demographic information that is gathered about the participants in the general survey and the artifact review. Once these relationships are identified, they can be further developed and strengthened through the information gathered from the leadership interviews.

Description of proposed data analysis processes

The detailed data analysis shall be determined following final input from the committee at the preliminary oral defense. Data from the three sources (interview, member survey, and artifact review) shall be grouped to look for patterns. The mean, median, and mode of particular questions shall be divided into groups in order to capture themes and patterns among the various learning groups and how these groups performed with respect to the research questions.

Validity and Reliability

Validity. The tools required to conduct this study will be presented to subject matter experts in knowledge management and in qualitative evaluations in order to establish that the screening interview questions, the survey, the artifact review process, and the leadership interviews all provide the information that is being sought. Suggested changes and modifications to the instruments will be incorporated as appropriate into the final instruments prior to distribution.

Prior to initiating the two modes of participant data collection, the instruments will be tested in a small setting with representative subjects to test the responses received from the interview/survey questions in order to establish that the questions are appropriately

comprehended and interpreted by the respondents . This will be done to reveal any inconsistencies in the gathered data using the tools. The data collected from this will be reviewed to determine whether the proposed analyses will be feasible. If issues with any interview/survey questions are discovered, these will be updated accordingly to ensure that the intended information is captured. Further if this collected data does not fit the proposed analysis tool, modifications may be made to the proposed analyses.

Reliability. Given that this research is proposing to use the qualitative descriptive evaluation methodology, three modes of data collection will be used to minimize any unreliability or subjectivity inherent in the gathered information, namely leader/management interviews, learning group participant surveys, and learning group artifact review assessments. This triangulation of the data will minimize the subjectivity of the data and should strengthen the reliability of the overall evaluation methodology for the study. Specifically the survey (Appendix A) will be used to drive some quantitative aspects of the collected data to drive less subjective analyses and observations from the respondents. Likewise, the artifact review assessment (Appendix B) will contain quantitative measures to identify the state of the learning group and phase of collaboration that the participants are in based on the identified artifact evidence. Specifically, the number of events (discussions, meetings, presentations, workshops, etc.) will be captured, the presence or absence of a learning curriculum, the quantity of knowledge assets and artifacts within the learning group will be captured, the number of members/participants will be captured, and various other information will be captured. In taking this semi-quantitative approach, the study will be poised to review trends that may be linked to how the learning groups operate or behave as an organism.

Ethical Considerations

Cooperating institutions and funding sources. The proposed study shall be conducted at a science based company and approvals shall be sought to conduct the work with their employees and utilize their systems to review the learning groups' artifacts. Any additional approval processes required by that institution shall be completed in parallel to Pepperdine University's Graduate and Professional Institutional Review Board (IRB) approval process.

Scope of the Study Review. The proposed study requires limited participant involvement and does not have any health and safety exposures to the participants. As such, an expedited IRB shall be pursued. This is supported by Pepperdine University's IRB Manual, Appendix C which states:

Research Categories for Expedited Review …

…(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation or quality assurance methodologies (University, 2009).

All proposed research methods and interventions are limited to the participant's experience and opinions.

Protection of Subjects. The participants in this study shall all be voluntary and will consent to participation in the research. Informed consents will be provided to the participants in advance of participation. Appropriate permissions to proceed with the proposed research shall be obtained from the company and from Pepperdine University's Graduate and Professional Institutional Review Board prior to the initiation of the proposed

research. All applicable regulations shall be followed in the course of the research.

Selection of subjects will be limited to individuals over the age of 18 and employees of the company being studied. Inclusion criteria for the research shall require that the participant meets one or more of the following:

- A leader responsible for the establishment of a learning group
- A leader responsible for the knowledge management effort
- A leader of a leader group
- A member/learner of a learning group

The number of subjects shall be approximately sixty individuals across the roles and learning groups. The specific number of subjects shall be determined by the membership of the learning groups and the quantity of learning groups.

Subjects shall be recruited through the use of electronic email of a flyer (Appendix E). This email shall be sent directly to the membership of the learning groups and the associated organizational leaders of these learning groups.

All participants shall have rights and shall be allowed to withdraw from the study at any point. Data collected from participants that withdraw shall be excluded from the research.

Interventions and procedures that the participants may be exposed to include telephonic interview, surveys, observation, and dialogue. Each instrument for data collection can be found in the appendices (Appendices B-D). No drugs, medical devices or procedures are involved in the proposed study. The study does not fall under HIPAA.

Risks associated with participation in the proposed study are limited to the disclosure of personal experience and opinion. To minimize this risk, surveys will be anonymous and

captured via a web-based survey tool methodology. Additionally the learning groups will be de-identified in the data analysis to abstract the observations from the data within in each learning group. At the point of contact with a prospective participant, the informed consent shall be provided (Appendix A) and any questions answered. If the participant consents, a copy of their signed consent shall be provided to the participant for their records. Only after informed consent has been executed by the participant shall interactions occur.

The potential benefits to the participants include the opportunity to provide feedback on the implemented learning groups and the knowledge management effort. They shall also have access to the study report and may choose to follow the recommended suggestions to enable a collaborative learning environment.

All data will be gathered in a manner to protect participant privacy and analysis will be provided in aggregate to preserve confidentiality of the gathered data. Information shall be gathered and analyzed by the researcher and stored on a secure, password protected computer. Participants shall be given participant identification numbers and there shall be two separate files required to track back to any personal information of the participants. Any collected data from participants shall be referenced with the participant identification number. The respective learning groups will be coded and given codes to further provide privacy to the participants and to minimize bias in the analyses. Data shall be kept the required amount of time and then appropriately destroyed. The data shall be stored on a secure hard drive under password lock.

Limitations

The study scope focuses on one organization and as such is limited to its experiences. The results and conclusions may not be directly transferable to all corporate

environments or all knowledge management efforts. It is expected that this study should serve as a model for other corporations that strive to be learning organization and that share similar characteristics as the studied company. The mixed methods approach is largely qualitative in nature and as such is somewhat subjective. Efforts shall be made to reduce this impact by using multiple modes and mediums of data collection and analyses.

The researcher may have bias from prior experiences with building collaborative learning environments or with knowledge management efforts. In order to reduce bias, efforts shall be made review subjective responses from participants with an additional rater. Bias shall be further minimized by the use of the quantitative analysis of the learning groups' artifacts. The triangulation of the data source shall serve to strengthen the research.

Summary

This chapter identified the study design and methods which shall be performed to gather the proposed data and then subsequently evaluate the proposed research questions. The recommendations will be further discussed and detailed out in subsequent chapters upon approval of this proposal and completion of the proposed research.

CHAPTER IV. PRESENTATION OF FINDINGS

Introduction

Three main research questions were studied and analyzed in this work with the purpose of better understanding learning within a corporation. Below is a review of each specific research question, the data gathered and studied, and the analysis of each with respect to the aspects of the studied learning groups. The data were collected from artifact review of the learning groups, interviews with the learning groups' leaders, and a survey of the learning group members.

Five years ago the company had several events in their operations division which could have resulted in costly interruptions in the commercial supply of its products. These events all had a common theme; these were similar to prior events/issues which happened at other manufacturing sites in the network. This was the foundation for a holistic approach to improve knowledge sharing within the company. The executives wanted to drive their teams to become a learning organization. Out of this vision was born several key initiatives for the company's operations division. The establishment of a knowledge management database, a strengthened effort around overall process improvement/continuous learning, the establishment of learning groups throughout the network, and an analysis of all single points of failure in the production process were championed by executive management. The support and resources for these key initiatives were provided and employees at all levels incorporated goals into their annual performance evaluations that would advance these initiatives. This was the foundation to evolve into a learning organization. The learning groups initiative was the main area evaluated in this research as a means to gauge whether the employee culture was evolving into an environment where distributed expertise was

being tapped in the course of routine problem solving and product development. The secondary result of this research would provide indicators on the progress of the overall knowledge management effort from a cultural/behavioral perspective.

The learning groups were generally aligned with the organizational reporting structure of the organization. These are distributed across seven sites in four countries with seven time zones. This research study evaluated five learning groups based at two of these sites. Learning group members typically were co-located at the manufacturing site, with the exception of one learning group that had members located at four sites. The members were from all ranks of the company's organization. The learning groups ranged in the length of time that they had been established; some had been active for four years while others had been established for less than a year. Learning groups included in this research had been established for at least three years. The learning group leader also had to agree to allow access to the learning group members. Overall there was a 30% response rate among the individuals contacted across the groups. The learning groups members have demanding work schedules and there were some barriers to complete the survey; willingness to participate and having sufficient additional time to contribute.

Presentation of Findings

Screening Interview

The screening interview was used to learn about the intent of the learning group and to gauge the learning group leaders willingness to participate in the survey. This brief conversation led to the request to work with their learning group participants to invite them to join a survey and set up the leadership interview that would be the third portion of this study. During the screening interview the learning group leader was also asked how often

the learning group website was used by the group. If the site was not used, the learning group leader was asked how they communicated the learning group activities and the curriculum of their program. In one instance a learning group utilized a logbook to record the completed learning group activities which remained on the operations floor and the group used no online record of the learning group activities

Leadership Interview

Five learning groups were selected for this evaluation based on the interest of the learning group leaders. Learning group participants were provided by the learning group leaders.

Table 1

Mapping of Leadership Interview Questionnaire to Research Questions

Survey Question (Appendix C)	RQ1 Communication	RQ2 Support	RQ3 Sharing Success
1	●		
2	●		
3	●		
4		●	
5			●
6	●		
7	●	●	
8			●
9	●		
10		●	
11		●	

Learning Group A

This learning group is not a network of professionals across many topic areas, but a singular group in a manufacturing line consisting of line operators focused on the activities needed to help improve knowledge about topic areas on the line and to cross pollinate skills from operator to operator. When events occur on the manufacturing line these are folded into the learning group curriculum so that the topics are current and relevant to the challenges of that particular manufacturing line. The learning group meets regularly as part of the regular department meetings. Members of the learning group are not from outside the department and typically others are not brought in to join the learning group activities. The opportunity for learning members of other learning groups to join is very limited. The learning group activities are not broadly posted or broadcasted for others outside the department to have awareness. This learning group also does not maintain a website or a collection of the materials used in the learning group activities for others to review at a later date. The main record of the learning group's activities are kept in a logbook in the manufacturing area. This log also serves as the record of participation in the learning groups activities.

Learning Group B

This learning group is from a manufacturing facility and as such has an immediate need to share events that occur related to safety or related to product quality. These topics rise to the top of the list of their curriculum as they occur. The leader of this learning group provides an overall curriculum across a broad spectrum of line operators, environmental health and safety professionals, automation professionals, engineering professionals, chemistry professionals, and biology process development professionals. The subgroups

then execute the learning activities in smaller settings related to their specific topics of work, but all subgroups follow the overall curriculum of this lead learning group. This collection of subgroups was studied in aggregate as one learning group. This learning group displayed a leader centric learning group style as the curriculum and activities were set by the learning group leader.

