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Knowledge creation in distributed group collaborative workplace writing

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KNOWLEDGE CREATION IN DISTRIBUTED GROUP COLLABORATIVE WORKPLACE WRITING

by

Virginia Yonkers

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Abstract

This study looked at the knowledge creation by distributed groups in a knowledge based organization as they engaged in collaborative writing. A traditional model of knowledge creation assumes knowledge is located by the individual in the forms of content, competency, and expertise. A new model of knowledge creation identifies three ways to identify knowledge (tangible representation of knowledge, procedural and tacit knowledge, partaged knowledge) which can be found internally or externally to the individual, group, or organization. Knowledge creation is a complex process situated in the multiple environments within which a distributed group functions. Power structures create knowledge boundaries within which a group works. However, because power structures are dynamic, knowledge boundaries and the value of specific knowledge are continually being redefined. Knowledge can be structured within distributed groups using knowledge genres. These knowledge genres can be transactional or negotiable, dependent upon the perceived ownership, situational factors, and power structure. The deeper an individual identifies personally with knowledge, the greater the importance that the knowledge be aligned with the group’s beliefs and schema as part of the individual’s social identity.
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# Table of Contents

Abstract .............................................................................................................................. iii

Acknowledgements ........................................................................................................ iv

Table of Contents ........................................................................................................... v

Chapter 1: Introduction .................................................................................................. 1
  Problem Statement ....................................................................................................... 1
  Background .................................................................................................................. 4

Chapter 2: Literature Review ....................................................................................... 16
  Theoretical Basis ......................................................................................................... 16
    Learning Theories ....................................................................................................... 17
    Knowledge .................................................................................................................. 23
    Organizational Learning Theories .............................................................................. 29
  Defining Collaborative Writing ..................................................................................... 33
    Genres, communities, and design in organizational writing .......................................... 35
  Content, Competency, and Expertise .......................................................................... 40

A Traditional Model of Organizational Knowledge Creation .................................... 45
  Individual content knowledge: Resume and portfolio of work ....................................... 48
  Individual competency: Credentials, degrees, and licenses .......................................... 48
  Individual expertise: Performance standards .................................................................. 49
  Intragroup content knowledge ..................................................................................... 50
  Intragroup competency: Group process ......................................................................... 50
  Intragroup expertise: Group outcomes .......................................................................... 51
  Intergroup content knowledge: Information processing ................................................. 52
<table>
<thead>
<tr>
<th>Intergroup competency: Interdepartmental collaboration/conflict.</th>
<th>..........</th>
<th>52</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intergroup expertise: Specialization.</td>
<td>..........</td>
<td>53</td>
</tr>
<tr>
<td>Organizational content knowledge: Organizational or institutional memory.</td>
<td>..........</td>
<td>53</td>
</tr>
<tr>
<td>Organizational competency: Organizational learning or training.</td>
<td>..........</td>
<td>53</td>
</tr>
<tr>
<td>Organizational expertise: Knowledge management.</td>
<td>..........</td>
<td>54</td>
</tr>
<tr>
<td>Conclusion</td>
<td>..........</td>
<td>54</td>
</tr>
<tr>
<td>Chapter 3: Methodology</td>
<td>..........</td>
<td>56</td>
</tr>
<tr>
<td>Methodology Framework</td>
<td>..........</td>
<td>57</td>
</tr>
<tr>
<td>Group Selection</td>
<td>..........</td>
<td>59</td>
</tr>
<tr>
<td>Data Collection</td>
<td>..........</td>
<td>65</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>..........</td>
<td>71</td>
</tr>
<tr>
<td>Study Limitations</td>
<td>..........</td>
<td>80</td>
</tr>
<tr>
<td>Chapter 4: Findings</td>
<td>..........</td>
<td>85</td>
</tr>
<tr>
<td>The Group and Its Environment</td>
<td>..........</td>
<td>86</td>
</tr>
<tr>
<td>Knowledge Embedded within the Project Power Structure</td>
<td>..........</td>
<td>89</td>
</tr>
<tr>
<td>Transactional and Negotiated Knowledge</td>
<td>..........</td>
<td>101</td>
</tr>
<tr>
<td>Ownership of Knowledge</td>
<td>..........</td>
<td>114</td>
</tr>
<tr>
<td>Conclusion</td>
<td>..........</td>
<td>122</td>
</tr>
<tr>
<td>Chapter 5: An Emerging Model of Knowledge Creation in Distributed Group Processes</td>
<td>..........</td>
<td>126</td>
</tr>
<tr>
<td>Framework of Knowledge Genres for Distributed Groups</td>
<td>..........</td>
<td>129</td>
</tr>
<tr>
<td>Three types of knowledge</td>
<td>..........</td>
<td>129</td>
</tr>
<tr>
<td>Location of knowledge creation, agency, and ownership</td>
<td>..........</td>
<td>135</td>
</tr>
<tr>
<td>Section</td>
<td>Page</td>
<td></td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>Situating knowledge boundaries</td>
<td>138</td>
<td></td>
</tr>
<tr>
<td>Examples of Knowledge Genres</td>
<td>141</td>
<td></td>
</tr>
<tr>
<td>Credentials</td>
<td>141</td>
<td></td>
</tr>
<tr>
<td>Professionalism</td>
<td>143</td>
<td></td>
</tr>
<tr>
<td>Conclusion</td>
<td>145</td>
<td></td>
</tr>
<tr>
<td>Chapter 6: Discussion and Implications</td>
<td>147</td>
<td></td>
</tr>
<tr>
<td>Educational Policy and Academic Writing</td>
<td>147</td>
<td></td>
</tr>
<tr>
<td>Knowledge Management and Organizational Learning</td>
<td>149</td>
<td></td>
</tr>
<tr>
<td>Group communication and social identity</td>
<td>155</td>
<td></td>
</tr>
<tr>
<td>Conclusion</td>
<td>159</td>
<td></td>
</tr>
<tr>
<td>References</td>
<td>162</td>
<td></td>
</tr>
<tr>
<td>Glossary</td>
<td>170</td>
<td></td>
</tr>
<tr>
<td>Appendix A: Interview Questions</td>
<td>178</td>
<td></td>
</tr>
<tr>
<td>Individual Interview 1</td>
<td>178</td>
<td></td>
</tr>
<tr>
<td>Group Interview</td>
<td>180</td>
<td></td>
</tr>
<tr>
<td>Individual Interview 2</td>
<td>182</td>
<td></td>
</tr>
<tr>
<td>Appendix B: Codes and Themes</td>
<td>184</td>
<td></td>
</tr>
<tr>
<td>Codes</td>
<td>184</td>
<td></td>
</tr>
<tr>
<td>Thematic codes by question</td>
<td>185</td>
<td></td>
</tr>
<tr>
<td>Examples of Relationship between Initial Codes and Thematic Codes:</td>
<td>187</td>
<td></td>
</tr>
<tr>
<td>Appendix C: The Group and Its Environment</td>
<td>188</td>
<td></td>
</tr>
<tr>
<td>Project Overview</td>
<td>188</td>
<td></td>
</tr>
<tr>
<td>Healthcare Counseling Project Group</td>
<td>190</td>
<td></td>
</tr>
</tbody>
</table>
Robert ...................................................................................................................... 191
Helen ...................................................................................................................... 192
Ronda ..................................................................................................................... 192
Phillip ...................................................................................................................... 193
Paul ......................................................................................................................... 194
Olivia ....................................................................................................................... 196
David ...................................................................................................................... 196
Sam ......................................................................................................................... 198
Auxiliary Staff ....................................................................................................... 199
The Organization ................................................................................................... 199
Departments .......................................................................................................... 201
  Traditional Stand-up Training ............................................................................. 202
  E-learning (IT) Department ................................................................................ 202
  Video Production Department .......................................................................... 204
  Stakeholders ....................................................................................................... 205
Writing Tasks .......................................................................................................... 206
  Quarterly Report ................................................................................................. 206
  Content/Learning Object ................................................................................... 208
  Virtual Layout .................................................................................................... 209
  Group Changes ................................................................................................. 210
Table of Figures

*Figure 2-1.* Process of creation and dissemination of knowledge .................45

*Figure 2-2.* Depth of knowledge in relation to level of internalization ..........46

*Figure 2-3.* Location of knowledge creation ........................................46

*Figure 2-4.* Traditional model of organizational knowledge creation .............47

*Figure 3-1.* Timeline of documents collected for the study .........................66

*Figure 5-1.* Continuum of tangibility and features of knowledge .................131

*Figure 5-2.* Location of perceived agency and ownership of work continuum ......137

*Figure C-1.* Organizational chart of health counseling group ......................190

*Figure C-2.* Organizational chart of the home organization .......................200
Chapter 1: Introduction

Problem Statement

Over the last decade, the management model used by many organizations has shifted from a centralized hierarchical model to a distributed management one. The distributed model consists of workers who are distributed throughout the organization (and even outside of the organization) cross trained to work collaboratively with many managers on work processes outside of the departmental structures (Conceicao, Heitor & Veloso, 2003). This is a departure from the traditional management model where workers are in one location lead by a single manager who oversees specialized workers within his department. As more organizations use working groups whose members are distributed worldwide, written documents, such as reports, are increasingly being used to capture organizational knowledge and create a uniform organizational culture. This process of creating and distributing documents may be used by the organization as a way to communicate and capture knowledge created at multiple levels including the individual, group, and organizational, yet physically located away from those that need access to the knowledge (Ede & Lunsford, 2001; Lunsford & Ede, 1992; Martin, Massy, & Clarke, 2003; Yakhlef, 2002).

As commerce, education, and societies become a part of a globalized world, crossing cultures and nations, organizations want to be able to harness and capture knowledge that may be generated in the collaborative writing process, so as to keep them competitive in the growing knowledge-based economies (Brandt, 2005; Conceicao et al., 2003; Malmberg, Solvell, & Zander, 1996; Martin et al., 2003; Mason & Lefrere, 2003; Stiglitz, 2003). In a knowledge-based economy, knowledge becomes the product and the
source of income, either directly or indirectly, for an organization. Organizations that are able to harness and leverage knowledge created by their workers and work groups will have a competitive advantage in the economy (Stiglitz, 2003). According to the World Bank’s (2009) knowledge economy index (KEI), the US is comparatively less prepared for the knowledge economy than it was in 1995. This may be due to a slower growth in knowledge creation compared to countries such as China, who have been able to harness its knowledge resources at a greater rate. In answer to these findings, American and global organizations are recognizing the importance of finding new ways to ensure they are capturing knowledge that will make them competitive. Specifically, they are interested in individual group members being able to bring back and teach others within an organization that knowledge which distributed group members have learned from the group. The ability to learn from distributed groups within an organization is a way of maximizing the exchange of information, improving decision making by providing new insights, and stimulating critical thinking skills (Engleberg & Wynn, 2007).

This organizational learning, however, is dependent upon individual members (a) working together with group members to generate knowledge; (b) being able to learn from the group; (c) identifying and disseminating the most useful, relevant, and appropriate knowledge created by the group process to those outside of the group; and (d) being able to help others outside the group to adapt and apply what the group has learned to external contexts. In fact, the flow and capture of knowledge between individuals to groups to others throughout the organization is a complex process that needs further study in order to understand learning in the workplace (Brandt, 2005; Dias, Freeman,
Writing within the organization, in its various forms (reports, memos, e-mail, supporting documentation), creates transparency in work processes and knowledge creation that can help capture that knowledge and save it for others in the organization to use, even once the authors have left (Yakhlef, 2002). However, beyond the written record itself, the process of writing an organizational document can help to encode ideas, perceptions, and know-how, thus creating understanding and a mental model from experience and tacit knowledge (Brandt, 2005; Henry, 2000; Posner & Baecker, 1992). This, then, is one way to capture the flow of knowledge through the organization. However, the use of writing as a means for organizations to capture and create knowledge within a distributed group is not well understood. There has been little research on how the collaborative writing process by distributed groups impacts individual members, groups, and the organization (Yakhlef, 2010).

While many have looked at workplace writing processes (Dias, et al., 1999; Ede & Lunsford, 2001; Lunsford & Ede, 1992) and the capturing of knowledge through group processes (Brandt, 2004; Conceicao, Heitor, Gibson, & Shariq, 1998; Conceicao et al., 2003; Yakhlef, 2002), there has been little research on how knowledge is created through the collaborative writing process, especially within distributed groups. In order to maximize the usefulness of distributed groups within an organization, it is important to understand how a collaborative process such as writing is used by the group and organization as a means to capture knowledge, and the impact this collaboration has on
individual members, distributed groups, and others within and outside of the organization.

**Background**

Researchers from diverse fields have shown interest in how groups work together in virtual environments which require collaborative writing. Often they are interested in how knowledge that is distributed within a group (either an online class, a working team, or a group with common interests) is shared, captured, and reused by individuals and the group itself (Cannon-Bowers & Salas, 2001; Kirkpatrick, Bell, & Falk, 1999; Mason & Lefrere, 2003; Mohammed & Dumville, 2001; Mulder, Swaak, & Kessels, 2002a).

In the field of knowledge management, for example, researchers are interested in how individual know-how (the knowledge of a process that is developed through experience also known as tacit knowledge) can be transferred to others in different contexts (Conceicao et al., 1998; Conceicao et al., 2003; Yakhlef, 2002). Since know-how is something that the individual may not even know he or she possesses until he or she interacts with others who do not have the same knowledge, it is difficult to (a) identify the know-how and (b) transfer it to others who either work in a different context or have different experience (Collis, 1999; Conceicao et al.; Swarts, 2000). As a result, it is important for those designing organizational systems and managing virtual teams to understand the types of tacit knowledge or know-how that individuals might bring into a group; how that knowledge is converted into a form that can be made tangible and/or accessible to both the individual with the know-how and other group members; and how context affects the development, transfer, and application of tacit knowledge. The capture
of this knowledge is especially important to organizations in which knowledge is its main product (i.e., service organizations, government, educational institutions, etc.).

Education researchers, especially those working in distance education and organizational learning, are interested in how virtual, distributed groups work together to create meaning, shared understanding, and eventually, shared mental models or shared cognition (Hakkinen, Jarvela, & Makitalo, 2003; Haythornthwait, Kazmer, & Robins, 2000; Henri, 1995; Jarvela & Hakkinen, 2002; Pfister, Wessner, Beck-Wilson, Miao, & Steinmete 1998; Rockett, Valor, Miller Naude, 1998). They have identified two dimensions that can affect learning from the group: cognitive and social (Song, 2003).

While both dimensions may impact the other, these educational theorists have identified different factors within each dimension. The cognitive dimension refers to the ability to share understanding, information, and mental models of a task or experience. Extending this idea to the workplace, the managers in Yakhlef’s (2002) study were able to learn how computer operational processes worked within their departments through the collaborative writing of systems requirements by interacting with both end-users and software developers, identifying information, work flow, and key processes needed to accomplish work tasks. In developing a shared understanding through the writing process, the managers, especially, were able to learn from team members, creating a shared mental model for the department work process.

The social dimension refers to the group dynamics and roles that can help or hinder group communication and learning in virtual environments. Those factors that affect online group collaboration include identity, both within the group and as a group (Gunawardena, Lowe, & Anderson, 1997; Haake, Haake, Schummer, Bourimi, &
Landgraf, 2004; Jiang & Ting, 2000; McFadzean, 2001), building a community of learners and practice (Barab et al., 2001; R. Brown, 2001; Schwen & Hara, 2003; Swan, 2002; Wegerif, 1998), and developing trust so as to maximize the sharing of information and interaction (Henning & Van Der Westhuizen, 2004; Jiang & Ting; Kreijns, Kirschner, & Jochems, 2003). A lack of trust, sense of community, or affinity with the group can result in the inability of a group to create a shared understanding and, thus, maximize learning.

Researchers in organizational management, communication, and social psychology look at the role of group dynamics in distributed groups. As in the distance education and knowledge management literature, the question of how knowledge is shared and common understanding is created is important for understanding the collaborative process for researchers in group dynamics (Ayoko, Hartel, & Callan, 2002; Cannon-Bowers & Salas, 2001; Engleberg & Wynn, 2007; Eylon & Allison, 2002; Holton, 2001; Hoover, 2005; Jehn, Northcraft, & Neale, 1999; Levesque, Wilson, & Wholey, 2001; McGrath, Arrow, & Berdahl, 2000). In addition, the relationship that an individual has with the group, that groups have with the organization and other groups within the organization, and that the group has with its individual members may affect the ability of the group to create shared mental models, establish trust, develop understanding, and learn from the group (Holton, 2001; McGrath et al.; Mohammed & Dumville, 2001; Moreland & Levine, 2001; Olivera & Straus, 2004).

In fact, there are both social and cognitive factors that will impact a group’s ability to create knowledge. The collaborative writing process may create a common platform and social environment that encourages the creation of shared mental models,
trust, and understanding. However, both social and cognitive factors may also impact or hinder a distributed group from capitalizing on knowledge creation during written collaboration. In order for organizations to maximize the usefulness of distributed groups and collaborative writing tasks, they would need to understand how to create a supportive environment, and how to manage social and cognitive factors that both aid and hinder distributive group knowledge creation.

There are many factors that the group dynamics literature has identified that will affect the collaborative process, including group conflict and cohesion (Jehn & Mannix, 2001; Moreland & Levine, 2001), social identity within the group and the organization (Dias et al., 1999; Lunsford & Ede, 1992; McGrath et al., 2000; Moreland & Levine; Skitka, 2003), perception of the fairness of the group (Skitka), organizational structure and power structure (Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Dias et al.; Schneider, 2002; Sinclair, 2003), group diversity (Ayoko et al., 2002; Jehn et al.), and temporal, resource, cultural, and technological constraints (Engleberg & Wynn, 2007; Hoover, 2005; McGrath et al.; Mulder et al., 2002b; Waller, Conte, Gibson, & Carpenter, 2001). Therefore, it is important that context for both cognitive and social factors within which a distributed group operates be understood. This would require studying the group process in a natural setting.

The level to which a distributed group is able to create new knowledge and pass that knowledge on to others within a group and an organization will be dependent upon their ability to understand others perspectives and create new meaning. Perspective taking is a skill that Rommetveit found was vital to creating meaning (Hagtvet & Wold, 2003) and that other researchers tie to higher order thinking (Jarvela & Hakkinen, 2002;
Wegerif, Mercer, & Dawes 1999). Perspective taking requires that a person be able to understand another’s viewpoint, anticipate their responses, and present their position in such a way as to encourage mutual understanding. In order for organizations to maximize their operations using distributed groups, therefore, it would be important to understand when and how individuals would be willing to understand another’s viewpoint and offer new information to the group. Lunsford and Ede (1992) identified collaborative writing as one collaborative activity in which this discourse and meaning making takes place.

The implication for distributed groups is that just by participating in the collaborative writing process, an individual may be required to participate in higher order thinking, thus creating an opportunity to learn from the group through perspective taking. As an event unfolds, individuals will use their past experience to interpret what has happened (Nelson, 1996). This is an area that needs greater research in order to determine if, in fact, (a) the participation in a collaborative writing process requires perceived higher order thinking; and (b) if there are perceived opportunities created to learn from the group through understanding another’s viewpoint, anticipating their responses, and presenting their position in such a way as to encourage mutual understanding (in other words, perspective taking).

Discourse and a high level of exchange of social and cognitive information could result in a greater chance to achieve shared understanding (Lunsford & Ede, 1992; Hagtvet & Wold, 2003) and creation of group knowledge. In fact, Lunsford and Ede identified the impact that a group has on the creation of shared meaning during collaborative workplace writing. However, there is also the possibility that the
collaborative writing process could reinforce group or organizational perspectives, thus imposing organizational perspectives (and hindering shared meaning or creation of knowledge) on to the individual and group (Brandt, 2005).

Researchers of collaborative and workplace writing are interested in how the writing process differs in the workplace when there are multiple authors. They have focused on issues of text ownership (Colen & Peteilin, 2004; Dias et al., 1999; Inge, 2001; Lunsford, 1999; Rehling, 1994; Schneider, 2002), writing as a way to acculturate employees (Berkenkotter & Huckin, 1995; Brandt, 2005; Colen & Peteilin; Dias et al.; Morgan, 1991; Parks, 2001; Russel, 1997), the collaborative writing process (Colen & Peteilin; Inge; Neuwirth & Wojahn, 1996; Swarts, 2000), business language and genres (Beason, 2001; Berkenkotter & Huckin; Brandt; Dias et al.; Gilsdorf & Leonard, 2001; Morgan; Russel) and the relationship between knowledge creation and writing (Berkenkotter & Huckin; Brandt; Corso & Williamson, 1999; Dias et al.; Lunsford & Ede; Schneider). This body of work suggests that the collaborative writing process in the workplace does more than create an institutional record of work outcomes and processes; it also acts as a way to develop a common organizational culture and employee thinking processes.