Leader Learning Group C

Learning group C is focused on the practice of a professional discipline within the organization; their standard methodology is shared within this learning group and the topics are brought into the curriculum to help advance the greater knowledge of the group and practitioners. The group's members are not confined to one department, but reach professionals throughout the organization who utilize the same methodology. Learning group C seems to be a blend of a leader centric group and a learner centric group. This may be a sign that the learning group is in a state of transition or evolution toward a learner centric group.

This learning group is moderated by an owner that helps to coordinate the scheduling of the learning activities. This owner collates the curriculum of a distributed group of leaders. The learning group was established prior to the major learning group initiative within the company. Learning group C was established to share best practices, descriptions of lessons learned, and for the overall advancement of the professional practice within the members of the learning group. After the division-wide push to establish learning groups, this pre-established group adopted the practices of the learning group playbook and began to hold their activities at the frequency that was requested through the overall learning group initiative. Since this team had a previously established website, they maintained that

website in lieu of the one supplied by learning group initiative. The overall vision for the learning group was established by the head of the department with input from learning group participants. This particular learning group tends to be a leader centric style learning group.

Leader Learning Group D.

This learning group is unique in that the leader of the learning group is also one of the champions of the overall initiative for the knowledge management effort at the company. The vision for this learning group is very mature. The support and infrastructure that learning group D has amongst its members is aligned and united. Within this manufacturing area there are multiple smaller learning groups that are coordinated through a larger learning group of leaders all located at this particular manufacturing site. As a result, the curriculum across the learning groups is well defined and the curriculum is consistent across the learning groups. Each learning group is supported by the leaders that participate in the overall leadership learning group within this area. As such, this learning group is organization centric.

The value of the learning group participation has permeated through its members. Time is allotted for their participation in the learning group activities and it is evident that the learning group has been identified as a key resource to have sustainable collaboration and learning within their organization. Additionally, learning group D leverages the tangential component of knowledge management data system established within the greater organization. In this way they are tapping into the distributed network of subject matter experts.

The leader of learning group D sees the value in sharing the information artifacts

within the larger division at the company through this knowledge management database. In this way learning group D champions sharing information across multiple learning groups or others within the company that do not participate actively in learning groups. This helps to foster an environment of sharing and collaboration outside the confines of their organizational reporting structure and contributes to a distributed network of knowledge.

Leader Learning Group E.

This learning group also follows a curriculum established by the leader with inputs from the participants at the end of each year. They agree upon the curriculum for the subsequent year. Learning group participants play an active role in the curriculum that is established for the learning group. Overall the learning group was initiated due to the company's initiative to have learning groups within organizations to share information and develop its employees. For the most part this learning group tends to be a leader centric learning group.

Survey

The survey utilized with the learning group participants consisted of ten main questions that augmented the artifact review and the leadership interview to address the three research questions. These were targeted at the effectiveness of the strategies that the learning groups used to: communicate the plans and goals or curriculum of the learning group to its members (RQ1); provide adequate support and resources to have an effective learning group environment (RQ2); and to see if any key factors were important in the establishment of the collaboration environment (RQ3). Survey question 1 was included to see if participants that had been involved with the learning groups for shorter or longer periods of time had different perceptions/reactions to the questions based on the length of

time that they had been involved in the learning group(s). Survey questions 3, 4 and 5 gauge the members' perceptions to how well the support and resources had been applied as it translated into the effectiveness of the learning groups for the members. These address the effectiveness of the support and resources for the knowledge management effort in the context of the learning groups. Survey questions 6, 7, 8, 9, 10 look at whether the learning

Table 2

Mapping of Survey Questions to Research Questions

Survey Question (Appendix B)	Relevant Figure	RQ1 Communication	RQ2 Support	RQ3 Sharing Success
1	Figure 2			
5	Figure 3		●	●
7a	Figure 4		●	
7b	Figure 5		●	
7c	Figure 6		●	
7d	Figure 7	●		
7e	Figure 8	●		
7f	Figure 9	●		
7g	Figure 10	●		
7h	Figure 11	●		

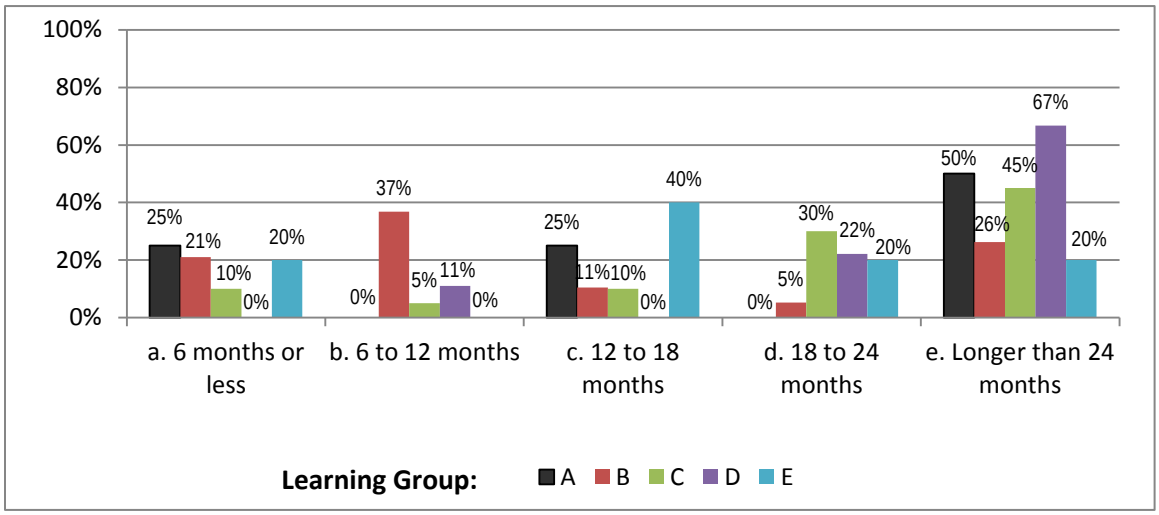
group members are aware of the learning group goals/plan and curricula and whether they know how to find that information. Additionally, questions 8, 9, 10 look at whether the established website infrastructure is where they may look for the learning group goals/plan

and curricula in order to see if that has been effective for the learning group members. Survey question 2 looks at multiple aspects of the maturity of the learning group performance to see if only a few members are contributing in multiple manners or if a broader cross-section of learning group members are engaged in the various roles within the learning group. In Table 2 the questions contained in the learning group member survey are mapped to the three main research questions for easy reference.

Learning group participants from the five learning groups included in the study received an email to invite them to participate in this research evaluation. The email provided them with a link to a web based survey system to administer the participant survey from APPENDIX B. LEARNING GROUP PARTICIPANT SURVEY. The initial page of the electronic survey was the informed consent from APPENDIX A. INFORMED CONSENT. The first question of the survey was the electronic confirmation of consent to participate in the survey. (“I agree and consent by clicking this button” or the other button “I do not agree and do not provide my consent by clicking this button”). Survey responses were filtered to exclude respondents that did not provide their consent.

Figure 2.

Length of participation



As depicted in Figure 2, the five learning groups had a mixture of members that participated in the learning groups for a short period of time and longer periods of time. Additionally, over half of the learning group participants were active in more than one learning group.

The participants in the learning groups responded that they had participated in the learning groups in a variety of ways. The overwelhming majority of participants across the learning groups indicated that they had suggested topics, activities, or events for the learning group (Figure 3). Learning group D had a high percentage of participants that made presentations to the learning group as well as had created docments/artifacts for the learning group.

Figure 3

How have you participated in the learning group(s)?

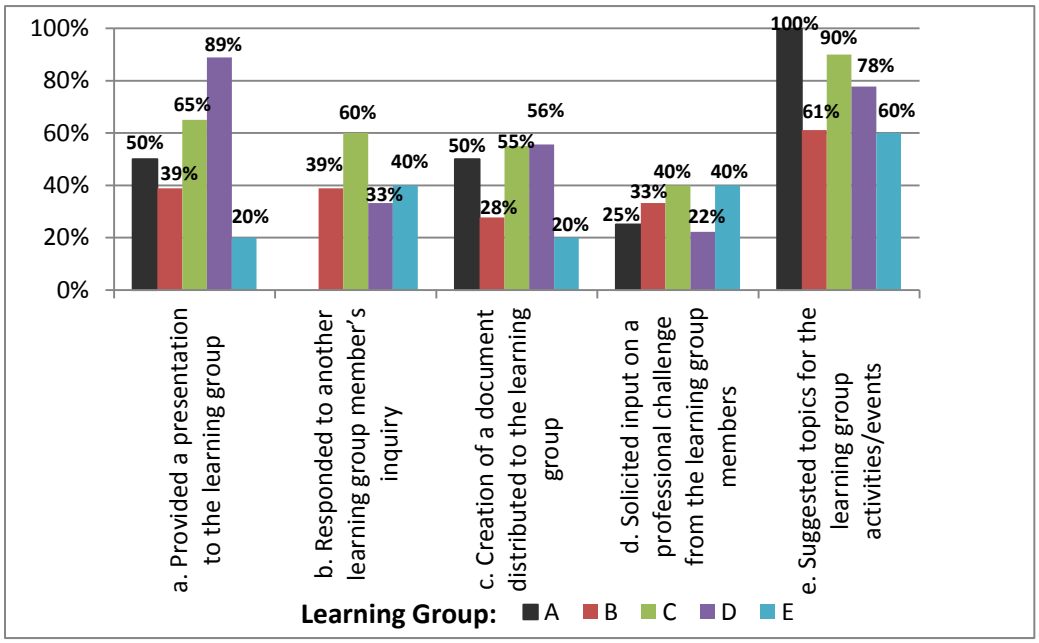
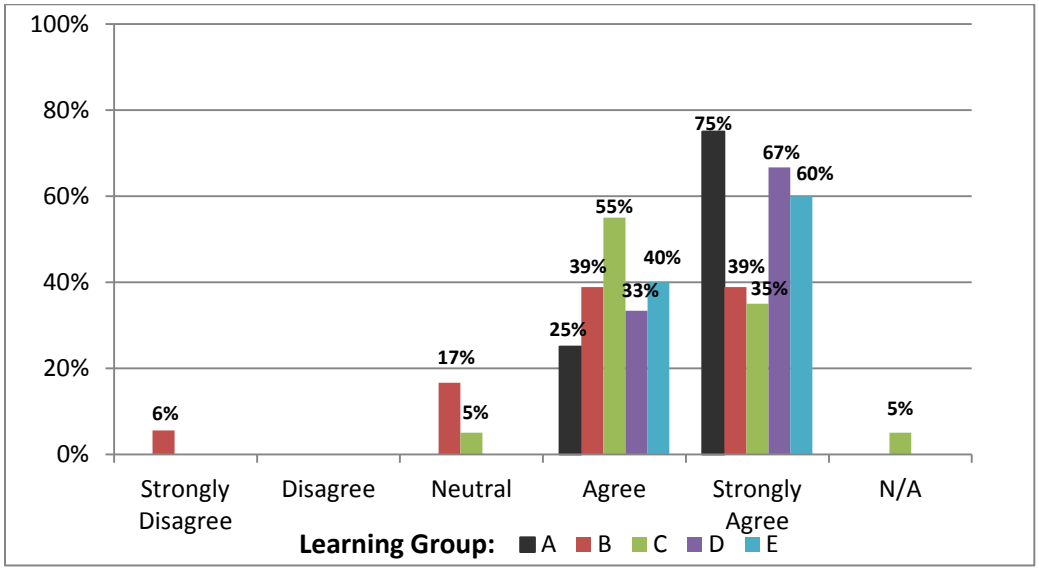