Unlike academic writing, in business writing it is rare to associate a written product to an individual author (Brandt, 2005; Ede & Lunsford, 2001). Even when only one author is identified, such as in a business letter or policy memo, input from multiple sources, such as managers, secretaries, and team members, is inferred (Brandt, 2005; Lunsford & Ede, 1992). Various groups of researchers have looked at how the power structures and organizational systems affect genres used, the organizational culture, and
the collaborative processes used (Dias et al., 1999; Lunsford & Ede, 2001; Schneider, 2002). Lowry, Curtis, & Lowry (2004), for example, identified six different models of collaborative processes that were used in the workplace which were dependent on the task, working environment, status of the collaborators, expertise and writing ability, and location of the collaborators.

Research in workplace collaborative writing, therefore, indicates that there are many factors which affect the group writing process and final product. Many of these factors, while helping to shape the collaborative process, might not be experienced during group writing but rather before or after a collaborative writing project is started or completed. However, much of the workplace writing research focuses on the individual during the collaborative writing process (Brandt, 2005; Dias et al., 1999; Ede & Lunsford, 1992; Schneider, 2002). To understand how a collaborative writing event is both influenced by and influences knowledge creation at the individual, group, and organizational level, it would be important to look at the factors that help shape the context before, during, and after the collaborative event. It would also be important to look at workplace collaborative writing in a natural setting so that there is a greater understanding of contexts and perception of reality within distributed groups.

While many researchers have looked at individual learning outcomes within an organization (Mason & Lefrere, 2003; Tomlinson-Clark, 2000), organizational learning and how information is captured within organizational structures (Ashton, 2004; Foss & Pedersen, 2002; Liu & Vince, 1999; Sarker, Nicholson, & Joshi et al., 2005; Yakhlef, 2002), and the role of collaborative writing in the workplace (Brandt, 2005; Dias et al., 1999; Ede & Lunsford, 2001; Schneider, 2002), few have looked at how collaborative
writing impacts an individual’s influence on the group and organization’s learning (Schneider). This is especially important as the field of management moves away from the individual as the sole possessor of knowledge within the organization. The idea of distributed groups was developed as a way to collocate knowledge so the organization would not be vulnerable to the loss of or reliant on one person or department (King & Frost, 2002). The relationship between the group, individuals, departments, the organization, and stakeholders are made more complex when knowledge is created and located in multiple locations. The internet and globalization has made it possible for those within distributed groups to act autonomously within a distributed group and the organization. Making matters more complex, individuals may belong to multiple distributed groups (Colen & Peteilin, 2004; Collis, 1999; Collis, Vingerhoets, & Moonen, 1997; Lapadat, 2002; Mohammed & Dumville, 2001). By studying the impact that collaborative writing has on the individual, the group, and the organization, organizations will be able to understand how knowledge is created in complex environments, within multi-tiered power structures, and with the use of a variety of communication tools.

As knowledge becomes integral to organizations within the knowledge economy, this impact of collaborative writing on the individual and group becomes vital to policy makers within organizations and the economy. Not only is it important that knowledge is held by individuals within an organization, but groups within the organization need to be able to access individual knowledge in order to function and create shared meaning. This new shared meaning and understanding created by the group then needs to be incorporated into the organization as it becomes part of the organization’s product. The new knowledge created by the group is no longer strictly possessed by the individual, but
is also available to the group, the organization, and stakeholders outside of the organization (customers, supply chain affiliates, and end-users) (Conceicao et al., 1998; Conceicao et al., 2003; Yaklief, 2002).

Organizations are looking at ways to capture, transfer, store, and disseminate knowledge created by distributed groups to ensure their economic success. The greater ability they have to quickly capture group knowledge and disseminate it throughout the organization, even if workers are separated by distance, the more successful an organization will be. Because many of these distributed groups maintain contact through texts online, collaborative writing may be a means by which knowledge is created by distributed groups. However, this new mode of management (distributed) and collaboration (online) is still relatively nascent. As such, it is an area about which those in the fields of management, writing, communication, group dynamics, and applied psychology have little understanding (Brandt, 2005; Conceicao et al., 1998; Conceicao et al., 2003; Corso & Williamson, 1999; Lowry, Nunamaker, Curtis, & Lowry, 2005; Martin et al., 2003; Yaklief, 2010).

In order to address the need to understand the individual, group members, and the organization’s role in organizational learning as a result of collaborating as part of a distributed group, this dissertation will concentrate on the relationship between the individual members and the group as it applies to organizational knowledge creation as the result of working on a collaborative written project. While the individual member is the starting point for inquiry, this study will look at how other members from the distributed group and organizational structures (including organizational culture) are perceived by the individuals as impacting knowledge creation as the distributed group
participates in a collaborative writing project. The collaborative writing project will be used as a tool to study individual and group perspectives, group meaning making, and the ways in which knowledge produced by the distributed group is perceived as being created, managed, and stored at the individual, group, and organizational level.

With this in mind, the study will address the following primary research questions:

1. What knowledge do members of a distributed workplace group identify as being important when creating a group product through collaborative writing?

2. What factors influence the choice of what knowledge is perceived as important?

These primary questions will address both social and cognitive factors within the group collaborative writing processes; knowledge creation, access, transfer, and interpretation at multiple levels within the organization (individual, group, and organization); and placement of distributed group processes and learning within a knowledge based organization.

In order to understand the impact of the distributed group collaborative writing process on knowledge creation in the organization (where knowledge is considered the product), three additional sub questions have been developed. These three sub questions will help to understand the context within which individuals in a distributed group work, the alignment of perceptions between the individual, group, and organization, and the communicative structures used in collaborative writing (processes, meaning making, genres) that may impact perceived knowledge creation. These sub-questions are:

- How do individuals define “knowledge”?
• What process or processes does a distributed group in the workplace use to create shared meaning and understanding during collaborative writing projects? What factors do they identify as shaping that process or processes?

• What patterns of work activity are maintained and changed at the individual, group, and organizational level within a distributed group? With whom do workers identify in maintaining or changing work patterns in different contexts?

By looking at a naturally formed distributed group, this study will add to the current literature on distributed groups by addressing how the context, power structures, and workplace environment (looking at both social and cognitive factors) influence knowledge creation. As noted before, by understanding these influences, organizations may be able to create environments that are more conducive to creating and capturing distributed group knowledge. This study will also address how different levels of the organization (individual, group, department, and organization) are impacted by the work of an individual distributed group. More and more organizations are using distributed groups. In a knowledge based organization, especially, the organization not only desires, but requires that the knowledge created by these groups can be accessed when needed at all levels of the organization. To access this distributed group knowledge, it is important that this research provides some insight into how knowledge is disseminated throughout the group and the organization. Finally, this study may add to the current literature on organizational communication, especially as it applies to perspective taking and meaning making during collaborative workplace writing. As distributed groups rely more and
more on text based communication, the current literature on workplace writing needs to be updated to include collaboration between group members that are not physically collocated.
Chapter 2: Literature Review

In analyzing the literature about group processes, knowledge, and meaning making from various academic disciplines, it appears that there may be some common concepts that deserve greater exploration. This next section will look at the theoretical basis from the fields of education, communication, writing, psychology, sociology, management, and language learning in order to identify concepts that might be relevant to understanding workplace collaborative writing and knowledge creation, and to develop some common definitions.

Theoretical Basis

The starting point of this dissertation is my belief that learning is the construction of knowledge and that knowledge is constructed through interaction with the environment, artifacts (such as reports and technology), and other people. However, there is individual choice and agency in the construction of knowledge. If an individual is not aware of certain environmental or social stimuli around him or her (such as non-verbal negative social cues or seating arrangements that might imply status), he or she may not be open to new ideas or interpretations when interacting with colleagues or the environment. In other words, his or her assumptions and mental models will be the same in the beginning and the end. Therefore, no learning will have taken place. On the other hand, individuals who perceive a change, dissonance, or social stimuli within their environment, may actively try to make meaning about these perceptions which creates knowledge. This would be termed as learning.
Learning Theories

There are three theories that inform my analysis of individual learning during the collaborative writing process: Lave’s situated learning (Wilson & Myers, 2000), Kolb’s (1984) experiential learning process, and social identity theory (SIT) (Skitka, 2003; Whitworth, Gallupe, & Queen, 2000).

Lave’s theory of situated cognition or situated learning gives us a framework in which to study the effect the social setting has on the individual learning, while Kolb’s experiential learning model could be used to analyze the individual learning that is generated through experience and interaction with the setting. In situated cognition theory, knowledge is constructed through interaction with activity systems, and learning outcomes are situated in the context in which learning takes place (Wilson & Myers, 2000). The environment and activity in which an individual learns a concept is important to how they will understand and apply that concept (J. S. Brown, Collins & Duguid, 1989).

Situated learning theory has interesting implications for distributed teams or groups where the context is a virtual environment. Lave made a point to clarify that situated was not synonymous to a tangible, stagnant environment, but rather was the social practices in which activity took place (Wilson & Myers, 2000). Therefore, looking at the interaction between local contexts, virtual contexts, and the individual, there is the potential for each group member in a distributed team to experience the same phenomena (such as a collaborative writing project) differently as they will be situated in both common and differing social practices. Common social practices may be created within the virtual environment to develop a third or neutral culture to bridge the gap between
two or more local cultures that could not be reconciled (Henning & Van Der Westhuizen, 2004). Within the context of this study, I use Cook & Yanow’s (1993) definition of culture:

We define culture in application to organizations as a set of values, beliefs, and meanings, together with the artifacts of their expression and transmission (such as myths, symbols, metaphors, rituals and ritual objects), that are created, inherited, shared, and transmitted within one group of people; that, in part, distinguish that group from others; and by which the patterns of collective action unique to that group are acquired, maintained, changed, and put to use. (p. 445)

Any study on collaboration within a distributed group, therefore, would need to include an analysis of the context and various levels of culture that situate cognition as each environment will have its own culture which includes values, rituals, and artifacts from various departments, professions, and workplace environments. Collaborative writing may be able to capture and record a group’s cultural artifacts and rituals that help to create the group’s culture.

While situated cognition theory has its origins in experiential learning (J. S. Brown et al., 1989), the focus is on the effect that contexts have on learning rather than individual learning that is a result of interacting with the environment. Going back to Dewey, educators and trainers (Collis et al., 1997; Liu & Vince, 1999; Simon, 1983; Tomlinson-Clark, 2000; Wang, Ceci, Williams, & Kopko, 2004) have recognized that experience alone will not guarantee an individual will: (a) learn something that is perceived of value in other contexts, (b) be able to recognize his or her learning, and/or (c) be allowed to use or affectively apply what he or she has learned in other contexts. Kolb’s experiential learning model is one explanation of how individuals might learn from their experience (Kolb, 1984). There are four basic stages to Kolb’s model. In the first stage, *concrete experience*, an individual experiences some phenomenon, such as a
meeting, collaborative process, training, or new product material. Kolb also identifies this stage as one of problem finding. During the next two stages, reflective observation and abstract conceptualization, the individual reconstructs the experience internally and develops hypotheses or generalizations that can be used in future situations. In other words, individuals ask questions and look for answers during these two stages. In the final stage, active experimentation, individuals apply their generalizations or hypotheses to diverse contexts, reformulating their generalizations based on the outcomes as they repeat the cycle for each context. In the final stage, which Kolb also categorized as the portrayal of knowledge, concepts are verified, developed in a way to communicate to others, and explored through various contexts and situations so that new ideas eventually will be incorporated into new concrete experiences.

Kolb (1984) also distinguished between two types of knowledge: apprehension and comprehension. Apprehensive knowledge is the intuitive process that happens as we experience the world. Apprehensive knowledge makes us aware of what we are experiencing and how we perceive our world, although it may not have meaning. Comprehensive knowledge is the abstract ideas and understanding we create based on our experience. “Apprehension of experience is a personal subjective process that cannot be known by others except by the communication to them of the comprehensions that we use to describe our immediate experience. Comprehension, on the other hand, is an objective social process, a tool of culture” (Kolb, p. 105).

It is the apprehensive knowledge, communicated through shared concepts known as comprehensive knowledge, which companies would like to capture since this is the intangible know-how that an individual brings to a situation. Putting this into the context
of Kolb’s (1984) model, it is possible that the collaborative writing process helps individuals create a deeper level of apprehensive knowledge through social interaction that requires apprehensive knowledge to be transformed into comprehensive knowledge. Transforming an individual’s knowledge that is a result of experience (apprehensive knowledge) into social knowledge requires common symbols, culture, social structures, and images; in other words, comprehensive knowledge. Likewise, comprehensive knowledge is irrelevant without personal knowledge or experience (apprehensive knowledge) to mediate understanding (Kolb). The collaborative writing process may give group members the opportunity to utilize both apprehensive and comprehensive knowledge. If language works as a medium of thought through the use of inner speech, as a mediator of thought through discourse, and as a tool though the generation of thoughts and knowledge systems (Nelson, 1996), in studying collaborative writing, there is a chance to understand the multiple use of language in developing thoughts, apprehensive, and comprehensive knowledge, at the individual and group level.

While situated learning focuses on external influences to knowledge construction and the experiential learning model looks at the internal processes that help a person to construct knowledge from experience, social identity theory (SIT) is useful in understanding how group dynamics might affect the creation of knowledge at the individual, group, and organization level, especially in terms of the level of internalizing group norms, learning, and heuristics (Whitworth, 2000).

According to SIT, an individual’s membership in a group is linked to how closely he or she identifies with the group’s norms (Skitka, 2003; Van Knippenberg, 2000). However, some norms are dependent on the context and the social identity which an
individual is willing to present to the group. Depending on the context, an individual will choose his or her identity and values to be used within a certain group situation (Skitka, 2003; Whitworth et al., 2000). Therefore, individuals will have multiple social identities and multiple norms depending on which group they are associating with at any given time. For example, a virtual team member might come into a collaborative writing project as a member of the marketing department, an employee of X company, a member of the European subsidiary, a citizen of country Y, a sales professional, and a graduate of Z College. Depending on the makeup of the collaborative team, each of these group memberships might be salient, if, for example, there are other sales professionals on the team. Each of the groups in which the individual has membership would have slightly different norms and values. Depending on the team activity, an individual would take on the appropriate identity and norms that he or she thought would be most acceptable for that context and group. If the group had a strong professional identity, then the member might use the norms of sales rather than marketing (his or her department) or norms learned at Z college.

When faced with information or an event on the group level that contradicts an individual’s personal identity construct (value, knowledge, epistemology, personal schema), that person has three choices: modify his or her own personal identity, modify the group’s beliefs, values, or understanding, or leave the group in order to maintain the individual’s personal identity (Levesque et al., 2001; McGrath et al., 2000; Moreland & Levine, 2001; Skitka, 2003; Whitworth et al., 2000). Whitworth et al. contend that there are social identity processes that affect behavior within a group that can occur simultaneously: resolving task information, relating to others, and representing the group.
The level and type of interaction and group process will be dependent upon an individual’s perception of the purpose achieved by the group and group members’ actions; the individual’s perceived relationship within and between groups, group members, and individuals; and the perceived group identity by the individual. Collaborative writing researchers’ findings suggest that these perceptions influence the collaborative writing process and enculturation of employees into the workplace (Brandt, 1992, 2005; Dias et al., 1999; Henry, 2000; Lunsford & Ede, 1992). These perceptions are dependent on the group interaction consisting of content (message), context (sender and environmental cues), and position (sender intention and perspective). In addition, group member status, perception of power, member affinity, access to resources (including time and expertise), and organizational norms can impact the sharing of information, the writing process, group decision making, and the level at which personal identity is allowed to be influenced by social identity (Dias et al., 1999; Lunsford & Ede, 1992; Rehling, 1994; Whitworth et al., 2000).

While much has been written on the social practices of collaborative workplace writing (discourse context) (Colen & Peteilin, 2004; Corso & Williamson, 1999; Dias et al., 1999; Ede & Lunsford, 2001; Lowry et al., 2005; Lunsford & Ede, 1992; Neuwirth et al., 1994; Posner & Baecker, 1992), there is very little on how individuals make sense and learn from the process (cognitive context) (Schneider, 2002). With Kolb’s model as a starting point, research into how individuals make sense and learn from the collaborative process may allow trainers, knowledge managers, and instructional designers to design environments that facilitate and capture knowledge creation from distributed groups.
Knowledge

While organizational learning theories look at the systematic structures for capturing aggregate individual learning at the organizational level, little work has been done on the impact to individuals within the organizational system (Ashton, 2004; Schneider, 2002). At the same time, online collaboration studies have identified features to make collaboration more effective but stop at the collaborative and group process, ignoring the impact on the individual’s understanding (Ashton; Castelfranchi, 2004; de Laat, 2002; Eylon & Allison, 2002; Johnson, 2001). It is unclear if the process of co-creating a group product, an actual final group product (such as a report or webpage) or a combination of both help to create learning for the individual, group, and organization. Previous research has indicated that both the process and the product benefit the organization by creating an institutional record of organizational memory and the transfer of information from one location to another (Ashton; Yakhlef, 2002). However, the benefit to the individual and group is less clear. Likewise, there is little research on organizational knowledge that may exist within the organization, but outside of the individual. This knowledge may not be captured in organizational memory and/or may be difficult to transfer between individuals (Cook & Brown, 1999; Cook & Yanow 1995; Nonaka, 1994).

If an organization is the synergy of individuals, it would follow that individual learning needs to occur and be transferred to the group process in order for organizations to take advantage of individuals’ knowledge. Yakhlef (2004) found, for example, that by outsourcing informational and communication technology (ICT), managers gained expertise through the outsourcing process and interaction with outside technology groups.
However, the organization lost expertise in other areas. Since end-users were no longer a part of the creative process in developing ICT, they no longer needed to collaborate and explain their duties to the developers, thus taking the development process out of the context of the organization. Without the context, developers were not able to understand the individual needs, individual assumptions were not questioned, and there was no check to ensure end-users and developers were working from the set of assumptions and understanding except through the interaction with the manager.

Yakhlef’s research would indicate that context and group interaction is important to the creation and transfer of know-how (apprehensive knowledge), a fairly intangible manifestation of knowledge, within an organization. If an individual’s learning is dependent upon his or her ability and willingness to perceive new information, perspectives, and stimuli from his or her environment (Hagtvet & Wold, 2003; Martin et al., 2003; Reuber & Fischer, 1997), then there needs to be some social or environmental interaction which will trigger an individual to reflect on his or her experience before knowledge can be created (Kolb, 1984). In the case of virtual groups, the environment becomes more important as social cues are not as obvious as with face to face groups. Knowledge, therefore, is dynamic as a result of constant interaction with both the environment and others within a group. This is very close to Ragnar Rommetveit’s definition of dialogical meaning making (Hagtvet & Wold, 2003).

Knowledge is more than the construction of meaning through social interaction; it is also the individual choices a person makes in creating the meaning based on values, personal attributes, and experience. These choices can be dependent on the context and cultures in which individuals and groups are working (Foss & Pedersen, 2002; Kolb,
1984; Liu & Vince, 1999; Nelson, 1996; Sones, Stephans, Saetre, & Browning, 2004). Schneider (2002) found in her research, in which she studied the creation of a departmental report, that collaborators both reacted to and helped create the social structure and organizational context. In some cases, collaborators chose to report and/or ignore those policies and pieces of information that would be most acceptable within the social context of the organization; at other times, their rhetorical choices impacted the social structure, thus reshaping the context of their writing. As Schneider points out, “social structure, or context…is not 'simply there' but is produced through the everyday interactional activities of people” (p. 171). She goes on to question the extent that group member behavior is determined by outside forces, and that individuals are able to think and act by themselves.

There could be some fundamental differences in defining knowledge when an epistemologically diverse group works together. The epistemological differences would make it difficult to develop a shared mental model, even if there are perceived good written communication skills, shared goals, and reliable technology. In assuming that knowledge is created based on epistemologies developed through the various cultures, communities of practice, and discourse communities in which an individual functions, collaborative writing creates opportunities for the co-construction of meaning as long as collaborators are aware that there may be differences in mental models, assumptions, and discourse styles and rules (Nelson, 1996; Swarts, 2000). Without this awareness or an event to make those differences apparent, collaboration may, in fact, impede the co-construction of knowledge.
Discourse communities are more than those groups in which an individual interacts and, thus, have developed the community member’s communication (discourse) style and rules. Discourse communities also develop co-constructed knowledge, epistemology, and rules of interaction that allows its members to negotiate meaning using community heuristics and genres. Members who function within a particular discourse community (e.g., engineer, UAlbany alumni, upstate New Yorker, parents) create meaning without making explicit common assumptions, communication rules and styles, and shared mental models (Berkenkotter & Huckin, 1995; Dias et al., 1999; Schneider, 2002; Syriquin, 2006). Often, the community’s meaning is based on work patterns, group values, and social relationships that create the boundaries that identify a community. These practices then are passed down from experts to novices within the group through community practices. Those that are new to a particular discourse community or community of practice (COP) or are coming from diverse discourse communities or COP’s will need to make explicit individual assumptions, develop communication rules and agree on a common style, and develop a shared mental model as part of the process in co-constructing meaning (Berkenkotter & Huckin; Syriquin).

Different cultural values may result in fundamental differences in epistemologies, creating differences in establishing what knowledge is, what knowledge is valuable, and how knowledge is used. The basis for these differences often can be determined by the educational system or discipline in which an individual develops their concepts of knowledge (McLean, 1995). Because these systems of education differ in fundamental epistemological beliefs, each system has its own way of defining knowledge, who is
responsible for the creation or identification of knowledge, how knowledge is used, and what knowledge is valuable.

Most literature on knowledge categorizes two types: tacit knowledge and explicit knowledge. Cook and Brown (1999) identify the historical distinction made between these two forms of knowledge as explicit knowledge being possessed and tacit knowledge being knowing how. Because explicit knowledge would need to be in a form that is easily identifiable and shared, organizations have traditionally valued explicit knowledge over tacit knowledge. “When the idea of tacit knowledge is addressed, for example, it is most often treated as an information inchoate, or obscure kind of knowledge, whose very nature calls for it to be made explicit in order to be truly understood or useful in practice” (Cook & Brown, p. 384). Cook and Brown argue that each type of knowledge is (a) distinct from each other; (b) aids in the development of the other type of knowledge (i.e., tacit helps develop explicit and visa-versa); and (c) can be a hindrance in the development of the other type of knowledge (i.e., being aware of explicit knowledge can get in the way of performance and visa-versa).

More and more management literature in organizational learning has recognized the importance of tacit knowledge within an organization, especially knowledge-based organizations (Boland & Tenkaski, 1993; Cook & Brown, 1999; Nonaka, 1994). However, by its nature, tacit knowledge is difficult to identify and pass on to others because often it is situated in experience and the environment in which it was created and used (Sternberg & Horvath, 1999).

Often tacit knowledge is made accessible by either developing performance expectations or standardizing processes that others can replicate. Performance
expectations help to identify human action which leads to *knowing how* to do something (know-how, expertise) which may not be identifiable to those who have the knowledge or those that would like the knowledge (Cook & Brown, 1999). A novice, for example, would not have the same *level* of tacit knowledge that an expert would. In other words, different performance expectations are valuated at different levels of tacit knowledge. The more experience an individual has, the less likely he or she would be able to convert his or her knowledge into explicit knowledge. At the same time, tacit knowledge is situated in the performance expectations of an organization. Once an expert leaves his or her environment, they leave some of their tacit knowledge behind (Contu & Willmott, 2003; Sternburg & Horvath, 1999). It would stand to reason, then, that they would not be able to perform at the same level in a new environment until they have some experience in that new environment, thus creating new tacit knowledge.

The other aspect of tacit knowledge identified in the literature (Cook & Brown, 1999; Nonaka, 1994; Sternberg & Horvath, 1999) is the knowledge needed for *doing* (performance, competency). In this case, tacit knowledge is made accessible through processes and training that focus on developing tacit knowledge through standard operating procedures and replication of successful practices. These processes and training opportunities create the competencies that are based on tacit knowledge. The more practice an individual has in developing the competencies, the greater level of tacit knowledge they can develop in the form of skills (Cook & Brown). Tacit knowledge that is formed through *doing* is formed through interaction with a structured environment, whereas tacit knowledge that is formed as *knowing how* is formed through problem solving and reflection within an unstructured environment.
Organizational Learning Theories

There are two prevailing schools of learning theory at the organizational level. The first is based on the idea of organizational knowledge management in which knowledge is codified into information which the organization and individuals can access, monitor, acquire, and store (Allee, 1997; Contu & Willmott, 2003; Raelin, 2008). Similar to Kolb’s (1980) apprehensive and comprehensive knowledge, this school of organizational learning theorizes that the process of codification creates knowledge which can be stored and accessed for use when needed by those within the organization (Raelin; Yakhlef, 2002). Organizational knowledge then becomes the aggregate of individuals’ knowledge and experience (Allee, 1997; Cook & Yanow, 1995). As Raelin describes DiBella, Nevis, and Gould’s three-step approach to organizational learning from a knowledge management perspective, knowledge is acquired, shared, and utilized by members of the organization. Rouwette and Vennix (2008) describe the information processing approach used within knowledge management as attention to identification of problems, encoding information so group members create shared meaning, storing information perceived as valuable which creates organizational memory, creating informational retrieval processes, creating workspace processes that support organizational culture, and creating communication structures that support sense-making and feedback from individuals and groups within the organization.

Knowledge management based theories of organizational learning begins with codified knowledge that can be retrieved and stored from members of the organization (Cook & Brown, 1999, Nonaka, 1994). For knowledge to be useful, therefore, individuals need to be able to transform tacit knowledge into explicit knowledge.
Knowledge that cannot be codified would not be useful to the organization because knowledge would not be able to be retrieved and stored for use by others within the organization. As a result, organizational processes need to be structured so that tacit information can be transformed into codified knowledge thus resulting in organizational learning. Using Anderson’s ACT cognitive model, Nonaka explains, “declarative knowledge has to be transformed into procedural knowledge in order for cognitive skills to develop…it can be argued that transformation is bidirectional” (p. 18). In other words, codified knowledge needs to be in a form that fits into organizational procedures, but also organizational procedures can produce knowledge that then needs to be codified for organizational use.

My working definition of knowledge management is the access, monitoring, acquisition, and storage of organizational information which is codified into a common format in order for those within the organization to participate in sense-making, group decision making, problem solving, and the creation of shared mental models at the group, departmental, and organizational level. While organizational learning may need to access some forms of knowledge management, organizational learning is not synonymous with knowledge management. In addition, not all organizational learning requires knowledge management, although knowledge management might augment organizational learning.

The second school of organizational learning theory is based on organizational members’ social and cultural interaction with the environment, often through the establishment of communities of practice within the workplace (Akgun, Lynn, & Byrne, 2003; Cook & Brown, 1999; Cook & Yanow, 1995; Nonaka, 1994). Those within this school of organizational learning believe that learning within the organization is not
based on individuals possessing needed knowledge, but rather learning is a construction of knowledge within the organizational environment. Cook and Yanow go one step further by placing learning into the organizational culture which establishes patterns of activity that create knowledge. They define organizational learning as, “acquiring, sustaining or changing of intersubjective meaning and/or the artifactual vehicles of their expression and transmission, through the collective actions of the group” (p.280). In other words, it is the interaction with the environment, stimulated through organizational practices such as collaborative writing, project management, and both formal and informal group discussions that create organizational learning opportunities. These work activities, both cognitive and social, create both tacit and explicit knowledge through social interaction and the organization of work patterns (Cook & Brown, 1999).

Akgun, et al. (2003) further define the organizational learning process as “a social process mediated by artifacts. This view thus emphasizes the importance of culture, communication, and group activities in organizations” (p. 843). While the knowledge management model assumes that knowledge is created and possessed at the individual level and is then dispersed collectively at the group and organizational level, the constructed knowledge model theorizes that there are different types of knowledge created at each level (individual, group, and organizational). Organizational learning, therefore, is influenced by the social environment, organizational culture, and work patterns that are the result of political influences within the organization’s power structure (Akgun et al., 2003; Cook & Yanow, 1995; Nonaka, 1994). As a result, not all organizational knowledge can be culled and transferred to others within the organization.
(often through training) because the knowledge is imbedded in organizational practices and culture.

Both Cook (1995, 1999) and Nonaka (1994) concluded that there is implicit or tacit knowledge that is created within the confines of organizational boundaries. Looking at work patterns in various industries, they both concluded that knowledge is created through perspective taking, meaning making, and dialog necessitated when there was dissonance or differences in understanding within the work patterns. Perspective, meaning, and the form that communication takes are dictated by culture. In this study, we will use Cook and Yanow’s definition of culture:

We define culture in application to organizations as a set of values, beliefs, and meanings, together with the artifacts of their expression and transmission (such as myths, symbols, metaphors, rituals and ritual objects), that are created. Inherited, shared, and transmitted within one group of people. (p. 388)

Therefore, those who adhere to the constructed knowledge theory of organizational learning would conclude that organizational learning is bounded by organizational values, beliefs, and meaning, and transmitted and stored using organizational forms, formats, and processes that create the myths, symbols, metaphors, rituals, and ritual objects that become organizational artifacts representing the organizational culture. As a result, knowledge that is embedded within the organizational culture, would change when used outside of the environment in which it was created. Knowledge, therefore, can be dynamic as its affordance is dynamic (Cook & Brown, 1999).

This second theory of organizational learning has broader implications as knowledge could be created and transmitted both formally and informally. In the knowledge management perspective of organizational learning, knowledge is viewed as something that can be stagnate and captured for others outside of the culture and
environment in which it was created. In the constructed perspective of organizational learning, knowledge may be converted from implicit to explicit formats, but any knowledge captured would need to be modified (or recreated) for a specific environment. As such, the process of knowledge creation could be learned, but the content would change depending on the environment.

Organizational learning is distinguishable from knowledge management. Organizational learning may not result in operational or behavioral changes at the individual, group, or even organizational level, and as such may be difficult to measure. In fact, Cook and Yanow (1995) give examples in which organizational learning may make subgroups or individuals less productive. Rather, organizational learning is the interaction that results in deeper knowledge and understanding at the organizational level.

For this study, I will use Cook and Yanow’s definition of organizational learning:

The acquiring, sustaining or changing of intersubjective meanings and/or the artifactual vehicles of their expression and transmission, through the collective actions of the group. (p. 27)

Defining Collaborative Writing

The term collaborative writing is rarely defined in the literature. Both Lunsford and Ede (1992) and Henry (2000) identified numerous ways that various groups and writers defined collaborative writing. In an attempt to standardize terms used when writing collaboratively, Lowry et al. (2004) attempted to create a common nomenclature that could be used by researchers studying group writing processes. The issues that were common between all of these authors defining collaborative writing were: (a) what constitutes writing when the product is the result of a collective effort, (b) who owns a collaboratively written product, (c) what types of products are considered writing, and (d)
what is the difference in intention, agency, and intersubjectivity between a collaboration and a single author.

Often the difference in defining collaborative writing was based on how writing was being used in the workplace. Studies in the fields of knowledge and organizational management look at the collaborative writing process as a means to create institutional memory and capture information that might be lost if it is not written down (Martin et al., 2003; Mason & Lefrere, 2003; Yakhlef, 2002). The collaborative process helps to sort and prioritize information, filtering out redundant or unimportant data. Researchers in the fields of composition often equated collaborative writing with the academic essay, a process for developing concepts or organizing thoughts and communicating those thoughts, with input from classmates or coworkers, through the written word (Henry, 2000). Ultimately, even with input from others, the essay (or piece of writing) was owned by the author or authors. However, this definition excludes the many types of writing that might not be in the form of a formal alphabetic structure, such as webpages, diagrams, notes, models, and other symbolic representations (Brandt, 2005; Henry, 2000; Lunsford & Ede, 1992; Russel, 1997; Swarts, 2000). In addition, it does not recognize the level of collaboration and contribution that would distinguish collaborative writing from single author writing. For example, if there is a single author-writer who collects data, meets with groups, gets approval from group members at each step of the writing process, and must receive final approval from the group, is this considered collaborative writing or single-author writing?

Lundsford and Ede (1992) were dissatisfied with their definition of collaborative writing as “any writing done in collaboration with one or more persons” (p.15). While
this is broad enough to capture all types of writing and collaboration, it does not address
the more intentional collaboration expected in developing a common document.

Therefore, this dissertation will use the definition developed by Lowry et al. (2004):

…an interactive and social process that involves a team focused on a
common objective that negotiates, coordinates, and communicates
during the creation of a common document. The potential scope of
[Collaborative Writing] goes beyond the more basic act of joint
composition to include the likelihood of pre- and posttask activities,
team formation, and planning. Furthermore, based on the desired
writing task, [Collaborative Writing] includes the possibility of many
different control approaches, team roles, and work modes. (p. 72-74)

This definition includes the non-writing processes that contribute to the final shared
document, allowing for different configurations of collaboration and contribution. At the
same time, unlike Lundsford and Ede’s definition, it limits collaborative writing to
intentional group input, with the final product a document that is implicitly (if not
explicitly) authored by multiple parties.

Genres, communities, and design in organizational writing

Any study on workplace writing needs to consider the influence of the
environment within which collaborative written products are constructed. Previous
research has identified some of the social and environmental influences on workplace
writing such as the organizational power structure (Brandt, 1995; Berkenkotter &
Huckin, 2005; Contu & Willmott, 2003; Schneider, 2002), the level of personal agency a
worker perceives they have in the writing process (Berkenkotter & Huckin; Dias, et al.
1999; Ede & Lundsford, 2001), and the perceived ownership of work in the workplace
(Akgun et al., 2003; Allee, 1997; Contu & Willmott,; Dias, et al.).
Knowledge can be codified in order to be maintained, shared, and stored within groups, the organization and external stakeholders, such as clients and other members of a profession, as the environment and situation requires. The form that this codification takes can be identified as a genre. As Berkenkotter and Hackin (1995) describe the role of the genre:

knowledge production is carried out and codified largely through generic forms of writing…Genres are the media through which scholars and scientists communicate with their peers. Genres are intimately linked to a discipline’s methodologies and they package information in ways that conform to a discipline’s norms, values, and ideology. (p.1)

Genres play a role in the development of communities of practice (COP) within the workplace by standardizing rituals and rhetoric in response to situational factors that are socially constructed. These rhetorical standards have embedded in them the COP’s values, norms and perceived knowledge. The COP will use those rhetorical standards to interpret and apply to their workplace setting or to “generate the knowledge and ways of knowing the community needs to conduct its business” (Dias et al., 1999, p. 119). In other words, genres become the structure that those within and outside of a discourse community can use to reinforce the boundaries of a particular discourse community or COP.

Often those within the COP are unaware of the rules that structure the genre which in turn creates communicative and behavioral norms within the COP (Berkenkotter & Huckin, 1995; Brandt, 1992; Cook & Brown, 1999; Dias et al., 1999). As a result, norms, values, and vision that a genre conveys within the COP might be implicit rather than explicit (Cook & Brown). This is especially true for larger groups such as an organization or profession in which there are multiple levels of power
structures. The genre acts as both a way to control the culture within the COP by taking away agency through strict genre structures and a way of allowing for diversity within the COP by creating boundaries within which members can work.

COP’s develop into a community of knowing through development of social and cognitive understanding which then creates a group interpretation of the environment (Boland & Tenkasi, 1995). This interpretation is the basis of understanding that forms discourse communities’ COP genres. Shared knowledge that is created by the COP can be explained using Goodwin’s (1994) model of professional vision development. Just like a profession, COP’s have shared values, discourse, knowledge, processes, and ways to make meaning which could be termed vision. It could be argued that a profession is a type of COP. This shared vision is developed, reformulated, and passed on to new members by coding, highlighting, and graphically representing group artifacts (Goodwin). In other words, the COP filters knowledge to align with the group’s vision. This filter then becomes the genre in which the group’s vision is communicated.

These filtering processes established by the COP create the boundaries of expectation for the use of genres. Any given COP gives individual members different levels of agency within which genres can deviate. In some cases, the written genre is perceived as belonging to a single author, while in other cases the genre represents the COP, i.e., profession, discipline, organization (Russel, 1997; Schneider, 2002; Swarts, 2000). There is a reciprocal relationship between the members of a COP and the COP itself as individual authors may influence genres, but genres, as representatives of the COP, influence individual work patterns (Berkenkotter & Huckin, 1995; Dias et al.,
Genres help to enforce the social and power structures of the COP, allowing for greater or lesser agency at the individual level.

The level of agency (at individual, group, departmental, or organizational) can be linked to organizational knowledge creation using Nonaka’s (1994) concept of individual commitment. Nonaka begins with the idea that knowledge, “is created and organized by the very flow of information, anchored in the commitment and beliefs of its holder” (p. 15). Organizational knowledge is the aggregate of individual knowledge creation. Commitment by individuals can be further divided into intention, autonomy, and fluctuation. Intention is the meaning making of the individual based on the action of knowing and understanding within a specific “context of purposeful activity” (p. 17). Autonomy is the perception an individual has to create new knowledge outside the knowledge boundaries imposed by the organization (through genre and discourse communities). Fluctuation is the level of change an organization allows to impact individuals either through the environment or social interaction.

Using Nonaki’s model, therefore, COP’s which allow for greater levels of individual commitment (autonomy, intent, and fluctuation) through flexible genres and discourse communities will create more knowledge at the organizational level. The placement of agency within the organizational power structure, as a result, would be an important factor to look at in any collaborative project. In other words, what level of agency do members have at each level of the organization (i.e., individual, group, departmental, or organizational)?

In situations in which multiple COP’s converge, such as interdepartmental or distributed groups, the genre becomes a focal point of group activity as the “genre sets
are organized in cross-community patterns so that rhetorical (and therefore cognitive) activity can be distributed across the collective” (Dias et al., 1999, p. 119). The genres become the starting point for one group to influence the thinking of others outside of their group because “engagement in a genre promotes particular ways of knowing and acting” (Dias, et al., p. 120).

While genres are the product of power structures, design is the application of power structure values and work patterns to those genres. As a result, design becomes the processes by which genres are created, embedded in the organizational cultures, and aligned with organizational vision. Buchanan (1992) distinguishes between categories and placement of design.

Categories consist of fixed meanings that allow us to understand and analyze existing knowledge. These categories can fall into four forms: symbolic and visual communication; material objects; activities and organized services; and complex systems and environments. These types of categories represent the intention of “signs, things, action, and thoughts” (Buchanan, p.12) based on the understanding and analysis of perceived knowledge. In other words, design is the result of analyzing a situation, applying concepts based on experience and perception of what works and does not work, and developing a plan that creates boundaries within which individuals and workers have the intent to work.

A more important aspect of design, however, is placement. While categories imply a static structure analyzing “what already exists” (Buchanan, 1994, p. 13), design is a reflection of the dynamic environment in which a plan must be implemented.

Placements have boundaries to shape and constrain meaning, but are not rigidly fixed and determinate. The boundary of a placement gives a context or
orientation to thinking, but the application to a specific situation can generate a new perception of that situation and, hence a new possibility to be tested. Therefore, placements are sources of new ideas and possibilities when applied to problems in concrete circumstances. (Buchanan, p. 13)

In other words, design is the result of analyzing existing structures, but also helps in the creation of new meaning and understanding as designs are situated differently. The success of a design is based on environmental factors, intention (including the degree of agency granted to those implementing the design), and boundaries setting the orientation to thinking.

**Content, Competency, and Expertise**

Three terms, expertise, competency, and content, are used interchangeably with knowledge, especially in the context of workplace learning and training. However, these three terms may have multiple meanings depending on the theoretical constructs of the research. Therefore, it is important to discuss and define each of these terms as they relate to knowledge.

The traditional form of knowledge often is referred to as content knowledge. This is knowledge that can be possessed (Nonaka, 1994) as “what is known, or the corpus of knowledge that does not belong to any particular individual or context” (Yakhlef, 2010, p.39). Content knowledge can be measured, identified (especially lack of content knowledge), and/or recorded and stored for use by those who would not ordinarily have access to the knowledge. As a result, content knowledge can also be abstracted for use by those that have never required a particular content knowledge, nor have had access to an environment or situation that required that content (Yakhlef, 2010). For example, a teacher in a rural area without access to internet service may not have access or use of
learning management system (LMS) software. He or she may learn about the software, how to use it by using reading a textbook, or even receive some hands on training away from his or her classroom. However, he or she would be prepared on how to use the software should his or her school install the software. The teacher would be able to formulate ways in which to use the software in his or her teaching should the opportunity arise, without ever having to use the LMS.

Because of the ease in measuring content knowledge, most training and professional education focuses on transferring content knowledge at the individual, group, and organizational level (Cook & Yanow, 1995; Yakhlef, 2002; Yakhlef, 2010). However, with the advent of the internet, an individual’s ability to possess content knowledge is not as important as an individual’s ability to access and use content knowledge. In other words, individuals need to have skills and experience to use content knowledge efficiently and effectively. This is then known as competence (Herling, 2000; Yakhlef). Content knowledge without competency means an individual may have difficulty performing his or her work or changing his or her behavior as the situation requires (Herling; Laufer & Glick, 1998).

Herling (2000) defines competence as “an ability to do something satisfactory-not necessarily outstandingly or even well, but rather to a minimum level of acceptable performance” (p.9). At the organizational level, the competency model of management is based on the identifiable skill sets needed to efficiently perform required work and the overall capacity among workers. Organizations need to identify skill sets, gaps in the skill sets, potential problems due to the gaps, and ways to manage/train so that the organization can perform efficiently (Herling; Sanghi, 2007). Training to develop
competency may include interdepartmental cross-training, interaction with experts to develop performance expectations, guided practice, and the opportunity to engage in dialectic reflection (i.e., negotiating meaning with others) (Goodwin, 1994; Herling; Laufer & Glick, 1998; Sanghi; Yahlief, 2010). Content knowledge plays a part in competency training in that trainees must first either have the content knowledge or access to content knowledge in order to develop the skills that lead to performance which demonstrates competency.