Figure 4

My opinion is encouraged in the learning group

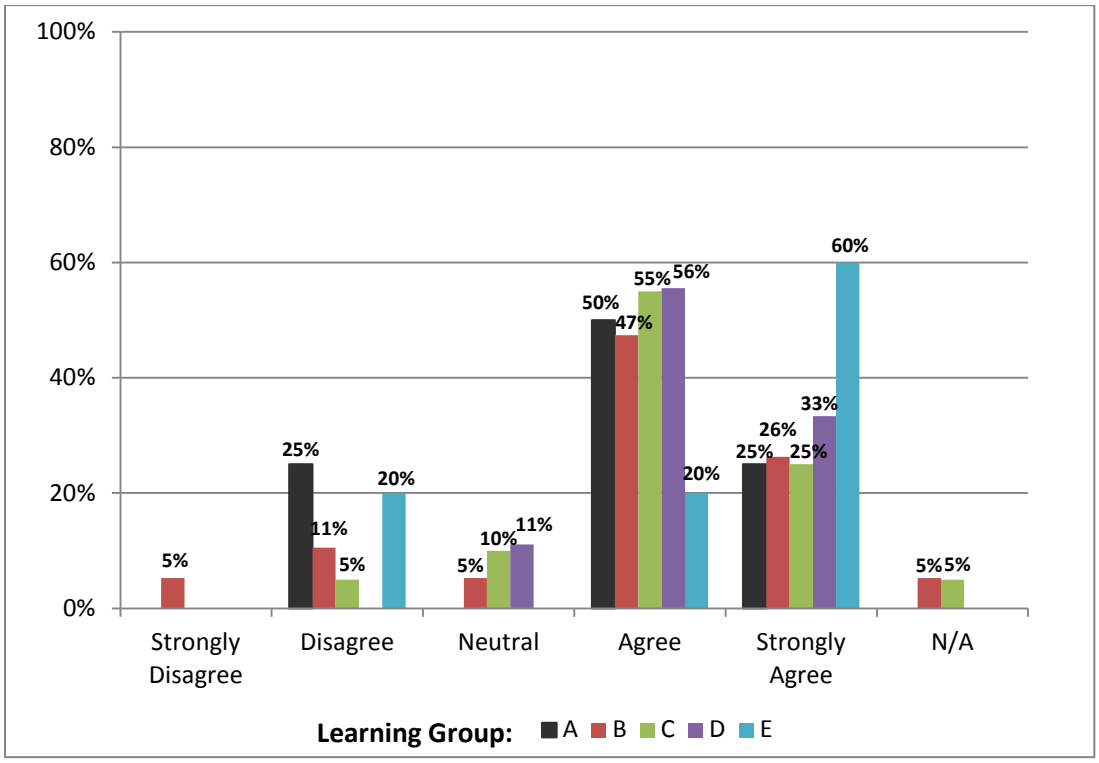


Participants in the survey indicated that their opinion in the learning group was encouraged. Only learning group B had participants (Figure 4) that indicated that their

opinions were not encouraged in the learning group. This would indicate that an atmosphere of open collaboration existed within the learning groups in general. This is a fundamental step in order to ensure that knowledge sharing and collaboration is appropriately supported.

Figure 5

Frequency that the learning group hosts activities is adequate for fostering knowledge sharing and cultivation of the discipline in the network



For the most part, survey participants agreed (Figure 5) the frequency of activities was sufficient to encourage knowledge sharing. Four of the learning groups had a small percentage of participants that indicated the frequency was not optimal.

Participants indicated (Figure 6) that they were typically available to participate in the learning group activities.

Figure 6

When activities and events are hosted, I am usually available

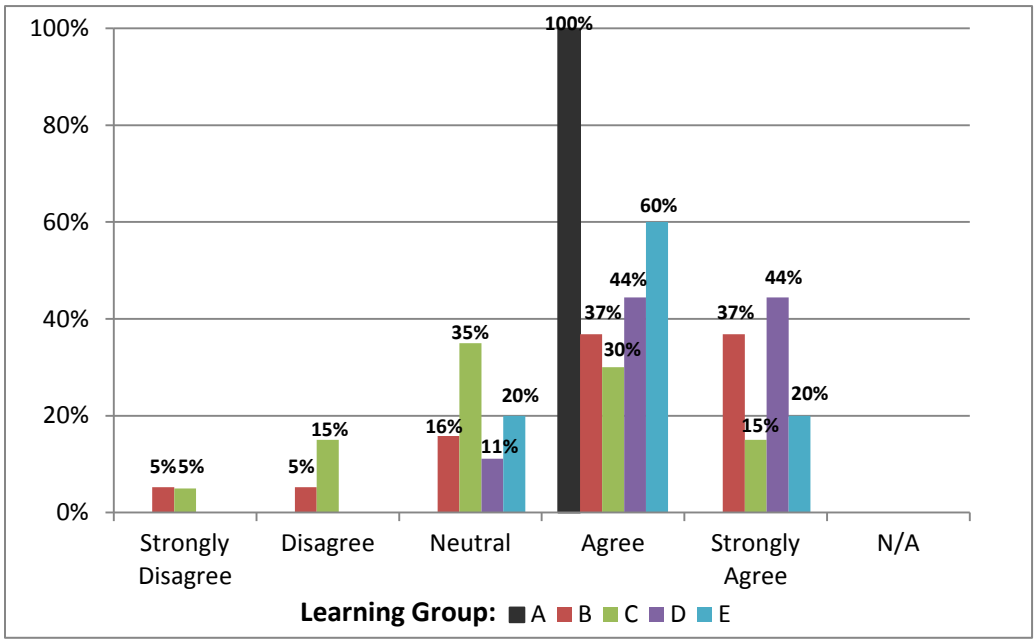
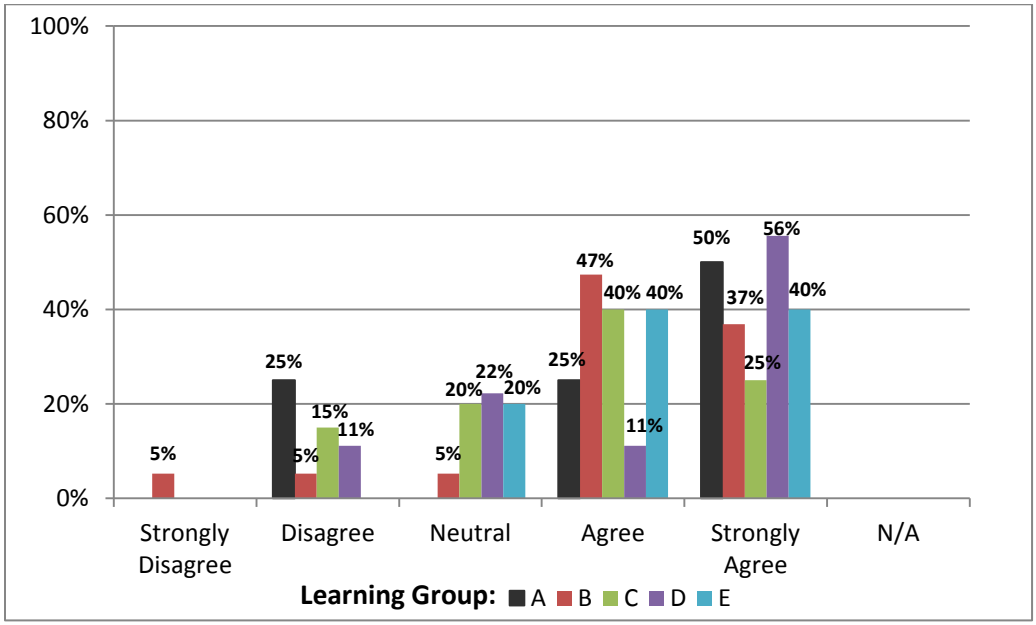


Figure 7

The content of the learning group's curriculum (topics/activities) and plan are well known to me



15 to 35% of participants were not aware (Figure 7) of the content of the learning

group curriculum. This would indicate that some of the learning groups were not learner centric. A learner centric group would have participants involved in the curriculum development. Therefore they would be aware of the curriculum and its content. This would be an area of opportunity for improving the atmosphere of collaboration and sharing needed for a learning organization. This potential gap was further highlighted by learning group B in their response to the question "I know where to find the learning group's curriculum (topics/activities)" (Figure 8).

From Figure 8 and Figure 9 it is evident that survey participants were not entirely aware that websites were available for their learning groups. The websites appeared to be under utilitized to communicate the activities of the learning groups and the content shared within the learning groups. One learning group actually did not utilize the website to share the content of the information shared in the learning group activities. They utilized off-line methods to share the learning group activities and materials.

Figure 8

I know where to find the learning group's curriculum (topics/activities)

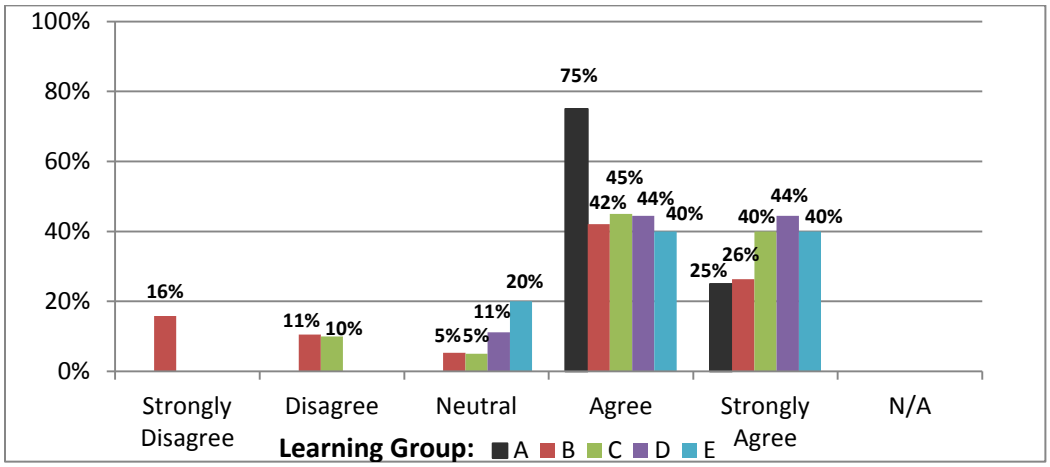
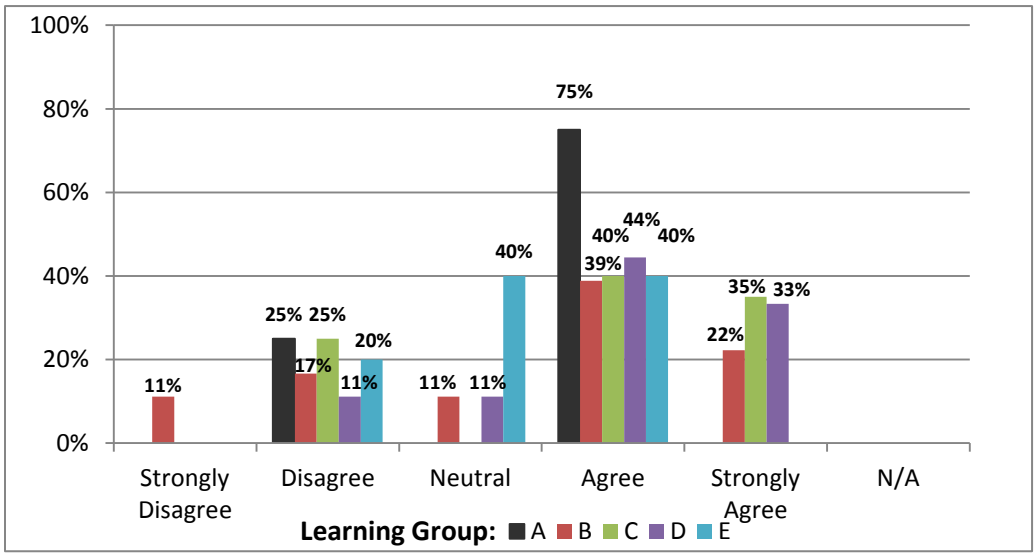


Figure 9

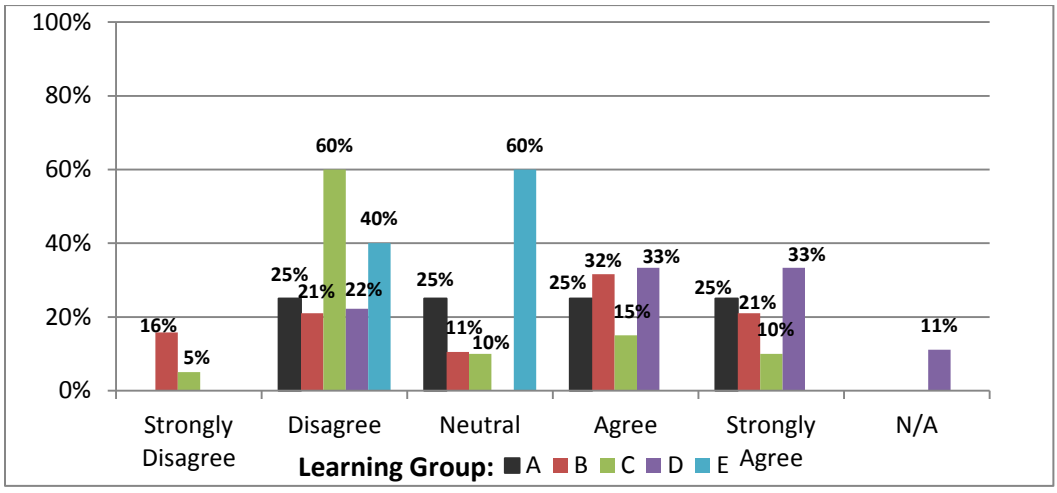
I know where the website is for this learning group



Survey participants did not know how to access other learning groups (Figure 10) which would indicate that learning group members did not know the content of other learning groups or the schedule of those learning group activities. Thus it would be difficult for these learning group members to access the subject matter experts in those other learning groups.

Figure 10

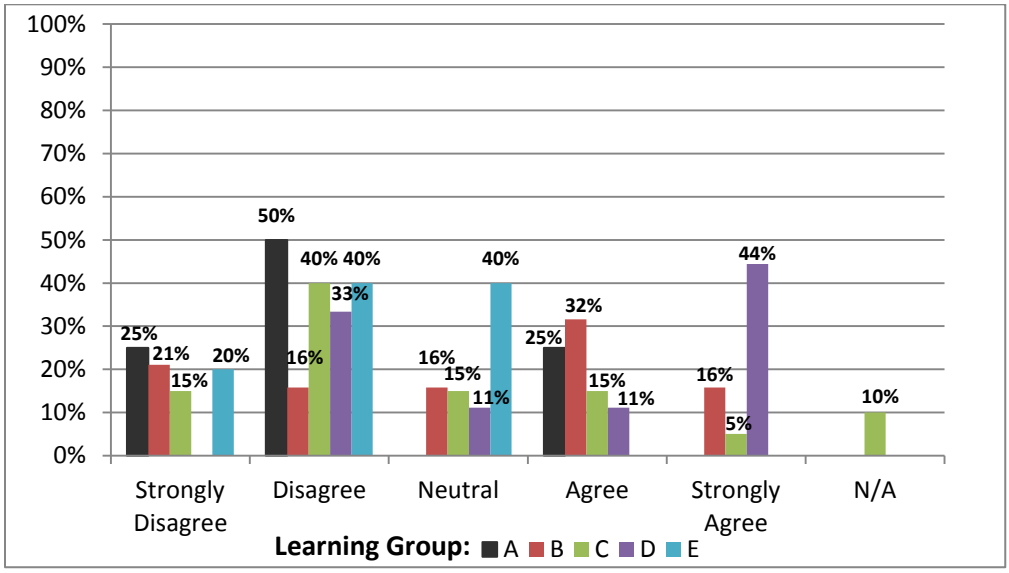
I know how to find the websites for other learning groups



The majority of survey participants (Figure 11) had not accessed the other learning groups websites despite the fact that many members of the survey were members of more than one learning group this would indicate that they're most active participation is in their base learning group.

Figure 11

I have accessed other learning group websites



Artifact Review

The artifact review was based on APPENDIX D. DATA COLLECTION FOR LEARNING GROUP ARTIFACT REVIEW using these questions as a basic guide to capture information about the learning groups from the artifacts created by the groups. Any websites, calendars, activity announcements/invitations, presentation materials, documents, plans, logbooks, or other found materials for the learning groups were reviewed to capture information about the learning groups. Table 3 provides a depiction of how these basic questions related to the three main research questions.

Table 3

Mapping of Artifact Review Data with Research Questions

Artifact Review (Appendix D)	RQ1 Communication	RQ2 Support	RQ3 Sharing Success
1: Number of LG members	N/A	N/A	N/A
2: How many locations?	N/A	N/A	N/A
3: Established Curriculum?	•		
4: Curriculum established by?		•	•
5: Is there integration of LGs into daily routine?		•	

A centralized learning group website was established in the division under study. It contained links to all of the learning groups across the division's locations and functions. This covered five manufacturing locations across three countries. Prior to the establishment of the centralized learning group website, one learning group had established a website; the others leveraged the central website to varying degrees. Some groups entered in their curriculum. Other groups simply used it to schedule their activities. Only two of the groups use the centralized website to store artifacts from the learning group activities.

Learning group C, which had a pre-established website, continued to use the pre-existing website to record and share the completed and planned learning activities. With each learning activity, the materials and presentations were stored for participants to go back and review at a later date. So learning group C had the most mature online presence of the five learning groups studied. Learning group C also utilized their online site to record attendees to meetings.

Learning group A on the other hand did not utilize the centralize website for more than the minimum prescriptive schedule of activities. Learning group C opted to run learning group activities as part of the department's functional meetings at the start or end of the

shift. This learning group utilized a logbook to record the learning activities and the attendees of the meetings. The online resource was not used to track participation or attendance or the materials that were utilized in meetings. So there was little content that would be accessible by another outside the learning activity participants. In this way, learning group A was accomplishing the specific tasks required by learning groups, but the greater intent was not achieved because tacit knowledge of participants was not transferred to the larger distributed network of professionals.

Table 4

Observations from Learning Group Artifact Review Related to Research Question 1 (RQ1)

				RQ1 Communication				
					Curriculum Established By:			
Learning Group	Centricity	# of LG Participants	# of Locations	Established Curriculum	Organization manager	LG Leader	Learner	Awareness of Knowledge Management
A	Learner	46	1	partial		x	x	no
B	Leader	228	1	yes	x	x		no
C	Leader	122	4	yes		x		no
D	Organization	21	1	yes	x		x	yes
E	Leader	32	2	no	x			no

Table 5

Observations from Learning Group Artifact Review Related to Research Question 2 (RQ2)

				RQ2 Support			
Learning Group	Centricity	# of LG Participants	# of Locations	Integration into Employee Routines	Regular Events/Activities	Active Website	Members Have Time to Partipate
A	Learner	46	1	yes	yes	no	yes
B	Leader	228	1	yes	yes	yes	yes
C	Leader	122	4	no	yes	yes	yes
D	Organization	21	1	partially	yes	yes	yes
E	Leader	32	2	no	yes	no	yes

Support for the five studied learning groups was evident from the artifacts of the learning groups. A summary of the observations related to the concept of learning group support and infrastructure is presented in Table 5. Employees in all the learning groups were provided time in their work day to participate in learning group activities as indicated by attendance records. The annual goals incorporated learning group participation into the performance reviews of the learning group leaders for each of the learning groups. This demonstrated that the organization placed value and priority on having the learning groups and tracking some metrics to confirm that a curriculum was established in the learning group and that regular learning group activities were offered. In the organization centric group, learning group D, the learning group members also had performance goals for both learning group activities and creation of artifacts for the knowledge management database system. This further demonstrated the commitment to learning groups and the investment in the knowledge management vision by ensuring that employees were measured and rewarded for participating in these activities. Utilizing the company's reward system

demonstrated the leadership commitment to allowing the employees time and resources to participate in the evolution to a learning organization. This was also an effective way to initiate the change management needed to drive the behavioral changes and attitude shift to share and collaborate more openly by placing higher value on continued learning and personal development.

Table 6

Observations from Learning Group Artifact Review Related to Research Question 3 (RQ3)

				RQ3 Sharing Success			
Learning Group	Centricity	# of LG Participants	# of Locations	Environment of Openess	Artifacts in Knowledge Management System	Interconnectivity to Other LGs	Use LG/Network to Solve Issues
A	Learner	46	1	yes	no	no	yes
B	Leader	228	1	yes	no	no	yes
C	Leader	122	4	yes	no	yes	no
D	Organization	21	1	yes	yes	yes	yes
E	Leader	32	2	yes	no	no	no

A surprising aspect was that all the learning groups had overcome the barrier to share information that is common place in science. It was not dependent the type of leadership style that the learning group had. This was evident from an environment of openness and also evidenced with the participant survey response to question 8a where the respondents indicated that their opinion was considered. However, the extent by which sharing had transcended the various aspects of their job differed across the learning groups. Learning groups A, B, and D used the learning group network to solve work issues and challenges, but interestingly learning group C which had interconnectivity to other learning

groups (some not studied in this research) did not have strong evidence of using the learning group networks to solve work issues or challenges. Since learning group C had the interconnectivity between other learning groups, it would have been expected that members of learning group C would have been more aware of other subject matter experts in the company to aid in solving problems, yet this was absent. Perhaps the level of openness and collaboration needed for the members to reach out and engage members of the other learning groups was not yet achieved.