Much has been written about organizational expertise, especially in the context of differences between the expert and novice. One common theme is that expertise requires a depth of understanding based on experience. An expert not only knows what (content knowledge) and how (competency), but also why and when to use knowledge (Allee, 1997). This requires a certain level of tacit knowledge about the domain and/or environment in which the application of knowledge is required (Sternberg & Horvath, 1999). Expertise requires the translation of content knowledge into practice, applying knowledge to the environment, problem, and/or situation, modifying content through discursive processes (Laufer & Glick, 1998; Yahlief, 2010).

Although researchers may not agree upon the order, many differentiate generalized expertise and specialized expertise. Specialized expertise is knowledge that comes from experience and learning within a specific domain, such as aerospace or endocrinology within the engineering and medical professions. Through focused interaction with the environment, professional artifacts, and other professionals within a community of practice, in-depth specialized understanding is created (Herling, 2000; Sternberg & Horvath, 1999; Yahlief, 2010). This specialized understanding often is then
converted into content that can be disseminated back into the community of practice or to outsiders (who may then be interested in joining the specialized community of practice). While an individual may have a specialization, *expertise* requires knowledge within the domain that the community recognizes as important. Without the social acceptance of the specialization, there is no expertise (Herling).

Generalized expertise can either be developed through application of a specialized expertise across domains (Herling, 2000) or through a deep understanding of the domain as a whole, within multiple specializations within that domain linked together to create general expertise (Allee, 1997; Herling). Herling defines expertise as “displayed behavior within a specialized domain and/or related domain in the form of consistently demonstrated actions of an individual that are both optimally efficient in their execution and effective in their results” (p.20). He bases this definition on three components required for expertise: knowledge, experience, and problem solving. In this case, knowledge is equivalent to content knowledge.

For this dissertation, we will differentiate expertise from competence and content knowledge through the depth of knowledge and understanding. Content knowledge can be defined as the information and explicit knowledge that can be stored, accessed, possessed and translated/abstracted outside of the situation/environment in which it was created. Content knowledge is static and is minimally impacted through social interaction except through the social valuation of the content knowledge. In other words, if the content knowledge is not identified as being valuable it may be lost, and if it has perceived exceptional value, it may be protected. Competency can be defined as the minimum skills and understanding of processes needed to efficiently perform tasks within a
given environment or situation. This requires tacit knowledge to conform to the situational and environmental requirements that impact performance. Expertise can be defined as a depth of understanding through experience, content knowledge, skills, and discoursive interaction with multiple settings, artifacts, and others. Expertise is dynamic in that knowledge and understanding is constantly changing as deeper meaning is developed through interaction.

A person who is perceived as having expertise and the ability to apply that expertise to varying, yet specific situations is an expert. Herling (1999) contends that an individual first specializes, using specialized content knowledge. Eventually, the competency in the specialized field will be added to an individual’s overall general knowledge moving an individual from competent to an expert in a specialized area to a generalized expert. However, as discussed above, some individuals may first have competency in a domain. He or she may then develop a general knowledge about that domain, based on learning about different components of the domain, then develop various specialties within the domain. In the process of developing these specialties, new content knowledge is created resulting in a deeper understanding of the domain.

Figure 2-1 illustrates how knowledge can then be disseminated through a group, department, or organization. Content knowledge is accessed by an individual, group, department, or even organization (in the form of training materials). Through interaction (both social and cognitive) with the environment and the content (competency in the workplace) a greater level of expertise is developed. This expertise is then captured through artifacts such as finished products, reports, discussion, curriculum, and training
Figure 2-1. Process of creation and dissemination of knowledge which then can be disseminated to novices, in which the process begins again. Knowledge creation, therefore, is a dynamic process, rather than the static form that content knowledge represents (Allee, 1999; Cook & Yanow, 1995; Herling, 2000; Sanghi, 2007; Yaklief, 2010)

A Traditional Model of Organizational Knowledge Creation

The traditional model used by organizational learning theorists begins with the depth of knowledge. Most literature distinguishes between content knowledge, which is held outside of the individual; competency, which is usually identified as tacit knowledge developed through interaction with a worker’s or organization’s context and environment; and expertise, which is performance based. As Figure 2-2 illustrates, the greater the level of internalization of knowledge, the greater perceived depth of knowledge (Allee, 1999; Herling, 2000; Yaklief, 2010). Information becomes content when there is a situation to which to apply it (Nonaka, 1999, Yaklief), but does not require a depth of understanding to access or transfer. Competency, as discussed earlier, requires experience to understand and develop skills that become tacit knowledge. Although explicit understanding may not be necessary, the ability to apply information to
action requires a greater depth of understanding than the simple transfer of information from one person to another. Expertise requires both an understanding of the environment and the context of information for knowledge to be applied effectively and efficiently (Herling). This understanding requires a deep understanding of the information so that knowledge can be recreated and negotiated depending on the social and cognitive requirements of the situation.

**Figure 2-2. Depth of knowledge in relation to level of internalization**

The second variable often used in organizational knowledge creation is the location of knowledge and the work processes that create knowledge. There are four locations often used: the individual, intragroup, intergroup, and organizational. Knowledge can be created either by the individual through reflection or through interaction at the intra- or inter-group levels. Once created, individual, groups, departments, or the organization can control the dissemination and access to a larger number of people. As Figure 2-3 illustrates, the larger the group

**Figure 2-3. Location of knowledge creation**
to control and store knowledge and determine processes to create that knowledge, the more distant knowledge is from the individual. This has implications for agency and ownership as knowledge that is created by individuals and groups using organizational processes may be perceived as being owned by the organization (Ende & Lungsford, 2001).

<table>
<thead>
<tr>
<th>Depth of Knowledge</th>
<th>Expertise (perform)</th>
<th>Competency (tacit)</th>
<th>Content knowledge</th>
<th>Performance Standards</th>
<th>Group outcomes</th>
<th>Specialization</th>
<th>Knowledge management</th>
</tr>
</thead>
<tbody>
<tr>
<td>External</td>
<td>Credentials &amp; Degrees</td>
<td>Group progresses</td>
<td>Inter-departmental collaboration/conflict</td>
<td>Organizational learning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal</td>
<td>Resume &amp; portfolio of work</td>
<td>Documentation</td>
<td>Information processing</td>
<td>Institutional or organizational memory</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| | Individual | Intragroup | Intergroup | Organizational |

Location of Knowledge Creation

Figure 2-4. Traditional model of organizational knowledge creation

Based on these two variables, a traditional model of how organizations perceive knowledge and knowledge creation can be developed (Figure 2-4). Current organizational learning and knowledge literature (Allee, 1997; Herling, 2000; Nonaka, 1994; Raelin, 2008; Yaklief, 2010) identify and categorize 12 different types of knowledge depending on the location in which the knowledge is created and the depth of knowledge. These categories include: Resume and portfolio of work, credentials and
degrees (including licensing), performance standards, group documentation, group processes, group outcomes, information processing, interdepartmental collaboration, specialization, institutional or organizational memory, organizational learning or training, and knowledge management.

**Individual content knowledge: Resume and portfolio of work.** Unlike formal schooling, individual content knowledge in the workplace is not necessarily assessed through testing (Diaz, et al., 1999). As mentioned previously, content knowledge is explicit. Therefore, there needs to be some mechanism to access it, measure it, transfer its use, and, in some cases, store and retrieve it. One way in which individual content knowledge is evaluated is through a list of knowledge, as found on resumes, and/or through an individual’s artifacts that are created in the workplace. These artifacts can be represented using a portfolio of work which the individual provides as evidence of their knowledge. An individual takes personal ownership of this work and the resume, using it to demonstrate his or her content knowledge.

Sometimes this content knowledge is transferred in the form of presentations, interviews, or workplace dialog. However, even this mode of communicating content knowledge is often backed up with resumes and work artifacts such as reports, products, and work records.

**Individual competency: Credentials, degrees, and licenses.** Unlike individual content knowledge, individual competency has an element of skill, understanding of processes, and situated application of content, all of which indicates tacit workplace knowledge. While individual content knowledge can be listed on a resume and
demonstrated using workplace artifacts, tacit knowledge is more difficult to represent as it is not explicit. In the workplace, therefore, minimum tacit knowledge (or competency) is often expressed using credentials (such as work experience), degrees, and licenses or certification. These credentials not only imply a level of content knowledge, but also a certain level of experience and understanding in the application of the content.

It is important to note that the level of competency is based on the types and combination of credentials, degrees, and licenses for a particular situation which indicates the level of internalization of the content. For example, a graduate with an associate’s degree in accounting may be competent for recording inventory, but not creating a company’s tax return. The implication is that the degree does not include sufficient experience to create a tax return. However, that same graduate with a CPA indicates additional work experience which would allow for greater tacit knowledge and understanding of the environment to enable he or she to create a tax return. The certification represents tacit knowledge that the degree on a resume or a filled out tax return (artifact) alone would not indicate (content knowledge) making a professional qualified to apply content to multiple situations.

**Individual expertise: Performance standards.** Building on individual competence, performance standards valuate different competencies and the level of knowledge created through individual experience (Allee, 1999; Herling, 2000). While performance standards may be developed externally, these standards attempt to measure the level of internalization or expertise of an individual. In other words, they try to quantify the level of understanding and apprehensive knowledge of the worker. The focus of performance standards is on the application of content and the ability to negotiate understanding.
within multiple environments and contexts. There is an understanding that while the environment and contexts change, the outcomes (performance standards) will be constant. As a result, an individual will need to be able to adapt to the environment and context (creating and recreating knowledge to do so) in order to achieve consistent outcomes. To be successful, therefore, an expert will need to have a deeper understanding of the content, work processes, and social structure of the environment in which performance standards will be used to valuate the individual’s work.

**Intragroup content knowledge: Documentation.** Within a group, the content that the group uses and produces is represented through group documents such as reports, memos, agendas, and correspondence within the group. This documentation can then be used to store and transfer knowledge created by the group to those outside of the group, either physically located in another place, located temporally in a different space, or occupying a different social sphere.

Not all individual members of the group may have the same interpretation or level of understanding of the content. Through group filtering and curating, documents become a record of the group’s content knowledge or shared cognition (Cannon-Bower & Salas, 2001). The content located outside of the individual’s knowledge and understanding becomes the property of the group, representing explicit knowledge that the group can agree upon (Ede & Lundsford, 2001).

**Intragroup competency: Group process.** Through the negotiation of group processes and interaction between members of the group, group norms and mental models are created (Boland & Tenkas, 1995; Conceicao et al., 2003; Jehn & Mannix, 2001; Mohammed & Dumville, 2001; Moreland & Levine, 2001) which then become the
basis for evaluating the group’s competency. While individual members may have differing levels of competency, the group must be able to work collaboratively to achieve group norms and defined level of competency. The group process becomes the structure within which content and tacit knowledge, in the form of expected levels of application of the content, are defined. It also becomes a tangible representation of tacit knowledge for both group members and those outside of the group (Conceicao et al., 2003; Yaklief, 2002).

**Intragroup expertise: Group outcomes.** At the group level, group outcomes measure the performance of the group as a whole, rather than individual members. The ability for the group to apply their shared cognition towards a problem or dynamic environment requires more than individual expertise, but rather a shared expertise created through group interaction and knowledge creation (Herling, 2000; Yaklief, 2010). While a group may have members with expertise, the group outcomes indicate how well expertise is used in creating and applying collective knowledge within the group. According to organizational management literature, the greater the mutual interpretation of the content and processes within the context of the group work, the greater the level of group knowledge created and the more efficient group outcomes are (Allee, 1997; Jehn & Mannix, 2001; Mohammed & Dumville, 2001; Moreland & Levine, 2001). The main difference between group process and group outcomes is the level of performance, as group outcomes valuates the group process. In other words, group processes create a shared mental model and group outcomes valuates the level in which those processes have been internalized by the group to create efficient and effective work practices.
**Intergroup content knowledge: Information processing.** Content knowledge between groups requires the storage and transfer of information that other groups can access and interpret within their own contexts. Information lies outside of the context in which it was developed (Nonaka, 1994; Yaklief, 2010), thus it is not necessarily knowledge until it is processed by the group(s) using it for their own context. Access to the information is dependent upon the individual group(s) making their own content and information available and the individual group(s) accessing and processing the information for their own context based upon their perception that the information will be relevant for their own needs.

**Intergroup competency: Interdepartmental collaboration/conflict.** While many groups create their own norms within which they are working, often they are unaware of these norms until they are exposed to other groups (Hagtvet & Wold, 2003; McGrath et al., 2000; Moreland & Levine, 2001). Interaction between groups can result in cognitive dissonance which may result in the redefining and/or realignment of norms and meaning (McGrath et al.; Mohammed & Dumville, 2001). Cognitive dissonance can be the result of differences in tacit knowledge, in which groups have differing understandings based on apprehensive knowledge which cannot be identified. The resolution of the dissonance creates norms and new perspectives which in turn may result in the creation of comprehensive, tacit, and new content knowledge.

Without interdepartmental collaboration or conflict, individual groups lack the opportunity to reinterpret intergroup content and negotiate meaning. Content from other groups may be transferred, but interpreted using the norms and discourse created within
their own group. This limits the amount of cognitive dissonance and perspective taking which contributes to knowledge creation and deeper understanding of the content.

**Intergroup expertise: Specialization.** As groups develop their identity in relation to other groups, performance standards are established based on intergroup negotiation (McGrath, et al., 2000). This negotiated identity can be termed specialization, which then translates into negotiated performance standards. In order to maintain the group’s identity in relation to other groups, a group needs to continually perform at the expected level or renegotiate/realign intergroup expectations. As a result, specialization is not a stagnant concept, but rather a dynamic renegotiation/realignment. This requires the creation of new knowledge and the ability to apply content and processes to a changing environment, as well as the ability to understand social and cognitive factors impacting the work environment.

**Organizational content knowledge: Organizational or institutional memory.** Organizational or institutional memory is storage of information perceived as being *owned* by the organization which members can access when needed. The interpretation, valuation, and use of the information is dictated by the organization, even though individuals and groups may have a different interpretation that deviates from the official organizational memory. The organizational interpretation becomes static knowledge that can be stored for use by those who were not even a part of the organization when the knowledge was created. In addition, the interpretation of the organizational knowledge can be reinterpreted to align with the organizational culture as time and distance require.

**Organizational competency: Organizational learning or training.** Organizational competency is the minimum standards of organizational behavior in which knowledge is
embedded in the cultural routines and processes developed through training and learning. Through the establishment of organizational culture and behavioral expectations, individuals develop tacit knowledge which then helps to shape cultural and behavioral expectations (Brandt, 1992). As a result, learning and training at the organizational level establishes work processes and an organizational culture which helps to capture and structure tacit knowledge at the organizational level (Cook & Yanow, 1995).

**Organizational expertise: Knowledge management.** Most knowledge management literature identifies knowledge management as the ability to access knowledge embedded in the organization (Akgun et al., 2003; Cook & Brown, 1999; Cook & Yanow, 1995; Nonaka, 1994). The deeper knowledge is embedded and the broader that knowledge is distributed within an organization, the greater the level of internalization of knowledge at the organizational level. This means that knowledge is not held by just one person to be lost when that person (or group of people) leave the organization. Likewise, the ability to access and share information through dialog, work practices, and development of shared organizational culture allows the organization to create synergy that goes beyond any individual’s level of understanding. This knowledge (especially in knowledge based industries) becomes the organization’s product. As a result, the management of knowledge becomes more than access to embedded knowledge; it becomes the organization’s identity.

**Conclusion**

Using this model as a starting point, it is important that any study on collaborative workplace writing looks at the different types of knowledge that are being used to accomplish the writing task. These types of knowledge include tacit, explicit, collective
(or organizational), individual, social/relational, and cognitive. Because this study begins with the premise that knowledge is constructed, dynamic, and influenced by both social, political, and cognitive factors, it is important that the study be conducted in authentic or natural occurring context. It is equally important that the context in which the collaborative writing project takes place is studied in order to situate the creation of knowledge within the various levels that knowledge creation can take place; namely the individual, group, departmental, and organizational levels.
Chapter 3: Methodology

The purpose of this study was to gain a deeper understanding of the individual perspective on collaborative writing within a distributed group and the various factors—including group dynamics, context, the role of writing and technology, culture, organizational structure (including agency and power structures), and types of learning—that influence the individual in creating his or her own knowledge, contributing to the group’s shared knowledge, and contributing to organizational knowledge and learning.

Due to the complexity of each of these factors that might influence the individual, it was necessary to have a deeper understanding of the individual, group, and organizational processes and contexts in which collaborative writing takes place. Therefore, qualitative methods, specifically constructed grounded theory and ethnomethodology, were used (Charmaz, 2006; Clancey, 2006; Garfinkel, 1967; Patton, 2002).

The research questions for the study were as follows:

1. What knowledge do members of a distributed workplace group identify as being important when creating a group product through collaborative writing?
2. What factors influence the choice of what knowledge is perceived as important?

The sub-questions included:

- How do individuals define “knowledge”?
- What process or processes does a distributed group in the workplace use to create shared meaning and understanding during collaborative writing projects? What factors do they identify as shaping that process or processes?
What patterns of work activity are maintained and changed at the individual, group, and organizational level within a distributed group? With whom do workers identify in maintaining or changing work patterns in different contexts?

Methodology Framework

Ethnomethodology allows researchers to look at how the individual and social system (the collaborative writing group, organization, clients, and funding agencies in this case) influence each other (Brandt, 2005; Schneider, 2002). Ethnomethodology, with its roots in sociology, looks at the effect that a social system has on individual behavior, which behavior in turn informs the development of the social system either by modifying the structure or reinforcing the social dynamics, assumptions, and power structures (Brandt; Schnieder). Researchers using ethnomethodology (as opposed to ethnography) look at everyday practices as co-constructed social activities based on the perspective of the individual (Clancey, 2006; Garfinkel, 1967). Thus, data is analyzed through the lens of both the individual and the organization through the interaction ritual chains (Hilbert, 1992).

According to Brandt, who has looked at workplace literacy practices using ethnomethodology, this approach not only looks at how an individual’s writing is influenced by the social context in which the writing takes place, but also how the individual then becomes a part of the social context by justifying his or her choices and helping to reinforce organizational writing formats. The context and the individual cannot be separated since the internal processes of the individual help to create the social context.
Therefore, ethnomethodology requires examining the individual as a co-creator of the context for the group and the organization. However, rather than looking at a phenomenon from an organizational or group perspective (thus separating the individual from the context), ethnomethodology allows for the examination of the phenomenon from the individual’s perspective through the interaction with the social context, however complex the phenomenon might be (Clancey, 2006). Within this methodology, the influences on individual and distributed group outcomes in a collaborative writing project in the workplace may be both internal and external to the individual. However, the location will not be as important as the impact on the individual’s perception of the collaborative writing process and outcomes.

In keeping with ethnomethodology, this study included the following framework:

- a complete description of the perceived contexts by group members at the organizational, individual, and group level;
- individual member epistemologies;
- the perceived social structures and discourse communities in which individuals and the group as a whole worked;
- a description of the process the group used to achieve their task and understanding of each other’s position in order to describe the context of their work;
- individual perceptions of what they should have and what they actually brought into the collaborative writing process;
- individual perceptions of the effect members have on the collaborative writing process and their group members, and how they themselves are
affected by the collaborative writing process and the other group members;

- perceived learning and knowledge creation due to the collaborative writing process; and

- perceived value of the collaboration at the individual, group, and organizational level.

Ethnomethodology is a general framework within which data is collected and analyzed. However, there is not a specific ethnomethodology technique or process, but rather many qualitative techniques that can used for ethnomethodology. Because my study was based on constructivism, I used constructive grounded theory as outlined by Charmaz (2006) to guide the research process. As Charmaz describes her process, “My approach explicitly assumes that any theoretical rendering offers an interpretive portrayal of the studied world, not an exact picture of it” (Charmaz, p. 10). Her approach, while systematic, emphasizes “processes, making the study of action central, and creative abstract interpretive understandings of the data” (Charmaz, p. 9). This technique aligns well both with the ethnomethodology framework (focusing on processes and social structures) and constructivist educational theory (knowledge and reality is constructed through experience and interpretation).

**Group Selection**

A major criticism of research on group dynamics and processes in the past is that studies created groups and group tasks in an artificial environment, therefore minimizing the complexities of group work (Gersick, 1998). More recently, researchers have focused on studying naturally occurring groups in their own environment, so as to look at the
relationship between members in a more authentic environment and capture the dynamics that are the result of organizational structure, shared culture, organizational politics, and shared past experience (Gersick; Jehn & Mannix, 2001; Jehn et al., 1999; McGrath et al., 2000). Because I was trying to understand the external as well as the internal factors that influence an individual’s experience, the group I studied was a naturally occurring group that would normally collaborate together on a written document.