Learning groups A and B had artifacts that indicated that these members were using the learning group members to help solve issues and challenges, yet these groups seemed to only reach out to the members of their respective learning groups. There wasn't evidence that they were tapping into the larger network of subject matter experts in other learning groups. Thus, they achieved the open sharing collaborative environment, but it had not yet reached the state of a learning organization which would engage the larger network of subject matter experts. From looking at learning groups C, it is also apparent that simple interconnectivity with the other learning groups is not sufficient to ensure that the larger network of subject matter experts would be utilized by learning group members to solve work issues or challenges. Learning group D had achieved the greatest level of interconnectivity between learning groups in addition to actually using those subject matter experts to assist in solving work issues and challenges. Additionally, learning group D had the awareness of the organization's knowledge management effort and was very prolific in populating artifacts in the knowledge management system and there was evidence that the learning group members were using the other artifacts in the system as resources for learning group activities in solving work issues and challenges. The unique aspect of this

learning group is that the leader was also a member of the leadership team that initiated the knowledge management initiative. That leader understood the long-term vision and the purpose of the learning groups and saw the connection to the knowledge management initiative as a step toward becoming a learning organization. So surprisingly, this organization centric learning group was the most open, collaborative, and most connected to the complete network of subject matter experts.

Analysis

RQ1. How were the plans and goals of the learning groups communicated to the learning group members?

The concept of the learning group was defined by an executive in the company's operations division. Initially just a memo was sent out following presentations and discussions on learning organizations (Leader interviews, artifact review). The company had rolled out a program to assess product events which looked into the situations in depth with a deep technologic perspective. Processes were analyzed and improvements were suggested to prevent these inefficiencies in the future. The company observed that some of these events were similar but occurred in different manufacturing locations or with different teams. If the learnings and experiences from these incidents could have been shared with other teams working on different but similar efforts, there may have been opportunities to prevent these similar situations. So the executives of the operations division decided to add a new element to their process improvement and detailed in depth root cause analyses, namely learning groups. The premise was that a true learning organization is more synergistic in responding to or preventing unwanted or unnecessary work incidents. Teams that are collaborating build upon one another's knowledge and experience and thus are able

to foresee and solve problems and challenges more efficiently and often more creatively. These are the situations which can drive competitive advantages.

The initial learning groups started as a response to the memo that began this effort. There was little guidance as to what might constitute a learning group. Within the first year, the sponsoring team within the operations division produced manual or playbook to describe the vision for the learning groups (Artifact review). It detailed out what a learning group was, who should participate, how frequently it should meet, and detailed the requirement that a learning group should have a curriculum which should be tracked. Most leaders in the operations division added specific goals to their team's annual performance reviews related to the learning groups. This gave more incentive for employees to incorporate the learning groups into their daily work and teams. By providing measured performance goals for the learning group activities, executives and leaders were committing that this initiative was a priority of the company now and in the coming years. In order to enable some organic growth, the learning group goals were established by the line management and department leaders. The highest level mandated goals were focused at the establishment of the learning group. The frequency of the activities and scope of the learning group memberships were left to the individual department leaders and they in turn may have pushed that to the learning group leaders directly. In this way the plan established was communicated through the levels of the organization.

The concept of sharing information to learn and propel a body of knowledge forward is common place in academia, however in industry; the concept has not been well nurtured in the field of science. So the individual learning groups have different perspectives and focus. Many of the groups appear to have been set up to meet the goal of establishing the

group, but then have not persisted over the past four years to develop into a forum for employee learning and collaboration. Several of the groups have defined leaders that are passionate about the learning group concept. As a result, these groups have established online presence and their websites were used to track upcoming and past activities and the related documents and artifacts from the presentations, sessions, and activities. These sites still lack an open collaboration between group members (Artifact review; websites just track the occurrence of the events, quantity of attendees and for some learning groups the materials shared at the learning group activities. There is not any evidence of artifacts of the outcome of the activity/discussion or a record of ideas generated from the inquiry). So there is room to further develop these learning groups into more dynamically collaborative spaces for employees to share and develop their field expertise and body of knowledge that is unlikely to be gained in a classroom.

One learning group was established to discuss and share challenges that were encountered by employees in a process development area (Leader interview). They met to review experimental data and shared opinions, ideas, postulations on how or why certain data were generated. The group was particularly interested in creating higher product yield from their biological and chemical processes. When new strategies were tested that did not generate the expected results, the learning group was a forum to enlist the assistance of a broader audience with varied backgrounds for troubleshooting and problem solving. The team described that biological processes while well understood, still had an amount of art and experience that sometimes were the critical elements for making greater efficiencies in reactions (Leader interviews, topics listed in the learning group curricula).

RQ2. How were support and resources provided in the implementation of the learning groups to achieve collaborative knowledge sharing environments?

The sponsoring team established some other core infrastructure in parallel to the learning group initiative. A small group established a template for collaboration websites where the learning group activities could be tracked and managed. Learning groups were encouraged to establish a collaboration website and the sponsoring group provided resources to support the setup of the websites (Leader interview, artifacts). The knowledge management team assembled a common site that tied to all of the operations learning groups company wide. The team also established the learning group playbook as a resource for the learning groups to use.

The knowledge management department established a company wide database tool called the knowledge marketplace (artifact review). The intent of the knowledge marketplace is to be a single location where employees can share their knowledge and look through artifacts provided by other employees in order to learn more about areas relevant to challenges faced in their daily work or for resources for building knowledge when employees enter new areas of responsibility or growth opportunities in new positions. Employees searching the knowledge marketplace would learn the contributors of the relevant artifacts and then be able to reach out to those subject matter experts for further information.

The company demonstrated the importance of learning and continuous improvement by establishing several awards programs targeted at improving processes and around sharing knowledge through the marketplace. These coupled with the annual employee performance reviews contribute to an environment to encourage participation and collaboration. One award is aimed at the voluntary contributions to the knowledge

marketplace and employees earn status levels based on how many artifacts they add to the knowledge market place. At specific thresholds small prizes are awarded to the contributor.

RQ3. How were the critical success factors identified among learning groups that achieved collaborative knowledge sharing environments?

There were two definite styles of learning groups that seemed to have prospered at the company. One style was strictly just leader centric and driven to become a community of practice that had a high frequency and consistency of activities. The other was very learner centric and established out of practical necessity to get business done and drive advancement in technology. The later had actually initiated just prior to the company's effort to establish learning groups and likely would have continued to mature and thrive in the absence of the initiative. Like the leader centric learning group, the learner centric group had frequent and consistent activities. The key difference was that the learner members appear to contribute the topics for discussion or the curriculum. Whereas in the leader centric model, the activities were largely set by the leader and not the members. The common themes between these groups were a strong sense of identity, a specific purpose and central topic, a clearly identified community of participants, regular activities, and open environment for inquiry.

Both learning groups were made up of members that had a clear understanding of the rationale and reasoning behind the premise for learning groups within the organization and within the context of their day to day work at the company. So barriers were not present to convince the members that there was value in devoting time to learning and progressing their skills and knowledge. The value was apparent to the members. On this theme the leader centric learning group members participated as a result of the requirement given by

their management so it is not apparent if the learning group would persist without the same visionary leader at the helm. If that leader moved on, the learning group's future success may be dependent on the successor. This is in contrast to the learner centric group which likely would sustain its activity level as long as the business purpose and scientific inquiry around the subject matter was still relevant to the company's operations division's efforts.

Another interesting contrast between these two learning groups was the subject matter studied. In one case it was a professional skill set in an area were professionals need to periodically complete development units to maintain their professional certifications. That group had external resources to pull from for curriculum topics that were generic across their professional practice and not specific to the company's core mission, but the members benefited from an organized source to develop their skills. Some topics were related to lessons learned from work that they did at the company but many of the topics focused on the professional practice and discipline.

Learning group C did take on a more practitioner, community of practice approach. Their learning group activities were geared toward their individual department but they invited practitioners of the same discipline from numerous groups from outside their department to participate. Interestingly, many of these other departments did not have learning groups in their department and in some cases they were from other divisions at the company which were not part of the overall knowledge management effort. As a result, many members were actually unaware of the overall learning group program in the operations division. This did not seem to impact their exposure to the concept of continuous professional learning in the workplace or their opinion that the environment was open for sharing and collaboration. Interestingly this learning group was one that was established

prior to the organization's push to initiate learning groups and prior to creation of the learning group playbook. The group was initially very leader centric and is now in a state of being far more learner centric with a moderator or custodian ensuring the cadence of the learning group activities. This group also is centered on a field of practice with common professional tools and is not engaged in the scientific root work that the Operations division typically does to create products. The typical team member may not have a technical degree and may not have been as impacted by the academic culture that exists in scientific, engineering and mathematical disciplines. So the professional barriers to share information may have been lower for this field of practice which may have contributed to the more organic nature of inclusiveness of departments outside their own. There are also professional societies that provide credentialing services to which many of these individuals belong. These societies champion ongoing development of the field of practice and require ongoing education to maintain one's credential in the field. A standard part of the ongoing education is presentations in case studies which provide the sharing of best practices and lessons learned from complex efforts. So this learning group may have a predisposition to adopt and accept professional workplace learning and sharing.

The learner centric group (learning group A) selected topics that were related to day to day specific work and in some cases were working sessions to solve complex problems or observed variances. In this way, the professional discipline itself rarely seemed to be the core topic and the members seemed to have different backgrounds which were elements of the field of study. Collective problem solving and questioning appeared to be a cultural norm for this learning group. The learning group leader established the rhythm of the activities or meetings, but the topics came from member suggestion or the apparent issue of

the day/week.

Since the websites are not used as often to drive learning and sharing, the groups could try to drive learning group activity presentations and artifacts from the company's knowledge base system to improve the connectivity to the dispersed network of subject matter experts.

Summary of Key Findings

The leaders of the learning groups appeared to have a clear vision for their groups. However, the learning group members were not completely aware of the vision for the learning groups. It is clear that the learning group members feel a sense of openness and willingness to share their ideas in the learning group activities. The realization of a full network of distributive members that collaborate and build upon each other's ideas without losing the tacit knowledge of prior events or solved problems had been partially achieved. The compartmentalization of the learning groups along the organizational reporting structures limited the access to shared knowledge and collaboration to only those that were participants in a particular learning group. Peripheral learners would not benefit from or gain access to the information shared in the learning groups. Of the five learning groups studied one was organization centric, three were leader centric, and one was learner centric. Curiously, one of the leader centric groups actually displayed many characteristics of a learner centric learning group. It appears to be evolving into a learner centric group. This learning group was unique in that it was a very distributed network of professionals and practitioners of a particular discipline across many departments within the greater organization. Interestingly, though this learning group had many members who commented that they were not aware they were a member of a learning group. So the full vision of

learning groups within that particular learning group still had not been completely communicated down to the member level; they participated in the activities but had no awareness of the overarching rationale for why the group was coming together and sharing information. This group of practitioners typically conducts lessons learned activities and seeks professional peer feedback often; therefore some members were unaware that there was a greater organizational initiative to drive the organization toward becoming a learning organization.

CHAPTER V. SUMMARY AND CONCLUSIONS

Introduction

This research reviewed the effectiveness and applicability of knowledge management in the corporate environment. Specifically, one science-based company was studied to observe the effectiveness of an organizational learning effort to support the company's goal of transforming its operations division into a learning organization. The company initiated learning groups as one means to communicate the goals or the knowledge management effort and provide support to encourage ongoing learning and collaboration in the general course of business. The company invested time, resources and infrastructure to both the learning groups and the knowledge management effort. The style of leadership of these learning groups was analyzed to determine whether organization, leader, or learner centric leadership styles would result in more evolved learning and participation among the learning group members. The research provides a contribution to improve the overall discipline of knowledge management within the context of a corporate environment, so that competitive advantages can be realized from cultivating and sharing tacit knowledge routinely among a company's employees.

Specifically, the following research questions were addressed with this evaluation:

RQ1. How were the plans and goals of the learning groups communicated to the learning group members?

RQ2. How were support and resources provided in the implementation of the learning groups to achieve collaborative knowledge sharing environments?

RQ3. How were the critical success factors identified among learning groups that achieved collaborative knowledge sharing environments?

Learning groups appear to be a valuable element for corporations to use in achieving a learning organization state. Learning within the corporate environment is a different experience from the collegiate, academic arena. To admit that one does not know everything can be a moment of vulnerability for an employee and getting past this is required to embrace the opportunity to mature to a learning organization. Organizations that want to tap their full potential need to start with an environment that allows employees drop the barriers needed to embrace the sharing of partial or immature ideas for team members to advance and build upon collectively. The continued investment of corporations in knowledge management systems and database structures to house information is evidence that managing and appropriately channeling the tacit knowledge of employees is a valued asset in a corporation. Considerable effort in change management is required to make knowledge management systems valuable and sustainable. This research is an example of a corporation that appreciated the vast change management necessary to drive the evolution of employees toward becoming a learning organization. Building the taxonomy and infrastructure of the knowledge management system was only a tool and not the holistic solution. The main challenge was transforming the daily practice of employees to utilize their colleagues as resources and consultants in solving challenges or problems. The notion that an employee would be rewarded more heavily if they enabled others was the barrier necessary to overcome in order to establish an environment where information sharing had a higher value than a perfect idea.

This chapter presents a discussion of the key findings from the evaluation, the conclusions from the research evaluation, implications for the knowledge management field of practice, recommendations for further research and a summary of the chapter.

Discussion of Key Findings

A qualitative evaluation was conducted due to the lack of information available on successful knowledge management program initiative implementations. The study examined learning groups that have been established in support of the company's knowledge management program. Learning group focus, maturity, and connection to the business processes were considered and incorporated in to the analysis. By deeply considering the aspects of learning groups that members/management perceive to be successful/effective, characteristics of the challenges encountered provided the basis for guidelines to plan and implement successful and effective future knowledge management program initiatives in other organizations. Direct study of the learning groups provided evidence of patterns in the infrastructure, scope of the effort, focus of curriculum and workflows that were considered and included in the establishment of the learning groups.

The analysis of a well-resourced and supported corporate knowledge management program using the framework of leadership categorization provided insights to establish guidelines for successful future knowledge management programs given a company's specific goals. Looking at the studied company's learning groups distinguished the study from prior case analyses that have only focused on knowledge management systems and tools. These prior studies may have missed the human factors elements related to how employees learn and build on knowledge in the workplace. Looking at the learning groups in this company's knowledge management program in a categorical manner revealed insights for successful future programs at other organizations focused on knowledge management. There exists considerable interest in the development of successful knowledge management program initiatives across every industry. Companies that have not been able

to successfully translate a vision of a knowledge management program into an effectively implemented program that is widely utilized by employee end users may see improvements if these insights were analyzed and utilized in those knowledge management efforts. The atmosphere needed for employees to feel open to share and learn is one of the critical success factors needed to realize the vision and cultivate a corporate learning organization.

Regardless of the type of learning group structure (organization centric, leader centric, or learner centric) the learning group members consistently reported a positive opinion of the value of the learning groups in their daily work.

There were varying degrees of maturity of the learning groups in that some learning groups were not as aware of the long-term vision and connection. The communication of the vision of the knowledge management system and the learning groups was better understood by learning group members in the organization centric leadership style of learning group. Learning group D exemplified this as the organizational leader was a champion of the overall knowledge management effort and was very engaged in the development of the learning group playbook. This deep knowledge on the part of the organizational leader allowed the learning group to benefit from an accelerated evolution across the change in behavior needed for employees to collaborate and communicate more.

Communication

Communication of the learning goals appears to require continuous leadership to ensure that the over time the vision of the initiative is not lost. Only the learning group which was organization centric had members that were progressing more completely toward the learning organization state. This group also benefited from the recurrent input of the organization leader to advance the vision. The addition of the requirement to populate the

knowledge database with learning group artifacts also integrated the two initiatives and assisted in the change management required to make the knowledge management database more active and a part of routine business. Learning was also a supported and encouraged activity in that portion of the organization as a result.

Support

The support for the learning groups was apparent in the leadership interviews, artifact review, and in the learning group participant survey. Resources were provided to the learning groups to have a leader, time for the employees to participate in the learning group activities, and in the guidance provided to the learning groups from a central group that established a guide book for expectations of a learning group structure. A central group set up websites for the learning groups to track events and to monitor that annual curricula were established for each group. This infrastructure in personnel and resources provided means to allow the learning groups to be established and be successful.

Learning groups that had leaders with strong connections to the overall knowledge management effort were more integrated into the overall vision of transforming into a learning organization. Surprisingly the learner centric learning group did not demonstrate any notable connection to the greater knowledge management effort and perhaps as a result did not have the interactions with other learning groups which would have enabled the benefit of peripheral learner contributions. The leader centric learning groups did have some interconnectivity to other learning groups, but the connection to the larger knowledge management effort was absent. This suggested that the need for a strong leader with the greater vision was a key to a well-supported learning group.

Sharing success - assessment/success factors

All learning groups had established an environment where the participants felt that their opinion was considered and taken into account. In the establishment of the curricula, all of the learning group leaders regardless of centricity gathered at least some input from the members to set the topics/activities. The learner centric learning group had fully integrated the activities into their standard work as a part of weekly staff meetings. The common topics were drawn from events on the manufacturing line by the suggestion of team members that were facing new or unusual challenge. Many topics were related to process improvements and the learning group was used to brainstorm and solve ideas. This learner centric group had positive results in keeping team members trained, but the lack of connection to the infrastructure resulted in a long-term loss in the tacit knowledge that was shared in the learning group activities. Only those that participated benefited from the knowledge that shared and the relevant context making that knowledge valuable to the organization.

The organization centric learning group was the only learning group observed that was able to bridge that shift from a one-time transaction of knowledge sharing to the long-term reusable collection of the artifacts that would capture the tacit knowledge for a learning activity/event. This was in part by the additional scope that the leader required in that learning group; each learning group member had to contribute a minimum number of artifacts to the knowledge management database system. That extra element to the framework of the learning group infrastructure provided direct connectivity of the learning group members to the greater knowledge management effort, and provided guidance and leadership to show learning group members additional tools to seek out more distributed

subject matter experts throughout the larger company when faced with solving challenging problems. This learning group came closer to experiencing the transcendental movement of learners through other communities of practice (Wenger, McDermott, & Snyder, 2002). These varying roles that learners take on in a community of practice allow for the most powerful synergies of information transformation by learning because they are able to seek and obtain the most relevant information from community practitioners at the moments when the information would be most impactful. Likewise, learners that would not typically participate in all of the community's activities could have a better awareness of the topics and activities in a particular community, or learning group in this case. In doing so, peripheral participation would be more practical.

Conclusions

Learning groups appear to be a valuable element for corporations to use in achieving a learning organization state. The studied company was in the biotechnology industry and was very science based. The employees had been trained through the traditional academic environments where collaboration and problem solving were touted but true advancement and recognition were based on the "publish or perish" mentality. Employees had been trained to perfect ideas and thoughts through to completion before sharing in order to get credit for their knowledge and contributions to the practice. This worked well in an academic environment but in a corporation the advancement of an individual alone will not advance the corporate goals or complete projects that are multidisciplinary. Trust and respect are critical to allow employees the environment necessary to share ideas that are partially formed and embrace the synergy of the input of other subject matter experts without the angst that they will not receive sufficient credit for their contributions. Learning

within the corporate environment is a different experience from the collegiate, academic arena. To admit that one does not know everything can be a moment of vulnerability for an employee. Getting past this is required to embrace the opportunity to mature to a learning organization. Employees come from varied backgrounds and experiences. Organizations will not tap their true potential until employees drop the barriers to embrace the sharing of partial or immature ideas for team members to advance and build upon collectively. At that point, an organization becomes a learning organization where sharing information is more valued than getting credit for the completion of an idea. Many corporations have invested heavily in knowledge management systems and database structures to house information, but they lacked the ability to reach the desired efficiency state of a learning organization because enough attention was not provided to support the change in behavior of the employees within the company. The change management required to make knowledge management systems valuable and sustainable is considerable. This research is an example of a corporation that appreciated the vast change management necessary to drive the evolution of employees toward becoming a learning organization. An analysis of near interruptions in operations was the driver to ensure that manufacturing teams within the greater organization would become informed of the issues at other locations and would be able to implement measures or controls that would prevent or fore warn of similar situations throughout the other manufacturing sites. The vision of the knowledge management system was born out these challenges with the desire to avoid reinventing the wheel throughout the distributed network of the company's operations. Building the taxonomy and infrastructure of the knowledge management system was only a tool and not the holistic solution. The main challenge was transforming the daily practice of employees to utilize their colleagues

as resources and consultants in solving challenges or problems. The notion that an employee would be rewarded more heavily if they enabled others was the barrier necessary to overcome in order to establish an environment where information sharing had a higher value than a perfect idea. In this way, the learning groups really seemed to serve several purposes to evolve the studied company into a learning organization. First, the learning groups set a tone within the company that learning was intended to be persistent and ongoing. The idea that employees always need to know all the answers needed to be dispelled. The learning groups were one means to demonstrate to employees that learning and professional growth should always be present. Collective inquiry and discussion should be the acceptable environment when technical challenges or new innovation are being addressed. Individuals need to feel supported that unusual ideas or means of approaching a challenge are acceptable if the output or result arrives at accelerated innovation or the appropriate vision to prevent the repetition of problems or challenges.