Groups for the present study were chosen from organizations dealing in knowledge as part of their business. Brandt (2005) identifies this knowledge as the intangible tacit knowledge that adds to the value of a product. In the service industry, a product that an organization or business offers in the marketplace often runs on a continuum of tangibility in which a pure service has very few tangible aspects. For example, education or medical services do not have a visible product that a customer can show for the actual classes or medical treatment they have undergone, while a restaurant does offer a tangible meal along with the preparation and service with delivering the meal (intangible). Because a large part of service industries are the intangible aspects of a product, capturing knowledge and codifying it through writing to make it more tangible is very important to service organizations. There may also be strong external pressures to a group collaborative writing process within the service industry because the written product creates tangibility for the service. For example, a health record records the process a doctor went through in providing the service of healthcare. The actual healthcare that was provided is still intangible, but the record developed by the doctor provides some tangible record of the process and information the doctor used in providing the service. External pressures to the group collaborative writing process may
take the form of government regulations, organizational quality control to standardize processes, and/or the demand for knowledge in a tangible format (such as a book, webpage, prototype, or software).

Because of the importance of knowledge to service organizations and the lack of tangibility to their products (Thompson, Warhurst, & Callaghan, 2001), I decided to focus on sites that could be classified as service industries. Sites were chosen from organizations whose products do not fall into the first three categories of the North American Industry Classification System (NAICS product codes for: 1. Agriculture, Forestry, Fishing and Hunting, 2. Mining, and 3. Manufacturing) because each of these industries are considered to have products with a high level of tangibility and not considered a service industry (United States Census Bureau, 2002). These industries also are categorized by most experts to be a good or commodity, thus not relying on the sale or transaction of knowledge for their business (Triplitt, 2002). Possible service industries included government, economic development, advertising, education, consulting, financial services, transportation and travel, retail, healthcare services, legal services, or software development organizations (United States Census Bureau).

Potential study sites were identified through trade organizations (i.e., Capital District Trade Organization), listservs (Communication Faculty listserv), and other professional groups and contacts. I made contact with management within the organization, gave them an overview of the project (based on the application made to the Institutional Review Board), and identified two organizations that worked with distributed work teams.
I then needed to work with an organization in identifying pre-existing distributed
groups that would be interested in participating in this study. The group as a whole
would need to agree to the study, meaning that if one member did not want to participate,
the group would be excluded, rather than replacing that member with someone new who
would agree to participate.

In identifying possible groups, potential teams needed to meet the following
criteria:

- the group or team should be distributed during some part of the process,
- the group or team should have access to technology to support their collaboration,
- and the group or team should have a core group of between 3 and 7 members.

Groups that are distributed do not work within the same physical space on a daily
basis. They may be distributed by department, by location (e.g., field office and home
office, US based and foreign based) or by specialty (e.g., sales, support, management).
The group or team may include face-to-face interaction, but part of the collaboration
process for the group chosen for this study should have included interaction supported by
technology (i.e., telecommunications, internet or e-mail, video conferencing, or
shareware). By choosing distributed groups that interact in part using technology
provided by the organization, the study could provide an insight into how enforced
organizational and group structure (including the limitations technology might place on
interaction) and conflicting contexts might affect the collaborative writing process.
Finally, research has identified the optimal size of groups at 3-7 members (Moreland & Levine, 2001). I wanted to look at what research identified as an ideal naturally occurring group. Therefore, the study group size would have been 3-7 members. However, in many naturally occurring groups, there are peripheral members that would also have an effect on the group process, and at any given time more than 3-7 members may be working on the project. It was important, therefore, to include these peripheral members in the study. As a result, the group studied had a core group of 4-5 members working on the collaborative writing project, with the input of 2-3 additional members at any given time during the study. All of these core and peripheral group members gave their consent for the study.

Two sites were identified from which to recruit groups. The first was an international development organization and the second was a workforce training organization. I chose the only group that met the criteria for the study (natural occurring group, all members agreed to participate, distributed group, used technology to communicate, and the group size was 3-7 members) from the second site (the workforce training organization). The final group chosen had never worked together, was at the beginning of their project, and was distributed in three different locations. In addition, the group used email and a project management software to communicate. This would allow me to study the distributed group as the group relationships and norms developed.

The chosen group for this study consisted of five core members from three different departments within a training organization. Each department had its own culture and separate location in two different buildings across town. The group was organized to provide different aspects of training (face to face or stand-up, e-learning,
and video) within the healthcare/social services profession. The core group consisted of three members from the Stand-up Training department, one from the E-learning department, and one from Video Production. In addition to the core group was the project manager and two peripheral members of the E-learning department (one of which took the place of the core group member from the E-learning department when she left part way through the study). The group used a common project management software program provided to them by the training organization. More details on the group and the environment in which they worked are available in Appendix C.

Initially, I was given access to the project management software to monitor the group’s work after receiving their signed consent to participate forms. I identified two collaborative writing projects that the core group was working on simultaneously and decided to include both projects in the study. One project was a series of quarterly reports written to the funding agency on a regular basis. The other project was a content object which was originally titled Top Ten List, but was transformed into the Subway Map document midway into the study. Because of the complexity of the phenomenon of collaborative writing, it was important that in-depth data be collected on both individual perceptions and group perceptions. Since a primary purpose of the study was to understand how the dynamics of individuals and groups affect the creation of knowledge at various levels of the group collaborative process within a workplace setting, the question of organizational structure and power relationships was very important. In order to understand the workplace contexts, group dynamics, and individual perceptions from an ethnomethodological stand point, I studied the one distributed group in-depth before, during, and after collaborating on these two commonly written projects that resulted in
two group documents. Looking at the two documents gave two different situations in which to study the same group.

**Data Collection**

This study was divided into three phases: Pre-task and collaboration, the collaborative writing process, and post task. The data collection took place over a period of 6 months and included interviews, observation of online interaction, and supporting documentation of the group project and products. During the 6 months, the distributed group was developing training material, broken up into 5 modules. Three of the modules were written during the study. The two documents created by the group and used as the basis of this study were the Quarterly Reports and the Top Ten List/Subway Map. The Top Ten List was developed into the Subway Map during the course of the study and was used as a planning document by the project group. Figure 3-1 has a summary of a timeline and data collected for the study.

The first phase, pre-task and collaboration, consisted of a group of interviews looking at what an individual perceived he or she brought into the collaborative writing process and the perceived context in which he or she was collaborating. In addition to the interviews, data was collected on group interaction in the project management software, and additional documents such as emails, document drafts, and planning documents. I was also given minutes of the group meetings, although I was not allowed to observe the actual meetings due to participants’ concerns over privacy.
The interviews consisted of open-ended questions on the participant’s perceptions of his or her job and the organization, writing and collaboration in teams/groups, the project and the two documents the group was working on, and the use of communication technology by the group. Additionally, participants were asked to define a number of terms to clarify their understanding of terms commonly used in their group work. A copy of the questions can be found in Appendix A.

The interviews were conducted at a place and time of the participant’s choice. The locations of the interview included offices, the building cafeteria, or a conference room reserved by the participant. With the written consent of the participants, all interviews were audio recorded. All of the interviews, with the exception of the first two, also had a backup recording. In addition, I took written notes of my impressions as the participant spoke. The first set of interviews lasted 45 minutes to 1 ½ hours. At the end

Figure 3-1. Timeline of documents collected for the study
of 45 minutes, the interview was stopped and participants were asked if they wanted to continue. All agreed to do so.

At the end of each interview, I used the process outlined by Charmaz (2002) and created a memo with my general impressions for that interview. These impressions were then used to explore emerging codes and theories in subsequent interviews. Using the questions in Appendix A as a starting point, I would explore participant perceptions of specific events and impressions of the collaborative process by asking follow up questions based on data provided by group members in previous interviews. Through memo writing, I was able to identify my own assumptions, test out emerging theories, and make links between the various data sources such as group documents and individual interviews (Charmaz).

The second phase, the collaborative writing process, looked at perceived group experience during the collaborative writing process. Data collected for this phase included a group interview, the collection of drafts and written comments about the document drafts, and informal conversations with the group members via email to verify the process used to create documents. Many of the group documents and the processes used to create them were outlined using the project management software. Sometimes there were contradictions between document names (e.g., the Top Ten List and the Subway Map were created from the same initial document) and outlined processes. This required clarification from the group as to how they were actually used and/or created.

The questions chosen to ask the group as a whole were based on the initial individual interviews. I was careful in choosing questions that would not put a person’s reputation, job, or status in the group at risk. It was apparent during the individual
interviews that there were some tensions within the group as they were trying to merge three departments and different work processes into one group. Many had never worked together and all indicated that this project was being observed closely by management as a prototype for future interdepartmental work. As a result, I excluded questions such as “Which writing tasks do you feel the weakest doing? Why?”, because such questions might have encouraged them to reveal weaknesses to the group that they might not have wanted to expose. Many of the questions I deleted were those that participants were reluctant to answer in private, much less in front of their colleagues. Appendix A has a list of questions asked in the group interview.

The group interview was conducted after the group had met without me for a project meeting. This was the time identified as being the best for all participants. One member of the group was not able to make the meeting due to work obligations and another peripheral member was on vacation. Because this would be the only time in the following 2 months that a quorum of the group members would be available for the interview, we decided to conduct the interview without the missing members. On the day of the interview, an additional member was absent the first part of the interview due to illness. However, the participant was able to be part of the second half of the group interview.

The group interview, which lasted approximately an hour, was also audio taped and the order of speakers was noted in writing to insure the correct person was credited with the comment during transcription. In addition, written notes on non-verbal communication (such as body language and gestures) were made.
After the first set of individual and group interviews were conducted, I personally transcribed each audio tape. The tapes were transcribed using natural language, integrating comments from the notes taken during the interview and non-verbal cues heard during the transcription process (i.e., voice inflection, mumbling, laughs, pauses, uncertainty, reluctance). By transcribing the interviews myself, I was able to identify “emergent insights” (Patton, 2002, pp. 441). At the end of each tape, I again created a memo with my general insight for that speaker, to be used in choosing questions for the second set of individual interviews and, later, for data analysis (Charmaz, 2006).

The final phase, post-task, looked at the perceived effects that the collaborative writing process had on individuals as they completed the writing process, including what individuals perceived that they took from the process and how that contributed to their individual work contexts, the impact on the organization and department, and perceived changes in the group (composition, dynamics, processes, structure, and power structures). Participants were asked the same open-ended questions as used in the first interview about their perceptions of the project, the two collaborative writing projects the group was working on, and the communication process, especially the use of project management software. Additional documents were collected that had been written or edited after the second phase. I continued to monitor group activity on the project management software and collected documents that were created during this time, specifically: a project group updated curriculum, a third Quarterly Report, drafts of the Top Ten List/Subway Map planning document, and drafts of project artifacts such as websites and content objects in the forms of training modules. There was very little activity on the project management software accounts that I had access to during the third
phase, although I was told during the second set of interviews that there were other accounts participants used to which I did not have access.

While I used the questions listed in Appendix A during the second set of interviews, I also used follow up questions based on developing themes I identified in memos after transcribing the first set of interviews. For example, in my memo about Sam’s first interview, I wrote that I felt Sam acted as the institutional memory in the group and was very aware of the organizational culture. As such, he was identified as someone important in the group. In the second set of interviews, I asked follow up questions about who was important in the group and why, in order to determine if Sam or someone else in the group held a position of influence. I also focused on organizational expectations and the perceived relationship between group members, the organizational power structure, and the organizational culture to determine if Sam or other group members with knowledge of the organization helped to form those expectations or relationships. In addition to the questions used in the first interview, I added four additional terms that seemed to be used differently among group members in the first set of interviews: content, instructor, design, and customer. Participants were asked to define these terms in the second interview, using their own words. See Appendix A for specific questions asked in the second individual interview.

I decided it would be important to complete the transcription of the first interviews to identify areas to focus on in the second interview, as Charmaz (2006) recommends as a means of theoretical sampling within grounded theory construction. I had originally intended to conduct the second set of interviews immediately after the documents were completed. The initial plan was to conduct the second set of interviews
only a few weeks (1-3) after the initial interview. However, due to the transcription of the first set of interviews and the group interview, the group’s work and vacation schedules, and changes in the organizational structure, this was not possible. The second set of individual interviews, therefore, were conducted 4-5 months after the first set of interviews. This had the unanticipated advantage of allowing me to collect examples of other documents, work, and group processes during the post task phase. In addition, I was able to explore group member perceptions of the organization, project, group, and knowledge creation over a longer time period, especially as the organization and project was undergoing changes external to the group.

Again, I personally transcribed the second set of interviews. The average length of these interviews was 45 minutes, the shortest being 38 minutes and the longest being 72 minutes. In total, 15 interviews (seven initial interviews, one group interview, and seven second interviews) were conducted. With one exception, all transcriptions were verbatim from the audio tape recording. In one case, due to malfunction of the recording equipment, the transcript had to be pieced together with partial recordings and notes from the interview. In addition to the interviews, 40 documents were collected, including background information on the project, postings by group members on the project management software, drafts and final copies of documents studied, and additional documents that were the result of the documents studied.

Data Analysis

Data analysis was conducted using Charmaz’s (2006) constructed grounded theory process. This process includes interpreting data to develop codes, developing initial codes, line by line coding, comparing parallel data and modifying codes,
comparing coded phenomenon and creating common codes, memo writing for theory creation, theoretical sampling, establishing theoretical categories, and developing theory through diagramming relationships between analyzed data. In this next section, I will discuss how I analyzed data for each step of Charmaz’s process. Working within an ethnomethodological framework, I focused on the distributed group’s work patterns and processes within the context of the larger organization to determine the influence the distributed group had on individual, group, and organizational processes and social context.

Using Charmaz’s (2006) process for coding, each transcribed interview was initially coded at the line level. In developing codes, I used gerunds rather than nouns as recommended by Charmaz. For example, Helen’s comment, “I said, ‘you thin…you really think people at the funding agency are reading this?’” (Helen, interview 2), was coded as knowing about others work rather than a descriptor such as other stakeholder’s tasks. Chavez describes the difference in using an action word (gerund) from a descriptor (noun) as:

We gain a strong sense of action and sequence with gerunds. The nouns turn these actions into topics. Staying close to the data and, when possible, starting from the words and actions of your respondents, preserves the fluidity of their experience and gives you new ways of looking at it. These steps encourage you to begin analysis from their perspective (p. 49).

Initial codes were developed first through memo writing after each interview. Potential codes were developed and tested in subsequent interviews. At the end of the first phase of data collection, I chose three participants, one from each department, and conducted a line by line analysis. In developing the codes, I continually referred to the research questions and coded the line in answer to one or both of the research questions:
1. What knowledge do members of a distributed workplace group identify as being important when creating a group product through collaborative writing?

2. What factors influence the choice of what knowledge is perceived as important?

Using these initial codes from the three participants, I then coded the rest of the participant interviews line by line. During this stage I created new codes when the initial set of codes did not address a theme, discarded other codes that seemed unique to one person or incident, and combined codes that appeared to address the same phenomenon. For the second set of interviews, I again analyzed the interviews of the three participants. While I was aware of the initial set of codes I developed after the first interview, I again conducted a line by line analysis, continually answering the research questions. Using the initial codes developed for the three participants in the second interview, I then coded the remaining participant interviews. I then consolidated the codes from the first and second interviews and conducted a focused analysis. As Charmaz (2006) describes this step, “focused coding means using the most significant and/or frequent earlier codes…[and] requires decisions about which initial codes make the most analytic sense to categorize your data” (p. 57). Comparing data both within the interviews and between interviews, some codes were combined, others were dropped, and new ones were created (Glasser & Strass as quoted in Charmaz, 2006, p. 54).

The codes I developed for the study were then used to develop themes or common codes that could be used across the data, based on recognized patterns, as described by Patton (2002). Using an inductive analysis approach initially, “involves discovering
patterns, themes, and categories in one’s data. Findings emerge out of the data, through the analyst’s interactions with the data” (Patton, p. 453).

Codes were discarded when they did not appear to be a part of a pattern or they basically had the same meaning as other codes. For example, a code such as locating themselves within the organization had the same meaning as placing themselves within the organization or locating themselves within the power structure of the organization. These were then combined to be locating (placing) themselves within the power structure. After the focused coding, there was a standard of 53 codes. Once it was obvious that there was a theoretical saturation in coding the data (Charmaz, 2006; Patton, 2002), these codes were then used to develop themes. A list of the final initial codes developed through this process can be found in Appendix B. Each code was given a number which was used in developing the thematic codes.

To begin the development of theoretical categories, each initial code was written on an index card. Each research question and subquestion was answered using the initial codes, the code number noted for each question. Reviewing the coded data in context in which the code was used in the interviews, I then began to develop themes/concepts or relational statements (Glasser & Strass as quoted in Patton, 2002, p. 490) that could be used to analyze the data and begin to develop theory. I arranged the initial codes for a given research question into categories based on the relationship between the various codes within the data. For example, in answering the question, how do individuals define knowledge, data using two codes, 27. connecting work within and outside of group, department, or organization and 28. reconnecting group expectations to professional standards, identified data in which participants often were speaking about their
professional training and professional knowledge. Knowledge, in these contexts, were equated with what a participant had been taught in training for their profession or had learned as being a fact, truth, or value in the context of their professional experience. As a result, this became the thematic code: *Knowledge and expertise is defined by profession/professional standards*. These thematic codes for each of the research questions were written on index cards and combined. The thematic codes then became theoretical categories, with some thematic codes being combined and others being discarded for relevance.

During this process of developing thematic codes, I wrote memos (Charmaz, 2006) identifying relationships within the project, analyzing the use of language and terms that appeared to indicate beliefs about the collaborative writing process, and situational factors that were affecting the collaborative writing process and group member relationships. I also identified non-verbal cues, such as reluctance to answer a question, hesitancy, or gestures to interpret along with the explicit data in the interviews and documents.

A list of the initial codes and the theoretical categories (relational statements) for each question can be found in Appendix B. I then coded all of the interviews and major documents (Quarterly Report, Top Ten List/Subway Map, and online discussions on the project management software) using the theoretical categories. The process for coding using theoretical categories was different than the initial focused coding. Whereas initial focused coding looked for patterns and emerging themes in the data, coding using theoretical categories identified specific data and situations that fit within the categories and began to define theoretical relationships. Theoretical coding requires an analysis and
interpretation of large amounts of data and the identification of passages that fit into the category (Charmaz, 2006). Boundaries between the theoretical categories were defined by looking at different data concerning the same event, such as participant interpretation on how the Subway Map was developed, along with online conversations on the project management software about the Subway Map. In the case of this study, theoretical coding looked at processes and the relationship between the various levels within and outside of the organization as informed by ethnomethodology. It was during this theoretical category coding, for example, that two additional levels of influence were added to the power structure. In addition to the individual, group, and organization, there were professional and departmental levels added to the theoretical categories.

During the theoretical category coding, some of the data coded initially fell into multiple theoretical categories. For example: data coded initially using Code #25, *knowing about others work and projects*, had data that was later thematically coded as both 1) *Knowledge is defined by the group/department expectations and formats* and 2) *Knowledge is defined by the formats and processes developed within the work power structure, depending on the context*.

For example, Helen, a study participant from the Stand-up Training department says in the second interview:

"But it’s just…They’re not asking us to report this much information. So why have it? We have plenty to do. I don’t need busy work. I’m not doing it. Now that’s just me. I’m not doing it…if there’s a good reason why I need to do it, tell me. But…it’s way too time consuming for what they need for the project. Reporting for the project. I said, “you thin…you really think people at the funding agency are reading this?” (Interview 2)"

During initial coding, I identified this as an example of Helen understanding what the work load and expectations were for the funding agency and those at the funding agency
who needed to read the report (i.e., knowing about others work and projects). As I was coding for the theme Knowledge is defined by the group/department expectations and formats, I identified this passage as an example. The context of this passage is that Helen has different expectations for what information should be reported than some of her project group members. If other project group members were able to explain why specific information was needed (i.e. group expectations), then she would be willing to identify that information as knowledge that should be reported using the formats the project group defined. Helen’s initial rejection of the format used by the project group, and her insistence that the project group justify the use of the format is an example of how the project group delineates knowledge boundaries for project group members.

Later, as I was looking for passages that were an example of knowledge that was defined by the formats and processes developed within the work power structure, I also identified this passage as an example. Helen is discussing what information should be included in the report looking at the tension between the group’s and funding agency’s expectations. She identified the funding agency as having a greater level of control over what should be included in the report, thus equating valued information with the power structure of the project (i.e., Knowledge is defined by the formats and processes developed within the work power structure, depending on the context). Her use of the terms information and what they need for the project identified this passage as discussing knowledge, as these were key words I identified participants as using when speaking about knowledge.

The next step in analyzing the data was to create a summary of data for each theoretical category by cutting and pasting the coded passages into a word document.
Each passage was identified by the source (i.e., interview number, interviewee, and transcript/document page number). In addition, interviews in which there were no coded passages for the specific theoretical category were identified using the term none. These summaries were used for theoretical sampling. During theoretical sampling, I went back into the data to flesh out the emerging theory, comparing the data between sources and events (Chavaz, 2006). Within the data, I looked for convergence and divergence (Patton, 2002). I identified situational factors, interpreted the meaning of the participant’s words, and began to identify patterns in processes, terms, and views. Based on the data and my comparison between events, I tested out theories, looking for support within the data. I would then make modifications to the theories until I felt the theoretical categories were saturated to support the emerging theory. This was the basis for the findings and framework that I developed.