RQ1. How were the plans and goals of the learning groups communicated to the learning group members?

In one learning group, the leader saw the importance of the connection between their learning group activities and the greater organization. That leader made it a part of the employees work goals to contribute artifacts (papers, presentations, lessons learned articles, or documents) to the overall organization's knowledge management database. By doing this, that learning group was sharing the topics that were central to their business challenges and insights to others outside the organization that would otherwise been unaware of the advancements that were made in this particular field of practice. This was especially important to ensure that employees conducting similar jobs at other

manufacturing sites would have access to the experiences of that particular organization. There was another benefit too, that particular learning group seemed to gain from this effort to populate artifacts into the knowledge management database. Namely, the learning group members were becoming more accustomed to go to the knowledge management database and their awareness of the content and purpose of the overall knowledge management effort was heightened. This made it more likely for the employees to search and review content in the knowledge management database when posed with solving a challenging problem or situation on the job.

RQ2. How were support and resources provided in the implementation of the learning groups to achieve collaborative knowledge sharing environments?

Learning group D exemplified the multifactor change management effort to evolve into a true learning organization by utilizing several aspects of knowledge management effort to drive behavioral change in a group of employees that were traditionally trained in the university setting to shield their creative thoughts until they were able to publish and get credit for their ideas. Now those individuals are exposed to a supportive environment that rewarded the sharing of partial or undeveloped ideas to brainstorm with colleagues of varied backgrounds more revolutionary and innovative ways to approach and solve technical challenges at work.

Contrasting the organization centric learning group with the leader centric learning groups studied; there were still common elements that the environment of the learning group was similar for the learning group members as in the organization centric learning group. The key distinction was the lack of connection to the overall knowledge management effort at the company. The notion that other learning groups would also benefit from access

to the artifacts of their learning group activities had not yet been realized. Further, these learning groups did not use the knowledge management system in the course of their learning group activities nor were the members aware that the effort could be synergistic to propel the organization toward becoming a learning organization. These learning groups took on the assignment to gather regularly and host events on topics of common interest and professional development, but the ability to preserve and share these at a later date when challenges arise in other departments that would benefit from these experiences was a lost opportunity.

RQ3. How were the critical success factors identified among learning groups that achieved collaborative knowledge sharing environments?

Overall the learning group concept has propelled this organization to lower the barriers to share and collaborate on problem solving and could truly be a vehicle to increase awareness of the overall knowledge management vision. The learning group playbook that the organization established to guide the startup of learning groups was a valuable tool to get departments to initiate the practice of continuous professional development. The playbook was not meant to be too prescriptive on the structure of learning groups and so gave much latitude to the cadence and manner that learning group activities were held. The variety of leadership styles that supported each learning group resulted in different progression of collaboration and greater organizational value. A key concept that could be added to the learning group playbook may be the connection to the overall organization's knowledge management system. The learning group that rewarded individuals for contributing to their learning group and workplace artifacts into the knowledge database saw a shift in the engagement of its members in their own learning group, the availability of

information out in the knowledge management database, and the manner in which members approach information seeking to solve challenging or new situations. That learning group had greater awareness of other learning groups around the greater organization and the learning group members seemed to be more likely to seek out expertise from members of the other learning groups.

The biggest challenge to progress to the next stage would be lack of interconnectivity of the learning groups. Peripheral learners can sometimes be the biggest asset in taking innovative approaches or seeing alternate ways to review data. This is captured in the literature around communities of practice (Hemre, 2005; Lesser & Fontaine, 2004; Stuckey & Smith, 2004; Wenger et al., 2002) and innovation (Christensen, 1997; Drucker, 2001b). The structure of the learning groups in the organization is driven predominantly by a departmental or line management structure instead of a community of practice where individuals doing similar jobs at different manufacturing sites or departments in different buildings or cities. This means that subject matter experts in a discipline are distributed in the organization's network yet the learning groups are targeted locally for the most part. Management should consider strategies to tap into the interconnectivity of the learning groups so that peripheral learners and distributed subject matter experts at better engaged in the continuous learning/teaching needed in a learning organization.

In thinking about the phases of collaboration (Figure 1), it was interesting that organization centric and leader centric groups showed much more in common with the learner centric groups than expected. Having an organization/leader centric leadership style, it would have been more likely to find the learning group members at the "have to" phase of collaboration and potentially having a perception that their opinion was not considered as a

part of the group activity/curriculum plan. There was no apparent difference in this perception across the organization, leader, or learner centric groups. Likewise members of all learning groups indicated that they contributed to the learning group in a variety of ways (Figure 3) indicating that perhaps the learning group members have arrived at a more mature phase of collaboration, somewhere in the "need to" or "want to" phase of collaboration and sharing.

It was apparent the learning groups established the environment necessary for collaboration and information sharing. Learning group members saw value in ongoing professional development and were open to learning new concepts and ideas.

Implications for Practice

Knowledge management efforts at major corporations have long been pursued, but few have realized the goal of a sustaining learning organization. Much of the literature still centers more around the aspects of the infrastructure and tools of knowledge management systems and not the change management needed to create a thriving learning organization (Lopez, Bohorquez, & Esteves, 2013; Matayong, 2013; Pandey & Dutta, 2013). In technical and scientific based companies like the one studied, a major barrier to achieving that goal is the style of education and reward that cultivated the great talent of the engineers, scientists, and mathematicians that come to work at such companies. Throughout their educational journey, reward is provided to the individual who published or patented the idea first and the rigorous competition to be first leads to siloes of development. Team development and interaction is not a core skill developed by these professionals. There is a sense that upon graduation, the education is concluded. The notion that individuals hide information and knowledge has also been highlighted by Peng (2013). In the corporate environment, the

focus does need to shift toward a team approach to advance the company goals and efforts. In many cases, these scientific corporations now bank on collaboration between employees to drive advantages over the competition but there are barriers between cross-functional teams to access and tap the expertise that is distributed across numerous locations and teams. The learning group concept is a valuable means to provide awareness to a greater knowledge management effort and simultaneously address the academic cultural barriers to share information before it is completely developed, analyzed and vetted.

For companies in a technical field, learning groups would be a good vehicle to augment a knowledge management effort. This would drive the awareness of the purpose of the knowledge management effort, help produce content and artifacts for the effort, and would establish an atmosphere of collaboration, sharing, and value for ongoing professional development and education. The learning groups are a compulsory tool to take an organization through the change management needed to generate and utilize the appropriate content of a knowledge management system. Companies that are more technical in nature would benefit from this program due to the barriers to sharing and collaboration that exist in the technical fields of practice. This work can be used as the basis for how other companies establish environments that will enable the transformation of organizations into learning organizations for competitive advantages over the competition. The other benefit to learning organizations is that its employees and members stay engaged and professionally stimulated. It implies that the leadership styles are important to get the greater message across to the learning groups to evolve into a learning organization. A strong organization centric leader seems to provide the interconnectivity to the overarching knowledge management effort. Strategies that connect the work product of the learning

groups to the knowledge database provided a catalyst to change the standard behavior with how information and tacit knowledge was stored/shared. This also provided a means to inform and provide awareness to begin using the knowledge management database as a resource. The learning groups are the people based infrastructure to break down the barriers of collaboration in a corporate setting. The human and social aspects are the most important considerations to address for organizations trying to evolve into learning organizations for strategic benefit.

Recommendations for Further Study

Given that the learning groups did establish an environment for open collaboration and sharing, it would be interesting to see if a refinement to the learning group effort would further evolve the studied company into becoming a learning organization. The work of learning group D to connect the learning group activities to the existing knowledge management system is perhaps most promising. In doing so, the other learning groups would have greater connectivity and awareness of the resources in the knowledge management system and to the larger community of practitioners that are encountering similar challenges in their same areas of work.

After this adjustment was made to the learning groups, it would be interesting to analyze whether the knowledge management system content had increased in quantity and had been more utilized by individuals from across the operations network of employees. Essentially, are employees seeking out distributed expertise more frequently as a resource for conducting regular business?

This type of follow up research would be most relevant two to three years after implementing these changes. Another aspect to study would be a review of the types of

challenges that the teams are facing to see if these are repetitious or situations that are continually building upon past knowledge and advancing the field of study.

To determine if distributed expertise is more frequently tapped, another study could be conducted with the learning group participants. The content of the survey would focus on the information and types of learning group topics that were included in the curriculum and well as the ways the participants contributed to the learning groups similar to survey question 5 (Appendix B, question 5), however further details about the interaction would be needed to see if individuals are reaching out to the subject matter experts in other departments/functions within the company. To augment the study, a review of the artifacts that the learning group members have been contributing to the knowledge system and the usage of those assets could be analyzed via the web tracking feature which captures the quantity and frequency that a document/asset is accessed and by how many unique individuals. The artifact analysis would reveal whether assets from one area of the company are being accessed by members of the same area of the company or by numerous areas of the company.

To get at the progression of the learning organization evolution, analysis of the content types within the knowledge management system would reveal whether individuals are adding to and appending information to the contributed assets, which would suggest a fair amount of interaction with the information published in the assets. If asset content is simply accessed and not built upon, there may be some question as to the true collaborative idea progression that is happening. This research could be done through analysis of the knowledge management system and may not require participation from the learning group members.

Summary

Chapter 5 discussed the key findings of the research and provided the conclusions that can be drawn from these findings. Then the findings and conclusions were discussed in terms of the potential implications for the knowledge management field of practice. Demonstrating that continuous learning in a corporate environment is a critical success factor in organizations trying to establish a knowledge management initiative or to evolve into a learning organization. Finally, recommendations for further research on this topic were presented. These additional studies would build upon this research and provide further evaluations of the importance of learning groups or communities of practice in achieving mature knowledge management systems to support the realization of a thriving learning organization.

Learning groups provide a necessary augmentation to an overall knowledge management effort by bringing awareness of the expertise that surrounds employees in the workplace. These establish and foster the environment of open sharing and collaboration needed for synergistic advancement of the science/discipline and the acceleration of innovative problem solving. The style of leadership of the learning group does not seem to impact the establishment of the appropriate atmosphere for sharing ideas; however it does seem to be important for evolving into a mature learning organization. The learner centric learning groups generated topics organically that were very relevant to day to day work challenges. This style of leadership did not have the same connection to the overall long range vision and thus they were not as tapped into the potential benefit of using the organization's infrastructure in the knowledge management database or in reaching out to tap the expertise of individuals outside their specific learning group.

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APPENDIX A

INFORMED CONSENT

Participants shall be provided the informed consent prior to participating in the research study. Participant numbers shall be assigned at the time of consent. In addition to the written informed consent form, the content of the informed consent shall be included in the opening screen of the online survey for the survey portion of the study. The following is the informed consent template that shall be provided to each participant:

DISSERTATION RESEARCH PARTICIPANT AGREEMENT

Participant Name: _____ Participant Number: _____

Evaluation of Corporate Learning Groups to Support the Evolution of an Organization into a Learning Organization

Sponsor: Pepperdine University Graduate School of Education and Psychology (Referred to as "Pepperdine" throughout this form) Learning Technologies 6100 Center Drive, Los Angeles, CA 90045.

You have volunteered to participate in a research study. You will not receive any compensation from Pepperdine. This consent form gives you important information about this study to help you decide if you want to participate. It describes the purpose of this study, the study procedures, the possible risks, and provides information about your rights as a study participant.

The Doctoral Student and researcher, Karen Ann Kearns Manz, wishes to confirm your interest in participating in a dissertation research study; Evaluation of Corporation Learning Groups to Support the Evolution of an Organization into a Learning Organization. This research is being conducted under the direction of Dr. Paul Sparks, Pepperdine University. The study is being conducted in partial fulfillment of the requirements for doctoral dissertation in education.

The focus of this student research study is in the area of knowledge management, specifically looking at how these efforts have been supported in corporate knowledge management programs, specifically through learning groups associated with a knowledge management effort. These learning groups will be evaluated through the lens of social learning, communities of practice, and adult learning theories. The researcher agrees to keep any information about you, or your opinions shared in the course of the study, strictly confidential.

By signing below you understand that as part of this study you will be asked to express your opinion on your experience and exposure to learning groups at your place of employment. The study is non-invasive and there is no exposure to any medical therapies.

By participating in this study you should know that your participation is completely voluntary and that there is no benefit or negative effect on your employment or job standing. If at any time during this study you wish to withdraw, you may do so without any negative consequences. Please simply let the researcher know.

Your interview will be documented by the researcher through notes but will not be recorded or videotaped. Anonymous quotes may be included in the study report; however, these will be represented to ensure anonymity. All gathered survey and interview data will be kept confidential and your privacy will be protected. Response to each question is voluntary.

Data from this study will only be seen by the following:

- The researcher
- The researcher's faculty advisor and dissertation chair

Analyzed data and summary tables will be created for the final study report which will take the form of a published dissertation as a requirement for the researcher's doctoral degree.

You will be assigned a participant number and your personal details will not be revealed. Learning groups studied will also be assigned group codes for analysis and reporting to further ensure the privacy at the learning group level.

Study data will be held securely and when the project has been completed the data will be transferred to a secure storage facility where the data will be retained as required under regulatory requirements. Your data will then be destroyed.

By completing this form, you permit the researcher to edit, copy, report (by whatever means) and archive your contribution to this research study in the manner and for the purposes described above. You waive any copyright and other intellectual property rights in your contribution to the project.

There are no direct benefits from participating in this study.

Research Participant Declaration

I confirm that I have read the above information relating to the research study. I consent to my information being used in the manner and for the purposes described.

I am aware that the researcher will take notes during the interview and that the survey data will be captured for in a web-based tool that the participant utilizes.
I am aware that the participation in the survey or interview will last approximately 30 minutes.

I understand that I may withdraw my consent to participate in the project.

I understand to my satisfaction the information regarding participation in the research project. All my questions have been answered to my satisfaction. I have received a copy of this informed consent form which I have read and understand. I hereby consent to participate in the research described above.

PARTICIPANT:

_____
Signature

_____
Printed Name

_____
Date

APPENDIX B

LEARNING GROUP PARTICIPANT SURVEY

The survey questions that will be distributed to the participants of the learning groups are listed below. The survey will be delivered via an online survey tool and it will include the informed consent as the initial banner page of the survey.

1. How long have you been involved in the learning group?
    a. 6 months or less
    b. 6 to 12 months
    c. 12 to 18 months
    d. 18 to 24 months
    e. Longer than 24 months
2. How would you describe your participation in the learning group?
    a. A sponsor/champion
    b. A leader of the learning group
    c. A member of the learning group?
3. Are you part of more than one learning group?
4. If yes to #3, how would you describe your participation in that learning group?
    a. A sponsor/champion
    b. A leader of the learning group
    c. A member of the learning group?
5. Describe how you have contributed to the learning group:
    a. Provided a presentation to the learning group
    b. Responded to another learning group member's inquiry

c. Creation of a document distributed to the learning group

d. Solicited input on a professional challenge from the learning group members

e. Suggested topics for the learning group activities/events

6. Select the learning group that you participate in (drop down list)

7. Please rate how you react to the following statements:

   (1 = strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree, N/A)

   a. My opinion is encouraged in the learning group

   b. The frequency that the learning group hosts activities is adequate for fostering knowledge sharing and cultivation of the discipline in the network

   c. When activities and events are hosted, I am usually available

   d. The content of the learning group's curriculum and plan are well known to me

   e. I know where to find the learning group's curriculum

   f. I know where the website is for this learning group

   g. I know how to find the websites for other learning groups

   h. I have accessed other learning group websites

8. If you agree to have the researcher contact you for any follow up questions, please indicate your preferred contact information:

   _____

   _____

APPENDIX C

LEADERSHIP INTERVIEW QUESTIONAIRE

The following questions shall be used for the interviews conducted with the sponsors, champions and leaders of the learning groups:

1. What was the initial motivate to create the learning group?
    a. A technical challenge/near miss event?
    b. Executive direction for this network?
    c. A vision for collaboration in this discipline at the company?

    _____

    _____

    _____

2. Is the learning group driven by need for:
    a. Training compliance
    b. General sharing of knowledge and expertise

    _____

    _____

    _____

3. Was there a vision provided by you or was the vision established by the learning group leader or its members?

    _____

    _____

4. As a sponsor, are you also an active member of that learning group? Or of another learning group?

   _____

   _____

5. Is there an example of how the learning group's activities have positively impacted the network/discipline?

   _____

   _____

6. What was the initial core goal of the learning group?
7. Was any consideration or intent given to the selected learning group strategy (Organization, Leader, or Learner centric)?
8. Were there any desired business process changes to be realized with the established learning group?
9. At what point in the development of the learning group was the curriculum discussed? What functional areas were represented in the creation of the curriculum?
10. Were there any organizational changes that were required as a result of the learning group implementation in support of the knowledge management program initiative?
11. Retrospectively, where was the focus of resources and time?
    a. In the establishment of the learning group?
    b. In the examination of how the curriculum should be related to the business needs?
    c. In the integration of the learning group into the employees' daily routines?

APPENDIX D

DATA COLLECTION FOR LEARNING GROUP ARTIFACT REVIEW

The following attributes and data shall be collected by the researcher for each learning group. The source of the data will be through the review of the learning group website, documents, calendars, meeting announcements, and potentially the interviews with the learning group leader if a web presence has not been established.

1. How many participants in the learning group?
2. How many locations are the participants at?
3. Is there an established learning curriculum?
4. Is the curriculum established by the
    a. Leader/manager of the organization?
    b. Leader of the learning group?
    c. A participant/learner?
5. Is there integration of the learning group into the employees' daily routines?

APPENDIX E

PARTICIPANT RECRUITMENT FLYER

The following text was included in an email sent to the learning group members, leaders, and champions:

REQUESTING YOUR ASSISTANCE!!

Your assistance is being requested for and evaluation of the Knowledge Management Learning Groups. As a member of, leader of, or champion one or more of these groups, your input is being sought for a graduate doctoral research evaluation in support of an application for an educational doctorate at Pepperdine University. Volunteers are needed to participate in this research. The activities shall include completing a brief survey and/or a brief interview.

- Total time per person is approximately 30 min – 1 hour
- Participation is voluntary
- No compensation shall be provided
- Personal information shall be kept confidential
- As part of the data analysis, you may be voluntarily contacted

YOU CAN BE A DIFFERENCE
AND CONTRIBUTE TO SHARED KNOWLEDGE IN OPERATIONS

If interested in volunteering please reply to this email.

Best regards,

Karen Kearns Manz
Doctoral Candidate, Pepperdine University

APPENDIX F

COURSE COMPLETION CERTIFICATE: HUMAN PARTICIPANT PROTECTIONS EDUCATION FOR RESEARCH TEAMS

Completion Certificate

This is to certify that

Karen Kearns

has completed the **Human Participants Protection Education for Research Teams** online course, sponsored by the National Institutes of Health (NIH), on 06/05/2004.

This course included the following:

- key historical events and current issues that impact guidelines and legislation on human participant protection in research.
- ethical principles and guidelines that should assist in resolving the ethical issues inherent in the conduct of research with human participants.
- the use of key ethical principles and federal regulations to protect human participants at various stages in the research process.
- a description of guidelines for the protection of special populations in research.
- a definition of informed consent and components necessary for a valid consent.
- a description of the role of the IRB in the research process.
- the roles, responsibilities, and interactions of federal agencies, institutions, and researchers in conducting research with human participants.

National Institutes of Health
http://www.nih.gov/

APPENDIX G

GRADUATE & PROFESSIONAL SCHOOL IRB EXEMPTION NOTICE

PEPPERDINE UNIVERSITY

Graduate & Professional Schools Institutional Review Board

September 12, 2013

Karen Kearns

Protocol #: E0313D14
Project Title: Evaluation of Corporate Learning Groups to Support the Evolution of an Organization into a Learning Organization

Dear Ms. Kearns:

Thank you for submitting your application, *Evaluation of Corporate Learning Groups to Support the Evolution of an Organization into a Learning Organization*, for exempt review to Pepperdine University's Graduate and Professional Schools Institutional Review Board (GPS IRB). The IRB appreciates the work you and your faculty advisor, Dr. Paul Sparks , have done on the proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations (45 CFR 46 - http://www.nihtraining.com/ohsrsite/guidelines/45cfr46.html) that govern the protections of human subjects. Specifically, section 45 CFR 46.101(b)(2) states:

> (b) Unless otherwise required by Department or Agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:
>
> **Category (2) of 45 CFR 46.101**, research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: a) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and b) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit a **Request for Modification Form** to the GPS IRB. Because your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the GPS IRB.

A goal of the IRB is to prevent negative occurrences during any research study. However, despite our best intent, unforeseen circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the GPS IRB as soon as possible. We will ask for a complete explanation of the event and your response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the GPS IRB and the appropriate form to be used to report this information can be found in the *Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual* (see link to "policy material" at http://www.pepperdine.edu/irb/graduate/).

Please refer to the protocol number denoted above in all further communication or correspondence related to this approval. Should you have additional questions, please contact Veronica Jimenez, GPS IRB Manager at gpsirb@peppderdine.edu. On behalf of the GPS IRB, I wish you success in this scholarly pursuit.

Sincerely,

Thema Bryant-Davis, Ph.D.
Chair, Graduate and Professional Schools IRB

cc: Dr. Lee Kats, Vice Provost for Research and Strategic Initiatives
Ms. Alexandra Roosa, Director Research and Sponsored Programs
Dr. Paul Sparks, Graduate School of Education and Psychology