For example, in my emerging theory, I had five levels of location of agency and ownership: individual, project group, departmental, organizational, and professional. As I began to conduct theoretical sampling on these five levels, I realized that there was overlap depending on the situation and context. Participants from the E-learning department seemed to view departments within the organization as external from their department having little, if any, interaction with them. At the same time, Paul, a study participant from the Stand-up Training department, had interaction with project trainees that others in the project group considered external to their work. A result of seeing how participants identified those within their project group, those in other groups that they interacted with (which could be a department, other project related groups, and/or others within the organization) and those they perceived as having influence on the project yet
external to the organization (which could be trainees, members of a profession, funding agency, or those with an interest in the project outcomes) lead me to revise the levels to individual, intragroup, intergroup, and external. I then went back to the data to determine if this made it easier to categorize ownership or agency levels without overlap. The more I used these terms, the clearer it became that each participant perceived power structure at each of these levels. While each participant had a different perception of the power structure in which they worked depending on their own work context, each of these power structures could be divided into individual, intragroup, intergroup, and external levels.

In addition to theoretical sampling, I also diagramed relationships to help build theory. I then returned to the data, triangulated the summarized data (based on the interviews and key documents) with supplementary documents that had not been included in the summaries, such as the meeting minutes, the curriculum, the original contract documentation, documents used to collect data for the Quarterly Reports, modules, and my own notes and memos. These supplementary documents were used to authenticate the data provided by the participants in the interviews and test my interpretation of the participant’s perceptions developed during my data analysis. For example, many of the participants spoke of the Quarterly Report in terms of the data that the funding agency required the organization to provide. To determine if their perception that the funding agency and/or the organizational hierarchy imposed the Quarterly Report’s format, I examined documents from the funding agency which outlined reporting requirements, task assignments on the project management software outlining
report requirements, and drafts (along with editorial comments) and final copies of the Quarterly Reports (first, second, and third) written by the project group.

**Study Limitations**

As with any qualitative research, this study’s purpose was to understand a phenomenon. In choosing a naturally occurring distributed group, many of the factors affecting the study were unique to the participant group studied. As a result, another distributed group in a different environment, with a longer history together, working on different tasks might have experienced the phenomenon differently. This study looked at only one group, albeit in two diverse tasks over an extended period of time. As a result, the breadth of data collected was limited to one group and environment. Further studies looking at multiple naturally occurring distributed groups engaged in different collaborative workplace writing tasks in different environments may present a greater breadth of experience and phenomena in the data for analysis.

There was also a limitation in the type of data collected for this study. As per the restrictions outlined by the Institutional Review Board (IRB), all documentation had to be retrieved through the designated employee identified by the organization. This designated employee was the Project Manager, Robert, who was part of the study (as a peripheral member of the group) and whose position changed to one of authority by the end of the study. As a result, I did not have access to some documents that may have jeopardized the position of a group member if I had requested them. For example, some of the group members used an alternative channel of communication from which the Project Manager was excluded. To gain access to this alternative channel, I would need to let the Project Manager know that it existed, which could jeopardize the group
members’ positions or status in the group, their departments, or the organization as a whole. Therefore, I did not request access to this alternative channel, although some of the group members offered to let me see it. Likewise, I was not allowed to sit in on face to face meetings as they were perceived as having sensitive and/or confidential material. So I was not able to verify some of the data and perspectives collected in individual interviews.

Throughout the study, my memos identified this lack of access to perceptions outside of the group as a potential bias in the data I was collecting. This was especially true for the departmental and organizational level of analysis. I only had documents provided by the Project Manager to use in triangulating the perceptions of organizational culture and the structure within the organization. As a result of this limited access to data, there may be organizational, stakeholder, and professional factors and processes of which both the participants and myself were unaware which could have influenced group collaboration processes and composition. This may have limited the understanding of the organizational policies and perceived politics.

There are many configurations of distributed groups that can be used by an organization. This study only looked at a group that was distributed locally. As a result, the group was able to have face-to-face communication not only as a group, but within the organization. For example, participants were familiar with and had interaction with other department managers and even other department members outside of the group. Distributed groups with different configurations (e.g., an international group in which members are located in different countries and never meet face to face) may face different factors as a result of the lack of collocation. Therefore, this study’s conclusions
are limited to distributed groups that have the opportunity to interact face-to-face with group members and group members’ coworkers within the organization.

There were other limiting factors used in the choice of participants that could affect the data collected including group size, type of organization (service only), intact group approval to participate in the study, and the use of technology as part of the group’s collaborative process. A larger (or smaller) group size could have impacted the social and process factors that affected the group. The conclusions drawn about distributed groups for this study would be limited to service organizations in which knowledge is perceived as not only something that will help an organization achieve success, but is an actual product which is income generating. There are many reasons why group members may not want to participate in a study, but some possibilities are that a dysfunctional distributed group would not want to be scrutinized or group members may be threatened within the political structure of their organization. As a result, there is a possibility that only groups that perceived they functioned well would agree to the study. This would limit the type of problems that this study addressed compared to other distributed groups. Finally, groups that communicate exclusively in more traditional ways (without using technology) were excluded from this study. In all, by limiting the pool of potential groups, the factors which could potentially affect them was also limited. This in turn could limit the processes created by the group members, groups, and organization in response to those factors.

The methodology I used to analyze the data is constructed grounded theory. One of the limitations to this methodology is that data is interpreted to construct theory. As Charmaz (2006) states:
Neither observer nor observed come to a scene untouched by the world. Researchers and research participants make assumptions about what is real, possess stocks of knowledge, occupy social statuses, and pursue purposes that influence their respective views and actions in the presence of each other. Nevertheless, researchers, not participants, are obligated to be reflexive about what we bring to the scene, what we see, and how we see it. (p. 15)

Throughout the process I reflected on my interpretation of the data and possible theoretical bias through memo writing as dictated by constructed grounded theory methodology. I also tried to gain different perspectives on the emerging themes through discussion with my advisor and presenting my preliminary findings to colleagues in the education and communication departments. However, ultimately, the analysis did contain multi-disciplinary bias towards constructivism theories as this was the theoretical framework from which I interpreted data.

Related to the theoretical bias was my own limited knowledge of the project content (healthcare) but experience in the project’s discipline (training and e-learning). My lack of content knowledge meant that I might not have been able to pick up on subtleties in the data and the differences in perception about the content thus limiting my interpretation of group processes and intent. On the other hand, my experience in training and e-learning may have affected my interpretation of the data especially if the data did not conform to my understanding of the discipline. In the first case (content knowledge), I tried to clarify my understanding of the content during interviews. In the second case (understanding training and e-learning), I identified possible biases during my analysis in reflective memos, as outlined by Charmaz (2006). I also sought feedback on my analysis, as outlined above, to try to ensure that this knowledge of the discipline did not blind me to new and/or differing interpretations of the data. In both cases, my
analysis was limited to my understanding and interpretation of the study context, based on the data I collected.
Chapter 4: Findings

This study looked at the collaborative writing process within a naturally occurring distributed group to determine what factors affected the perceived creation of knowledge within work collaboration for team members who may have had no previous interaction or limited interaction in completing their project. It addressed two major research questions: What knowledge do members of a distributed workplace group identify as being important when creating a group product? What factors influence the choice of what knowledge is important? In analyzing the data to answer these questions, there were three major findings. This chapter will look at the findings as they relate to each other, combining both questions.

1. Perceived knowledge is embedded in the power structures within which a group and its members work. These power structures create knowledge boundaries within which a group works. The power structures also determine knowledge that is perceived as valuable for a group. However, because power structures are dynamic, knowledge boundaries and the value of specific knowledge are continually being redefined.

2. There are two types of knowledge used in distributed group processes: transactional and negotiated. The type of knowledge that is used at any given time during the collaborative writing process is dependent on situational factors (resources, power structure, time, and/or external factors) and perceived value of the knowledge.

3. Perceived ownership of knowledge is dependent upon the level of agency an individual member has in the collaborative process, how closely the individual
identifies with the knowledge, and the perceived value of the knowledge at the various levels of the organization. The deeper an individual identifies personally with knowledge, the greater the importance that the knowledge be aligned with the group’s beliefs and schema as part of the individual’s social identity.

Each of these major findings will be discussed in turn. However, in order to understand the complexity of the environment in which distributed groups work, the next section will be a brief description of the study group and its work environment.

The Group and Its Environment

The group used for this study was comprised of 5 core group members and 3 important contributors to the study project (referred to as project group). The project group was drawn from three different departments within the workplace training section of an educational organization: Stand-up Training (also referred to as face-to-face training); E-learning; and Video Production. The group was formed to provide integrated training to professionals in the social service sector, which I will refer to as healthcare counseling for this dissertation. An outside funder provided funding and initial direction for the training project, to which the training organization applied in response to a call for proposals. As such, the project group was a natural occurring distributed group within a service organization, meeting the participant criteria outlined in Chapter 3.

The project group was physically located in two locations across town. During the study, the project group communicated online using a project management software and email, in regularly scheduled meetings, and in office visits between individual project group members. The members included:
- Robert. Project Manager and member of the Stand-up Training department, Robert was responsible for the overall management of the project including hiring decisions, interface with the funding agency and organizational management, and coordination of end products. Robert also was a member of the Stand-up Training’s management team.

- Helen. Helen was the team leader and curriculum designer for the project group. She was also a coauthor (along with Robert) of the original proposal as a member of the Stand-up Training department. She became the perceived leader by the project group as the study progressed.

- Ronda. Ronda was the lead designer from the E-learning department and main contact between the E-learning department and Stand-up Training department for the project group. She left the organization during the study and was replaced by David during the second half of the study.

- Phillip. Phillip was a curriculum developer and stand-up trainer with extensive first-hand experience in the Healthcare counseling field.

- Paul. Paul was the technical assistance coordinator. He worked in the Stand-up Training department providing resources to project group members within the organization and trainees outside of the organization. Paul was hired for this project because of his extensive ties and knowledge within the healthcare counseling profession.

- Olivia. Olivia was the only member of the project group from the Video Production department. Because the Video Production department had been newly absorbed within the training organization a few months before the start of
the project, Olivia had never worked with anyone in the E-learning or Stand-up Training departments before.

- **David.** David was originally the creative director and programmer for the E-learning department. However, when Ronda left the organization, David’s role expanded to be the lead contact between E-learning and Stand-up Training.

- **Sam.** Sam was a coordinator for the E-learning department. Because of his experience and knowledge of the training organization, Sam was initially responsible for oversight of the E-learning piece. However, as the project developed, Sam’s role became marginal.

- **Other stakeholders.** In addition to the study participants, there was a management team that was comprised of the Project Director (from the Stand-up Training department), an assistant to the Project Director, the IT Director, and Robert. The first three listed were not part of the study, but influenced the project group’s work. There were also those outside of the organization that influenced the project group’s work, namely the funding agency, the trainees, members of the healthcare counseling profession, and entities that worked with Paul in providing technical assistance.

The study looked at the collaborative writing of two documents. The first was a Quarterly Report written for the funding agency. Two Quarterly Reports were written during the study. While the process for each report differed, Robert was responsible for the final product for both. As such, the format and style for both reports were the same. The purpose of the Quarterly Report was to outline progress of the project and a justification for funding (Robert, interview 1). The second document studied originated
as a learning object entitled the Top Ten List. This document then went through a number of revisions until a piece of it became a key planning document referred to as the Subway Map by the project group. The project group also changed the concept of the document from a learning object to a content object (Ronda, Group Interview).

During the course of the study, from June, 2010 and December, 2010, there were some changes that impacted the project group and their work. First, the perceived scope of the project changed from a longer term project with potential future work to a 2 year stand-alone project. Secondly, the first Project Director assigned to the project was replaced the first week of the study. The second Project Director had a different management and communication style which changed the project group processes. Finally, midway through the study, there were personnel changes in the E-learning department and the project management group. A more complete description of the group and its environment can be found in Appendix C. The rest of this chapter will discuss the three major findings.

**Knowledge Embedded within the Project Power Structure**

Perceived knowledge is embedded in the power structures within which a group and its members work. As a result, the perception that knowledge had been created, accessed, and/or used is dependent upon the complex power structures in which collaboration takes place. These power structures create knowledge boundaries within which a group works at the individual, intragroup, intergroup, and external group levels. The power structures also determine knowledge that is valued for a group. However, because power structures are dynamic, knowledge boundaries and the value of specific
knowledge are continually being redefined as group members interact within their group, departments, and professions.

Written collaboration for this study often took place within an environment of competing powers. Some group members such as Robert, the project manager, or members of the Stand-up Training department, who worked on the project 100%, had perceived authority because of their position. Others members, such as Linda, the senior education specialist with the Stand-up Training department, and Ronda, the lead developer for the E-learning department, had legitimate authority due to the perception that they were competent to lead the group. In addition, there were competing departments, competing managers within the training organization’s hierarchy, and external stakeholders such as the trainees/field workers, the healthcare counseling and learning professions, and the funding agency (See Appendix C for a more in-depth description). Perceived knowledge was embedded within each of these competing powers. Knowledge perceived as important to creating a collaborative written project was not located solely within the project group and its power structures, but also in formal (department, organizational hierarchy) and informal (knowledge networks, professions, stakeholders) power structures in the environment within which the group worked. This finding suggests that knowledge management and organizational learning theories discussed in Chapter 2 are not mutually exclusive. Knowledge can be stored and retrieved within the organization. However, often that knowledge is embedded within competing power structures and their cultural boundaries. Therefore, access to knowledge embedded within the power structures are politically influenced (Akgun et al., 2003; Cook & Yanow, 1995; Nonaka, 1994).
The *power structure*, in fact, was perceived differently by individual project group members at different stages of the project, for different project tasks, different work environments, and different levels of access to resources. In other words, the perceived power structure, and thus the knowledge that was created and/or available, was situated and dynamic. Knowledge boundaries were created by the various power structures through group interaction at multiple levels (i.e., intragroup, interdepartmental, professional, organizational). For example, the perceived knowledge about E-learning modules changed as work on the modules moved from the E-learning department to the Stand-up Training department to the final piloted module. As the e-learning modules moved from department to department to external stakeholders, the understanding of what the module should do and contain changed, creating new knowledge boundaries about e-learning within the project group and departments. Phillip, one of the curriculum developers in the Stand-up Training department, commented in the second interview that he was much more cognizant of how a piece of content would look in e-learning format after creating the first two modules. His understanding of the e-learning process and requirements created new knowledge boundaries which included both the E-learning and the Stand-up Training processes and formats. These new knowledge boundaries were the result of feedback and input from the power structures within the two different departments and the group project management.

One way to identify knowledge within the power structure was through interaction with those within the power structure. Those perceived as having power over the project group or a project task were solicited for feedback and approval for activities that impacted the project group’s work processes, formats and products. This feedback
was then used to create project group work norms which could impact the project group, the departments, or even the organization. If the feedback from those within the perceived power structure was ignored, project group members feared that resources, which included insight and tangible knowledge, would be withheld and ownership might have been taken away. While there may not have been explicit threats or repercussions, group members reacted to the potential threat they perceived from those in positions of authority in the power structure by maintaining perceived knowledge boundaries or creating new knowledge boundaries to align with the feedback from those in power.

For example, Ronda, a lead instructional designer in the E-learning department, spoke about trying to access resources for video production, which those in authority did not value:

There’s a kind of corporate espionage that goes on here that has to do with not really telling people what the cost of something is. So I’ll get the argument sometimes, “Well, video costs too much money.” Well video does not cost…The…you…you know, my own developer will say, “Sometimes that’s cheaper than trying to find stock photography or doing custom photography or whatever.” (Ronda, Interview 1)

In this case, Ronda believed that those with authority within the power structure did not want to use video, so they would withhold resources to create video. In addition, those within the power structure controlled access to knowledge about video production that project group members might have used, thus creating knowledge boundaries within which the project group was expected to work. These boundaries were established by those in authority (in this case, the Project Director, Project Manager, and Director of IT) by establishing expectations, limiting resources, and developing group, departmental, or organizational processes/norms.
Paul, coordinator for technical assistance, also spoke of the effect that the Project Director’s potential feedback and approval had on his workplace writing process:

And usually you want the…the, you know, the top leadership person who is looking at these things to have just final say and you really want to have, um, really high quality products go to them before…You know, really have things really worked on strongly before they go to basically, you know, like an executive level person for final approval. (Paul, interview 1)

In this case, Paul, a member of the Stand-up Training department, aligned his work with what he perceived the hierarchy determined as valuable knowledge and high quality standards. Those standards were not explicit, but were established through feedback and final approvals. In other words, they were embedded within the power structure’s processes.

Perceived power structure that affects the group collaborative writing process can differ between members of the same group. When this happens, individual members may have different knowledge boundaries from the group as a whole. Some participants in the study, such as Robert, the product manager, and Olivia, a member of the Video Production department, perceived power as equal to the hierarchy laid out by official organizational charts and job titles. As a result, they valued knowledge and formats imposed by those higher in the organizational hierarchy. Others, such as Sam, consultant from the E-learning department, and Paul, perceived those in power as those who were able to influence work, decisions, and project group members. The source of power was based on experience, access to resources, expertise, and organizational placement. All four worked together in the project group, yet had different perspectives on which knowledge was important. Perceived knowledge then would be based on shared
cognition, shared mental models, cognitive dissonance, perspective taking, and social relationships (Akgun et al., 2003) embedded in influential power structures.

In the group interview, for example, Ronda explained how an important problem solving discussion would influence the group collaborative process. While this process was important to the group’s ability to create understanding, there was no documentation of the knowledge that was a result of the process:

Ronda: I think very much about, for example, Phillip, when you and I were talking about the tinker toy model [turns to Phillip]…
Phillip: Oh, yeah. Yeah.
Ronda: …Um…which we spent like a half a day talking about. We got with David and talked about how we might conceptualize something, and…and then we never went anywhere with it. It may…be an incredibly powerful metaphor for us in terms of understanding what we’re trying to get at. But we might not…it might not ever translate into, um, classroom practice or e-learning. But it was a critical, um, moment of convergence for us… (Group interview).

Because there was no documentation, those in the organizational power structure did not have access to the group’s knowledge. However, for the project group, the result of this discussion about the tinker toy was an example of organizational learning in the creation of new knowledge boundaries. Olivia and Robert, who aligned themselves with the organizational hierarchy would perceive the documented knowledge and processes as more important than the discussion which appeared to result in no measurable outcomes. Ronda, Helen, and Phillip, on the other hand, perceived the shared vision that came out of the discussions as invaluable knowledge (Appendix C has a discussion of the differing roles and epistemologies of the group members).

Accessing the knowledge that those within the power structures valued meant that the project group and its members needed to understand where that knowledge might be, what form the knowledge might take, how a knowledge network could be developed and
accessed, who the key players were in accessing a knowledge network, and how to overcome barriers to creating and accessing networks within and outside of the project power structure. The development of these knowledge networks (knowledge management) could be dependent at any given time upon an understanding of the political nature of the power structure, social networking skills, cultural (organizational, professional, and departmental cultures) awareness, and/or the ability to link ideas, information and resources across a social system or network (organizational learning). While those in positions of authority used resources to control the work processes and enforce the use of power structure formats, others in the project group were able to improve their place within the power structure by knowing how to access resources, develop a network of expertise, and disseminate or deliver knowledge that was perceived as valuable within a network of knowledge. Project group members were constantly trying to identify their place within the power structure. As a result, participants in the study would align themselves with what they perceived was the relevant power structure to access knowledge needed to accomplish a given task. They would then realign their knowledge boundaries with the relevant power structures (i.e., departmental, organizational, professional).

There were two strategies study participants used to access knowledge networks within the power structures they identified as relevant to achieve their work tasks:

1. Identify valued information within the power structure and present that knowledge for use by those in authority. In this strategy, information would be compiled, structured, and sequenced using a format those within the power structure expected. In presenting the information using the power structure’s
format, members supported the type of knowledge and expertise that the power structure valued. By keeping within the knowledge boundaries developed by the power structure, participants reinforced the perceived value of the knowledge and expertise for those who had legitimate power. Information was often unfiltered and analysis was conducted by those perceived to have power. This strategy used knowledge that took an identifiable form such as reports, design plans, meeting minutes, and written feedback.

2. Filter, analyze, and highlight information (Goodwin, 1994) to present a point of view that may or may not be aligned with the power structure. This information then would be used to try to change culture (organizational, departmental, professional), create a new mental model, develop shared cognition, change the project vision or processes, or realign some aspect(s) of the project perception. This strategy often used more tacit and less identifiable knowledge, relying on social and knowledge networks.

Olivia, Paul, and Robert tended to use the first strategy. Olivia was influenced by her supervisor in the Video Production department, who Olivia perceived had authority over her group project work. Olivia often commented on how it was not her place to make decisions on her work. Rather, it was her supervisor’s role and responsibility to identify and access knowledge that had value for the department, especially after the Video Production department was newly absorbed into the training organization. Olivia’s knowledge boundaries were based on her supervisor’s feedback and valued knowledge.
Robert, being the Project Manager, perceived that he was part of the power structure within the organization and as such, it was necessary for him to maintain the formats and processes developed by those he perceived as having authority (including himself). He believed that knowledge valued by those in the funding agency and organizational hierarchy should inform the content of one of the documents studied, the Quarterly Report. He used the contract supplied by the funding agency to create the Quarterly Report’s format. Through a rigid process and outlined format, he collected focused information from selected project group members. He then edited and filtered out project group members’ contributions to the Quarterly Report so that content aligned with the funding agency’s perceived valued knowledge.

Paul’s work was often influenced by feedback from those he identified as having legitimate authority with the project group, organization, and profession. He described his role as:

I always have to be conscious of what are the institutional means, what are the institution desires. Um…it’s always a balancing act of…um…, trying to find ways, um, trying to find win-win situations in which you find commonality with your own agenda and the agenda of the organization. So…um [pause] in…in some ways, one of my roles as…as a subject matter… matter expert, and some ways, a kind of a liaison to the larger, um, national movement to integrate treatment into human services. (Paul, Interview 1)

Using the power structure as a framework, he developed a network of social contacts and sources of information that he could access when those he perceived as having authority needed to access knowledge they deemed as valuable. Because Paul’s position required him to work with those within the project group, external organizations to which he would provide information, and researchers within the field of healthcare counseling, his social and knowledge network was extensive. Paul himself tried to maintain a neutral
perception of the information, expertise, and resources he had access to within his knowledge network, doing little interpretation. Instead, he would find information and expertise that would support the power structure’s view point, ignoring information and expertise that might refute the goals and vision of those with perceived power.

The second strategy of filtering, analyzing, and highlighting knowledge was often used by those who either felt a strong sense of agency or ownership over their work and/or perceived there was a misalignment of goals, vision, or work processes between themselves, the project group, or those within the power structure. The use of this strategy had the potential of creating conflict. Helen and Ronda often used this approach. They would reconfigure, interpret, filter or withhold information or work processes to convince those within the power structure towards a certain action, decision, or approach. Helen, for example, refused to learn or use the instructor manual template the training organization required. She would develop the content for the project’s training manual and then give her preferred format to the Project Director for approval. The approved content would then have to be input by the project group’s administrative assistant into the organizational template. It was Helen’s belief that her alternative formats would change the administration’s knowledge boundaries, and that those in authority would change the template and processes.

Ronda used a more overt process when developing the second document studied, the Top Ten List/Subway Map document. She actively solicited feedback on the project management software. She wanted to expand the group and the hierarchy’s knowledge boundaries of what good e-learning was to include an element of entertainment. As she explained the role of the feedback she received:
And I’m interested in synthesizing…wading through each of the 15 [comments] and synthesizing that…eh, feedback. That’s the problem with this sort of shared or distributed authority. Um, moreover, I don’t feel compelled to take any of their advice. Um, on the other hand, it’s interesting to get sort of a fresh…perspective on stuff. (Ronda, interview 1)

In this case, Ronda felt empowered to establish knowledge boundaries about the Top Ten List document, negotiating those boundaries with those she perceived as being part of the power structure. The result of this negotiation was the development of the Top Ten List document into a new document called the Subway Map. Over time, however, Ronda perceived a shift in the location of authority moving from the project group (shared or distributed authority) to the training organization’s hierarchy and Stand-up Training department. This resulted in her perceiving that the knowledge she held about e-learning had lost value within the power structure.

In the study, individual members felt empowered or powerless dependent upon their perceptions of how their ideas, contributions, and expertise were valued by those within the power structure. The more empowered they felt, the greater their sense of ownership towards their work. For example, Helen discussed how the project group rewrote the curriculum after the curriculum the funding agency provided them was deemed insufficient. With the approval of the funding agency and the management team, the curriculum writers in the Stand-up Training department developed expert power within the project group by developing a new curriculum. The project work moved from initially being perceived as being bound by the knowledge provided by the funding organization to work that was generated from the knowledge created by project group experts. Helen’s sense of empowerment contrasts with Ronda’s feeling of disempowerment as there was a perceived shift in the project’s power structure.
As outlined in Appendix C, the power structure in which the collaborative writing took place was complex. In fact, there was not one power structure, but rather multiple power structures within which those in distributed groups worked. As a result, knowledge boundaries and the value of specific knowledge may not be the same as individual members move from one power structure (e.g., department or group) to another (e.g., organization or profession). The result was competing perceptions of knowledge and knowledge boundaries. Sometimes, as in the case of the Top Ten List/Subway Map document, the departments had different expectations, vision, and basis of knowledge than the project group. There was resistance within the department to connect with knowledge outside of the department.

And...it seems like [Robert’s] now competing with other project managers. Now the Project Director is involved and she seems to be managing at another level. The IT manager is also managing. Not the project per se, but she’s managing our group (murmurs) a little bit. A…Again I think there’s competing…people competing to manage at different levels. And sometimes it gets a little confusing, about who’s actually doing what. (pause). I think David and Zak see their roles as just, you know, kind of implementing Rhonda’s ideas and kind of requirements for the website. (Sam, interview 1)

In this case, the knowledge boundaries overlapped within the power structure, resulting in competing interests that were difficult to reconcile. This resulted in confusion as to what knowledge was needed and valued to complete the project work tasks. Both competing power structures and the knowledge embedded within them would need to be reconciled for the group to function. This process of reconciliation provided the group an opportunity to create new knowledge boundaries and to revalue knowledge.
Transactional and Negotiated Knowledge

As discussed in Chapter 2, genres standardize rituals and rhetoric, influence work patterns, promote particular ways of acting, and set orientation to thinking (Berkendorfer & Huckin, 2005; Dias et al., 1999; Nonaka, 1994). In analyzing collaborative writing in distributed groups, genres could be applied to different ways in which knowledge is organized, created, accessed, and used. I refer to this structuring of knowledge as knowledge genres.

I identified two underlying bases for the structuring of knowledge genres which I call transactional knowledge and negotiated knowledge. Transactional and negotiated knowledge both are grounded in the social interaction of the distributed group, but are used for different purposes, create different work patterns, result in different perceptions of ownership and agency, and set different orientations of thinking. The result is different structures in the organization, creation, storage, and access of knowledge which creates different knowledge genres.

Transactional knowledge is knowledge and expertise that members of a distributed group perceive as valuable. As explained in the previous section, knowledge of perceived value often was used as currency within the power structure, with study participants sharing, accessing resources, or withholding their knowledge based on their analysis of situational factors within the work or group environment. In order for knowledge to be used as currency, it would need to be of value, accessible by others, identifiable, stable (with clearly defined knowledge boundaries), and available in either a tangible form or tangibly represented. The use of transactional knowledge is similar to the concept of knowledge used by the knowledge management theorists discussed in
Chapter 2. However, building on the theories of knowledge management theorists, individuals transform their own knowledge into a form that is tangibly representative when they perceive it may have value to those within the distributed group power structures and/or their own knowledge networks. This knowledge that is used as currency and represented in a form which can be used to value the knowledge currency within the distributed group power structures and knowledge networks is what I refer to as transactional knowledge.

Negotiated knowledge is knowledge created as a result of cognitive dissonance, overlapping knowledge boundaries, and a desire to create shared meaning and mental models. Negotiated knowledge is dynamic, difficult to identify (intangible), and dependent on situational factors. When expertise and perceived knowledge is shared, there is a process of negotiation in which meaning is created and knowledge boundaries are recreated. The concept of knowledge and knowledge creation identified by organizational learning theorists can be termed as negotiated knowledge.

These two different foundations (transactional and negotiated knowledge) for knowledge genres move away from defining knowledge according to level of internalization and tangibility (explicit/implicit, tacit, content/competency/expertise) to defining knowledge according to its purpose. In addition to knowing what and knowing how (Cook & Brown, 1999; Nonaka, 1994; Sternberg & Horvath, 1999), employees and organizational entities need to have the ability of knowing where and when. Knowledge can be held outside of the individual within knowledge networks for current and future use. Employees that have access to a wide breath of knowledge when it is needed will be the most valuable to the organization, coworkers, and departments.
Transactional knowledge can be located with the individual member, within the group, in multiple departments, or within organizational or professional knowledge networks. In fact, transactional knowledge may be partaged throughout the organization or networks, stored within knowledge networks, and retrieved quickly when needed. For a service organization, especially, transactional knowledge is the product, and as such, the ability to convert knowledge into something tangible becomes an added value to the organization. Transactional knowledge can take the form of content or Kolb’s (1980) comprehensive knowledge. Negotiated knowledge, on the other hand can be internalized, located within a community of practice, or embedded deeply within an organization or network. Negotiated knowledge requires interaction with others and is, thus, time consuming to create. It is the closest to Kolb’s comprehensive knowledge with the process of negotiation not only creating new knowledge, but also the relationships and understanding of the situational factors in which future negotiations/knowledge creation can take place. Access to negotiated knowledge is used to develop knowledge boundaries at various levels within which collaborations takes place. Negotiated knowledge is important for the functioning of a service organization, but may not be perceived as the organization’s product.

In the study, transactional knowledge or knowledge that was represented in a format that was identifiable, could take the form of documents, models, visual representations, interviews or testimonials, assessments such as quizzes and tests, credentials such as diplomas or training credits, web or training tools, and brands. The more tangible the knowledge was perceived, the easier it was for that knowledge to be traded or used as currency or valued transactional knowledge.
Valued transactional knowledge could be *banked* and used as a currency for future access to resources. Phillip, for example, spoke about the importance of his work with this project group for future positions in the organization:

This is where my education is, all my experience is here. I feel really comfortable, confident, you know, in this field. So I probably want to stay here and this…this ac…this would, um, compliment the experience I’d already have. So could transfer into…into moving me into some other position, maybe, in the future. (Phillip, interview 1)

In this case, Phillip could use his education and work experience to obtain another position. His resume and college degree were tangible representations of knowledge that he could use in another job or organization. He perceived that other employers, those at the study site or those within the profession, valued the knowledge he gained through the work with the project group. Therefore, his knowledge was transformed into tangible representations in the form of specific credentials or experience he perceived as having value to those decisions makers in the current or future power structures within which he would work thus becoming transactional knowledge.

Transactional knowledge in recognizable formats such as reports, credentials, or group artifacts/products could also increase the value of an individual, group, or department who had access to valued knowledge. The Quarterly Report was important to the organization because it could be used as currency for future projects with the project funding agency. Transactional knowledge could also take the form of work processes. Many study participants spoke of how this project could be a model for future projects both within and outside of the organization. The model was a tangible representation of effective work processes that could be stored and replicated by others in a similar environment. As a result, the ability to create a model for similar projects within the
organization or the healthcare profession was perceived as knowledge that could be traded, sold, replicated, or withheld depending on its value to others inside and outside of the organization.

Access to transactional knowledge was controlled depending on its perceived value. Those in the Video Production department, for example, withheld their expertise from the project group. Olivia did not offer her expertise and knowledge about video production to the project unless it was requested because she believed decision makers and those in a position of authority did not value that knowledge. She only did the work that was dictated to her by those higher up in the organizational hierarchy. Any value that she could have added to the project group’s work was withheld if not requested by the project group or the organizational power structure. In this way, she maintained ownership of her knowledge, withholding it rather than giving it away when it would not be valued.

Members of the project group also managed access to transactional knowledge partaged throughout their knowledge network. In order to access transactional knowledge, group members would need to know where the knowledge was stored (i.e., documents, artifacts, individual member expertise or knowledge) within the knowledge network, have the resources to retrieve the knowledge (permissions, time, computer program access), and filter the knowledge so only knowledge of perceived value to the power structures was obtained. A project group member’s knowledge network then became currency for use in their work environment, to be used or withheld at various levels internal and external to the project group. Olivia, for example, seemed to be a strong gatekeeper to her network, partly because of her perception that the project group
and those in authority did not value her knowledge, but also because she was unsure of her place within the project and organization. She maintained her network outside of the organization and project group so that her knowledge network would not be corrupted should she have to leave the organization. On the other hand, other project group members protected their networks from specific members, again so their network was not corrupted (lack of trust, poor reputation, associations with undesirable experts, ideas, or policies). Paul, Helen, and Ronda all expressed concern about Robert interacting with those within their knowledge and social networks. There was a fear that further interaction with Robert would result in limited access or the disintegration of their networks because Robert’s previous interaction with member’s social and knowledge networks had had a negative impact. The negative impact Robert had on social and knowledge networks in turn would dimension the value of the network that project group members used as currency to access situated knowledge. In other words, the project group members’ individual transactional knowledge would lose value.

While transactional knowledge was based on knowledge identified as something tangible or the ability to be made tangible (through documentation, visuals, processes, etc...), negotiated knowledge was dependent upon discussion and interaction. This interaction could include communication between coworkers, resources, documentation, the environment, and/or communication tools such as project management software. The purpose of discussion and interaction was to create shared meaning, norms, and mental models. The participants used terms such as “being on the same page”, “understanding where they [other group members] were coming from”, and “they (don’t) get it” when discussing their interaction and group meanings.
Some of the factors participants identified as being important for creating negotiated knowledge included: (a) an openness to ideas, (b) feedback, (c) a sense of trust from those with whom the meaning would be negotiated, (d) awareness of where the starting point should be, (e) a sense of relationship with those involved and perspective taking abilities, and (f) cognitive dissonance or the awareness that there was a difference in understanding. According to the project group members, management had a problem with negotiated knowledge because creating shared meaning was time consuming, often without results or identifiable (transactional) valued knowledge.

Group members used a number of communication modalities to create negotiated knowledge. These included:

- **Face-to-face communication** in the form of formal discussions (e.g., regular check-ins and updates), working meetings (e.g., planning, departmental, content), weekly meetings, and informal discussions (e.g., breaks, water cooler or hallway conversations);

- **Written communication** in the form of scripts, online postings, programming codes, work approvals, reports, emails, planning documents, project task checklists, and feedback solicitations;

- **Visuals** in the form of white board diagrams, maps that represented content, flow charts, powerpoint slides, video footage, and representative photos.

These different modalities could trigger cognitive dissonance and helped participants discover differences both within and outside of the project group. The cognitive dissonance, once identified, then was the basis for negotiated knowledge, with
participants defining the boundaries of their own understanding. Each participant created new knowledge boundaries through negotiated discussion.

The use of either transactional or negotiated knowledge for a group task depended on the perceived value of the knowledge by individual members and others they interacted with, the power structure, access to resources available for the task, time available for the task, and other situational factors.

Group members would use negotiated knowledge when there was time to negotiate, there was cognitive dissonance which was affecting the quality of individual and group work, and/or there was support for negotiation by those high within the power structure. Sometimes project group members were able to internalize redefined vision, ideas, and/or meaning to create negotiated knowledge, which then became the basis for the project work. Phillip described the process the group went through in adapting content for e-learning:

So we kind of, like, arrived at some middle position. So it’s kind of a neat…ah, you know working relationship. And what it does is gives you o…other ways to think about things that you just wouldn’t have thought of. You know, you…you don’t know to think of those…things if you don’t know. (Phillip, interview 1)

This meaning making and perspective taking leads to higher order thinking and knowledge creation (Ede & Lunsford, 1990; Gunawardena, Lowe, & Anderson, 1997; Hagtvet & Wol, 2003; Jarvela & Hakkinen, 2002). Through group discussions, the sharing of prototypes, and negotiated group processes, the project group defined the knowledge boundaries of what e-learning modules should look like and accomplish. This collective vision then allowed the project group to work distributively as long as their work was contained within the shared knowledge boundaries. Once there was an event that triggered cognitive dissonance, such as the project management requiring more e-
learning modules, the knowledge boundaries would need to be renegotiated. Those within the power structure were willing to allow project group members time to negotiate knowledge, especially in the beginning, in order to build relationships between departments, create a shared mental model from which the group could work, and create group norms that would expedite work tasks later in the project. However, towards the end of the study, less and less time was allotted for the renegotiation of knowledge boundaries as negotiated knowledge became less valuable to those in authority.

At other times, both transactional and negotiated knowledge was used at the same time, but at different organizational levels. Two or more different knowledge genres were used for the same task: one created by the individual, the other by the project group, organization, and/or stakeholders outside of the organization. In other words, there were two or more levels of meaning and beliefs for the work task bound by different knowledge genres that structured and valued knowledge. The project group’s shared knowledge genre would inform group processes, but individuals could distance themselves from the dissonance caused by differences between group, organizational, professional, and/or individual epistemologies by handing ownership and agency over to the project group. At this point, knowledge became transactional as each individual group member’s knowledge boundaries were not perceived as being as valuable as the distributed group’s negotiated knowledge.

An example of this was the Quarterly Report (see Appendix C: Writing Tasks for a more detailed description). While each group member had an idea what the Quarterly Report should include and the format it should take, the group allowed Robert and the funding agency’s vision to dominate. The project group’s negotiated knowledge about
the Quarterly Report was established through group meetings, discussions on the project software, and feedback from managers and colleagues. However, the project group members distanced themselves from ownership of the Quarterly Report. This distance allowed individual project group members to maintain their own knowledge boundaries on what effective report writing should be, yet accept the format of the Quarterly Report imposed by Robert and the funding organization even if the format contradicted the individual member’s. Helen, for example, noted that she thought the Quarterly Report had too much information (transactional knowledge she withheld), yet provided Robert with information he required to write the Quarterly Report because it was not her report, therefore it did not reflect on the quality of her individual work. Helen was able to maintain her social identity within the project group and organization by distancing ownership to the Quarterly Report (Skitka, 2003) which allowed her to maintain her own knowledge boundaries about effect writing.

In the creation of the document that had perceived value by the individual group members, however, the use of negotiated knowledge in the form of reconciliation of differences between individual and group knowledge boundaries was important. For example, there were tensions between members of the Stand-up Training, E-learning, and management groups over what exactly the Subway Map represented (see Appendix C). There were differences in interpretation, often based on the different understanding of how end-users/trainees would learn, need to know, and use what they learned. By halting further discussion of the Top Ten List due to time constraints and pressure to complete the project by the funders, management transformed the document from negotiated knowledge to transactional knowledge. However, because the Subway Map would result
in the actual final product each project group member would contribute to the project, the Top Ten List/Subway Map was perceived as being much more valuable by the project group members than the management group. So the project group continued to use negotiate knowledge through continued collaboration to develop what would eventually be the Subway Map. In other words, knowledge workers might be able to accept different knowledge boundaries in their work when they do not perceive the work as *their own*, but they would try to exert their own individual knowledge boundaries when they feel the work was perceived as *theirs* (each individual taking ownership for the work). This increased the value of the negotiated knowledge, making it more important that there were shared knowledge boundaries. As a result, the project group members continued to create negotiated knowledge through discussions outside of management’s channels of communication (meetings and project group only online spaces). In this case, the same event triggered the creation of transactional knowledge (the Subway Map) and negotiated knowledge (discussion of the document on alternative communication channels) at different levels within the distributed group’s environments.

Participants also used a combination of negotiated and transactional knowledge by creating knowledge networks that could be accessed in the future. They would develop relationships with others that allowed individuals to maintain their vision, knowledge boundaries, or individual beliefs, but also allowed individuals to understand the perspectives of other group members. This negotiated knowledge was based on shared cognition, shared mental models, cognitive dissonance, perspective taking, and social relationships (Akgun et al., 2003). Within this context, there might be *knowledge* external or internal to the group which could be accessed in the future (transactional
knowledge). This future transactional knowledge is unknown (and, thus, could not be
defined) until it is needed. However, through social interaction, knowledge networks
were established which could be accessed when needed (negotiated knowledge). Paul
discussed the knowledge needed working on one of the project tasks as being a puzzle in
which different pieces were held by different people (transactional knowledge). Access
to those pieces were based on the social relationships that project group interaction
created (negotiated knowledge).

Knowledge accessed from a knowledge network could be both transactional and
negotiated. The interaction which group members had in negotiating knowledge created
relationships both within and extending outside of the group. Group members could act
as *translators* of knowledge for resources within their own knowledge networks.
Specifically, each group member had his or her own knowledge network which they
accessed when they needed to find intellectual and cognitive resources (e.g., answers to
questions, feedback, information, *expertise* or specialization). At times project group
members’ knowledge boundaries might not allow them to communicate and/or
understand other project group members’ knowledge networks. When this happened,
other project group members would need to mediate understanding or translate
knowledge between the various knowledge networks thus creating new knowledge genres
that can be used to structure new knowledge boundaries. Because the knowledge was of
value and in a tangible format, it would be considered transactional knowledge to the
person who accessed or stored the knowledge. However, for the person who needed the
knowledge, the format was not accessible without negotiation of meaning. Once the
knowledge was *translated*, it became negotiated knowledge.
A good example of this creation of new knowledge genres within a knowledge network was Ronda visiting healthcare provider students with Helen. Helen was able to speak to the students, many of whom were also healthcare service recipients, and then translated knowledge from the students into concepts and terminology that Ronda was familiar with. Ronda then incorporated this information into her e-learning designs. Without Helen, however, Ronda might have had difficulty in interacting with the students, asking the correct questions for identifying their needs, and/or understanding the information the students provided as Ronda did not have first-hand experience or knowledge about the subject matter. After the discussion with the students, Ronda and Helen had developed new knowledge genres that could be used in project tasks. Even though Ronda did not have the same depth of knowledge about the subject matter as Helen, Ronda was able to access Helen’s knowledge network by using the knowledge genres she and Helen had developed in their discussions with the healthcare provider students. The new knowledge genres structured both transactional and negotiated knowledge, valuated transactional knowledge, and created shared understanding of Helen’s knowledge networks for future use by project group members.

The most important group members were those that could create a bridge between the project group knowledge and department expertise, being able to access valued transactional knowledge and then translating that transactional knowledge so those in other groups or departments could understand and use it (negotiated knowledge). In other words valued group members were able to use both transactional and negotiated knowledge and understand differing knowledge genres situated in the distributed work processes. Ronda, Helen, Sam, and Paul especially, learned the discourse of the
departments with which they worked. This is why they were perceived as being valuable within the project group. They had excellent negotiated knowledge skills that allowed them to move between departments while at the same time they were able to access transactional knowledge because of the relationships they had developed through their interdepartmental/intergroup negotiations. David commented on the void that was created when Ronda left the project, “now that she’s gone, ah…there’s…there’s really no longer that bridge between what we do and the development of the curriculum. So now it’s to the curriculum developers and then us” (David, interview 2).

Throughout the study, different knowledge genres, grounded in transactional knowledge, negotiated knowledge, or a combination of both, were created and used in different ways for different purposes. In some cases, both transactional and negotiated knowledge was used in the same work task for different purposes at different levels within the collaborative writing process. Perceived ownership added to or decreased the value of the knowledge which in turn influenced the knowledge genre (grounded in transactional or negotiated knowledge) that was used.

**Ownership of Knowledge**

In the study, the greater the level of ownership that an individual felt towards a project or piece of work, the more likely he or she aligned that work to his or her own values and knowledge. Values and knowledge held by an individual might be related to his or her perceived profession, desire to be accepted by the group (project group, department, organization), or the cultures that informed the individual’s work (social, organizational, professional). Just as important is an individual or group’s perceived agency in the creation and use of knowledge within the collaborative process.
According to Skitka’s (2003) AIM model of Social Identify Theory (as discussed in Chapter 2), a greater level of ownership may create higher stakes for the individual within a group. A group member would want to be tied more closely to the other group members’ norms if the individual member perceives him or her to have a higher level of ownership in the work or work processes. Therefore, if his or her work is not accepted by the group, more than his or her work is questioned; his or her social identity and group acceptance is at risk. On the other hand, if the work is perceived as conforming to the norms and values outside of the group, as the Quarterly Report did, the group member would perceive the ownership of the work as someone else’s. As a result, his or her social identity within the group is not at risk. He or she might then be more open to changes in the final product, work processes, or group knowledge boundaries, especially if those changes are perceived as coming from those outside of the group and the organization’s power structure.

In the group studied, there was the perception that knowledge could be located, owned, and/or accessed either by an individual group member or the entire distributed group when needed. *Externally owned* knowledge (e.g., the funding agency or organization owning either transactional or negotiated knowledge) did not always need to align with epistemologies for collaboration to take place within the distributed group. However, with *internally owned* knowledge (both transactional and negotiated knowledge), the more work was perceived as being owned by an individual, the greater the necessity that the epistemologies were aligned with the organization, group, and group members in order for collaboration to take place.
As discussed in Chapter 2, when faced with information or an event on the group level that contradicts an individual’s personal identity construct (value, knowledge, epistemology, personal schema), that person has three choices: modify his or her own personal identity; modify the group’s beliefs, values, or understanding; or leave the group in order to maintain the individual’s personal identity (Levesque et al., 2001; McGrath et al., 2000; Moreland & Levine, 2001; Skitka, 2003; Whitworth et al., 2000). However, there is a fourth option that the group in this study used: create distance between the individual and the ownership of the work, contribution to the work, and/or knowledge needed to complete the work. In other words, knowledge needed to develop the final product or outcome is created and owned by the group, department, organization, or an external entity rather than the individual.

Related to the concept of ownership is the perceived agency an individual may have over his or her own work. Agency is the perceived ability an individual has to contribute, influence, and participate in the collaborative process. Using Nonaka’s (1994) model of intention, autonomy, and fluctuation discussed in Chapter 2, agency is dependent upon both individual attributes (intention and efficacy) and situational factors (power structures and the environment). The greater the perceived agency for a task, process, or final product, the greater the level the individual perceives ownership over his or her work or work products (i.e., writing, designs, etc.). While an individual may feel a sense of ownership towards the knowledge used to create a group product having been part of the group that created it, he or she may not have felt a sense of individual agency in the creation of the knowledge due to influences at the group, departmental, or professional levels.
In the traditional model of organizational knowledge creation outlined in Chapter 2, ownership of knowledge was based on the location of the group work (individual, intragroup, intergroup, organization). This model did not account for influence outside of the organization on knowledge creation and access. Most knowledge management models (Conceicao, Heitor, Gibson, & Shariq, 1998; Cook & Brown, 1999; Foss, & Pedersen, 2002; Nonaka, 1994), for example, assumed that knowledge was held by individuals within the organization. Information could then be transferred from individuals to others within the organization, thus creating knowledge at different levels. Occasionally, there was discussion of transferring the knowledge to external stakeholders (Mason & Lefrere, 2003; Yakhlef, 2002). However, the ultimate owners of the knowledge, to be kept or given away, were the individuals where the knowledge was housed (Cook & Brown).

In this study, however, the closer to the individual that agency was granted, the higher the level of perceived ownership (and the closer to personal identity) the individual felt for that knowledge. In looking at the Quarterly Report, for example, the model outlined in Chapter 2 would place writing as an individual product, with high individual agency and ownership. This is because each individual wrote his or her own section, which often was edited by Robert; but much of the original writing was in the words of the individual contributor. The location of the work was somewhere between the individual and group levels. However, participants repeatedly distanced themselves from ownership of the Quarterly Report. In fact, the purpose and format of the Quarterly Report was perceived as being imposed on the individual and project group by the funding agency. Therefore, there was very little perceived agency in writing the
Quarterly Report at the individual and even project group level. The Quarterly Report was perceived as being owned by the funding agency that imposed the format, valued knowledge, and discourse style on the project group.

The location of agency and ownership of work and the perceived ownership of knowledge is an important distinction to make as a traditional model would look to capture the individual contributions, interpreting it as expertise at the individual level. However, since the knowledge can be transactional, much of the individual knowledge was withheld or not captured because the individual knowledge the group possessed was not perceived as having value for the organization and funding agency. As Ronda discussed in the group interview:

Ronda: You know one thing the Quarterly Report doesn’t do is it doesn’t capture…it…it fails to capture a lot of work that is, eh, either a false start or kind of concept building or teaching one another. And that’s…that’s been an incredibly important subtext of this all of this interdependence has been teaching one another about our work. And the Quarterly Report doesn’t ever…it’s only interested in what you did. Meaning, like what have you got evidence for.

(Group interview)

In addition, the quality of the work, since it was perceived as being owned by the organization and funding agency, did not affect the social identity of the individual; therefore, there was little time and effort put into writing the Quarterly Report as it had very little individual knowledge value. Contrary to what Dias et al. (1995) claimed, genres only promote a different way of knowing which can be used as a starting point for group knowledge creation if there is a sense of agency and ownership of the knowledge. Without agency and a sense of ownership by the individual group member, the genre cannot trigger cognitive dissonance or negotiated knowledge.
In addition to the project group’s influence, individual members’ membership in a profession and department also had an impact on his or her social identity, which in turn influenced perceived agency which in turn influenced perceived ownership. Professional and departmental processes, formats, and visions influenced an individual’s work as part of their desire to maintain the group norms within the profession or department. Each profession and department had its own focus and vision that was unique to the profession or the department. Each profession and department has its own codes, means of highlighting information important to the profession or department, and processes for creating professional and departmental artifacts which defined professional or departmental vision and value knowledge (Goodwin, 1994). Moving from the department to the distributed group, the project group in the study began to create its own lens (codes, highlighted information, the way in which information was sequenced, accessed, exchanged, and recorded), through which valued knowledge was identified. Each group member came to the project with a professional and departmental vision, which became the basis for developing the project group vision and culture.

For example, participants spoke about the difficulties of the project group in working with the Video Production department due to the rigid professional vision and work processes used in Video Production. E-learning was used to using a much less formal process for video creation and set a less rigid standard for video production. As the Healthcare Counseling Project progressed, the Video Production department was given less agency in developing the video, and the ownership of the video moved from Video Production to the project group. However, the project group began to revisualize the quality of the video so that it was different from both the E-learning and the Video
Production standards, yet still acceptable to both departments. A more complete
description of the differing professional and departmental visions and cultures can be
found in the participant and department profiles in Appendix C. The final video product
moved location of ownership from the departments to the project group, yet also created
negotiated knowledge within the departments through alignment of professional and
departmental vision.

Within the collaborative process, tensions would arise when there was a question
of legitimate ownership of knowledge or there was a struggle to grant or remove agency.
For example, conflicts over writing styles based on differing professional standards often
resulted in the realigning of negotiated knowledge. This realignment was sometimes
interpreted as diminishing the agency to use certain professional knowledge that others in
the group may have valued less than another profession’s knowledge. An example of this
would be the conflict the group had over the language used for an e-learning module.
While Ronda believed a certain tone of language was needed as part of effective
engagement strategies in instructional design, Phillip believed the language would be
inappropriate for the healthcare profession. For those whose self-concept was strongly
tied to the profession such as Phillip, Ronda’s questioning the use of traditional
healthcare rhetoric could be perceived as others questioning his professionalism or
expertise within the profession and, thus, his self-concept. However, as Skitka’s (2003)
accessible identity model implies, the cognitive dissonance created through different
professional standards could be resolved by group members identifying others as part of a
different profession. In other words, different perceptions of valued knowledge and
expertise might be caused by different professional alliances, but these differences might
be accepted by project group members of differing professions because of perceived differences of professional alliances within a distributed group. As a result, Ronda aligned her work with Phillip, but at the same time relinquished individual ownership in exchange for the group knowledge. This relinquishing of Ronda’s agency granted Phillip a greater level of agency in the creation of the e-learning modules. However, Ronda maintained her individual professional knowledge ownership on what makes a good e-learning module.

At other times, differing knowledge about the same topic were allowed to coexist with ownership being shared within the group or between levels (departments, organizational, or stakeholders). For example, even though the negotiated knowledge about the curriculum was the basis for the training manuals and e-learning modules, there were differences in the final products produced within different departments, even between those from the same profession. The training manuals developed for the Stand-up Training department and the e-learning developed for the E-learning department had fundamental differences. The curriculum knowledge upon which the manuals and modules were based was perceived as being owned by the project group, funder, and organization as a whole. The knowledge used to deliver the curriculum (which tended to be transactional knowledge) was owned separately by individual project group members and their departments. The curriculum was perceived as being very valuable at all levels of the project. As a result, it was important to participants that there was a sense of ownership at all levels. The variation in the delivery of the curriculum could be attributed to the transfer of ownership and agency to other levels or project members.
The process of modification and reconciliation of processes and formats helped the project group began to identify ownership of transactional knowledge (certain processes and documents). It also helped individuals to align their knowledge and create negotiated knowledge with other levels of the power structure (group, department, professional, organization, stakeholders). Literature on communities of practice and discourse communities observed the same outcomes when those within the communities experienced cognitive dissonance (Boland & Tenkasi, 1995; Goodwin, 1994). In this study, however, when knowledge could not be aligned, than the individual could distance ownership of a product or the knowledge upon which processes and outcomes were dependent. In some cases, the department maintained ownership (which the group accessed when needed); at other times the group or a subgroup (i.e., the E-learning group or the stand-up trainers) claimed ownership. Individuals that did not perceive themselves as having a high degree of agency, did not have a strong sense of identity with the knowledge, and/or did not perceive value to the knowledge. They were better able to distance themselves from the ownership of the knowledge used in collaboration.

**Conclusion**

The findings would indicate that both the organizational knowledge management theories and the organizational learning theories can be used to explain knowledge creation during workplace collaborative writing among distributed groups. In addition to knowing how and knowing what, the findings suggest that it is important for distributed groups and their members to know when and where to access knowledge as knowledge creation is a dynamic process based on situational factors. The extent to which
knowledge is created and accessed at various levels through the collaborative writing process by distributed groups is dependent upon:

- the ability for members to transcend and navigate the knowledge boundaries created by power structures external and internal to the distributed group;
- the ability to store, access, and use knowledge within knowledge networks at the time that knowledge is needed;
- the development and access to knowledge networks both internal and external to the distributed group;
- the level of reciprocity allowed by the power structure in the exchange of knowledge, access to resources, acceptance of new knowledge and processes;
- how closely individuals, groups, and the power structure identify with the collaborative writing process and the knowledge it produces; and
- the perceived ownership and value of knowledge, work tasks, and final product produced by the collaborative writing process.

Knowledge creation by distributed groups during the collaborative writing process is situated in a complex system. As such, not all knowledge is valued the same by those with access to the knowledge both internal and external to the distributed group.

In the traditional model of organizational knowledge creation, the depth of knowledge was dependent upon an individual’s knowledge and experience. However, transactional knowledge can be stored for future use by others. Negotiated knowledge is based on knowledge of where to find the information, when to use it, and the ability to
translate knowledge into a different context. In other words, it is not necessary for an individual member to have experience or internalize knowledge in order to use knowledge available to the distributed group in a collaborative process such as writing reports. Likewise, internalized expertise is worthless if those in power will not use it or knowledge is perceived as having little or no value. Therefore, the traditional model of organizational knowledge creation needs to recategorize knowledge using parameters that those in distributed groups might use.

The traditional model also equated the location of knowledge creation in determining ownership and control of organizational knowledge. This model suggested that organizations simply needed to access individual employee knowledge and consolidate it within the organization. The key to organizational success, therefore, would be to locate knowledge creation within the organization. However, the findings of this study suggest that the location of knowledge creation does not capture the complexity of the various influences on knowledge creation within the organization. Looking at the location of ownership of knowledge is a much more complex construct which includes perceived agency and competing power structures that affect the use of knowledge (transactive knowledge) and the creation of knowledge through interaction at multiple organizational levels (negotiated knowledge).

Therefore, there is a need to develop a new model grounded in the power structures, knowledge networks, and knowledge genres identified as important in knowledge creation and dissemination for organizations that use distributed groups. The next chapter, building on the findings developed through grounded theory, presents an
emerging model that can be used to understand knowledge creation during collaboration by distributed groups.
Chapter 5: An Emerging Model of Knowledge Creation in Distributed Group Processes

The findings that emerged from the data collected in this study indicate that a new model of knowledge creation needs to be developed because the traditional model does not address the situational and social factors that affect knowledge creation in distributed groups. The traditional model was grounded in the theory that the most important knowledge was content internalized by the individual (Allee, 1999; Herling, 2000; Yaklief, 2010). In the traditional model, organizations simply need to create a means of accessing and consolidating internalized knowledge held by the individual so anyone in the organization can access that knowledge. The mechanisms organizations needed to capture and manipulate internalized knowledge held by the individual are known as knowledge management, organizational training, and human capital development. According to the traditional model, the use (and reuse) of knowledge created by distributed groups within collaborative processes is irrespective of the situation. In other words, knowledge creation and use is not situated in the work processes.

The three findings discussed in the previous chapter is grounded in an emerging theory for knowledge creation in distributed groups. The basis for knowledge creation in the emerging theory is a) the construct of knowledge by distributed groups is complex, situated in workplace power structures; b) knowledge creation is affected by the social, environmental, political, formulaic or generic, functional, locational, and cognitive factors that affect the perception and use of knowledge in knowledge intensive organizations; and c) knowledge can be held outside of the individual either for current or future use. The shift in focus from content knowledge being held and internalized by the individual to knowledge negotiated or used as currency being located within social and
knowledge networks requires an emphasis on the importance of distributed groups understanding where they are located within competing power structures. Therefore, another key concept in a new model for knowledge creation during distributed group work processes is the importance of distributed groups and their members in positioning themselves within social and knowledge networks.

In analyzing the development of the study group’s work place processes using an ethnomethodology framework, social relationships and power structures that began with individual members coming together in a common social space changed over the course of the study. The shared mental model created through the interaction within the project group’s common social space (i.e., meetings, online interaction, office visits) at the beginning of the work task became the basis for the creation of knowledge networks developed by members of the distributed group as they interacted with those outside of the project group (i.e., departments, stakeholders, organizational hierarchy). As individual distributed group members worked within new environments, they would access the knowledge networks, knowledge genres, and shared mental models created in their distributed group work tasks within the new social networks and power structures defined by their work environment exterior to the project group. As knowledge was distributed into new environments, new mental models were created in local environments, while the distributed group shared mental models were reconceptualized as distributed group members moved between environments. As a result, new knowledge was being created simultaneously at the intragroup, intergroup, and external to the group (referred to as exergroup from this point on) levels, especially in the second half of the project.
I identified four levels in which the distributed group collaborative writing processes created shared mental models: the individual member, the project group and departmental (intra-group), the organizational and interdepartmental (intergroup), and exterior to the organization or professional (extergroup). Each level had different discourse communities with norms, communication structures, valued knowledge, means of making meaning, and culture established by the relevant power structure. These four levels deviate from the traditional model, in that the four levels I identified are the social spaces in which knowledge is created, not where knowledge is collocated. As a result, the identification of knowledge creation can be expanded beyond the boundaries of the organizational structure within which the traditional model was limited.

In looking at the expanded influence of the social and knowledge networks at all four levels of social spaces, a new model of knowledge creation grounded in the findings of this study for distributed group work processes such as collaborative writing will need to incorporate the following concepts:

- a framework to understand the knowledge genre (transactional or negotiated) created, accessed, or used by individuals, groups, organizations, or external groups, such as a profession;
- a framework to identify and prioritize competing power structures that influence knowledge creation by distributed groups, and;
- the perceived value of knowledge by the power structure and social networks at each level of interaction (individual, intra-group, inter-group, and extern-group).
As this is an emerging model, the first step is to develop a framework in which knowledge genres can be identified and analyzed to create a clearer understanding of knowledge creation in distributed groups.

**Framework of Knowledge Genres for Distributed Groups**

Based on the findings, an emerging structure to understand knowledge genres was developed. The framework for identifying knowledge genres includes four dimensions:

- type of knowledge;
- level of perceived agency and ownership (individual, intragroup, intergroup, extergroup);
- purpose of knowledge creation (transactional or negotiated); and
- situational factors such as location, level of interaction between distributed group members, time, and external influences.

This section with will discuss the emerging theoretical basis of the framework, and then apply the framework to two examples of knowledge genres referenced by the study participants.

**Three types of knowledge**

As outlined in Chapter 2, the traditional categories of knowledge are content (or explicit knowledge), competency (or tacit knowledge), and expertise (which is performance based). However, as discussed in Chapter 4, there is a need to redefine the categories as the parameters of knowledge are reconceptualized in the context of distributed groups. Defining knowledge according to depth of knowledge or level of internalization is an insufficient basis for defining knowledge and knowledge creation in
a distributed group because knowledge can be partaged. In addition, as discussed in
Chapter 4, social and knowledge networks may have knowledge which may not apply or
be perceived as having value to all current situations. However, access to social and
knowledge networks can create social spaces that allow for the creation of knowledge for
distributed groups or individual members in the future.

Based on the findings discussed in the previous chapter, the definition of
knowledge based on depth of knowledge could be expanded to be knowledge genres
defined by level of tangibility. Unlike the traditional collaborative knowledge model, the
model developed through this study proposes a continuum of tangibility within
knowledge genres where three types of knowledge attributes (tangible representation of
knowledge, processes and tacit knowledge, and partaged knowledge) are actually on a
continuum of tangibility, as shown in Figure 5-1. The three types of knowledge attributes
I identify as:

1. *Tangible representation of knowledge* which can be represented by
   policies, forms, formats, curriculum, degrees or credentials, records, and
   other artifacts at the individual, group, departmental, organizational,
   and/or professional level;

2. *Procedural and tacit knowledge*, which includes an understanding of
   work processes and the knowledge created as a result of those processes;
   and

3. *Partaged knowledge*, which was knowledge created through the linking
   of ideas, social relationships, cognitive interaction, and/or cultural
   interaction.
As discussed in Chapter 4, knowledge genres are used by distributed group members to identify, discuss, understand, value, and create shared mental models and relevant knowledge at all four levels of interaction (individual, intra-group, inter-group, external-group). The choice of genre is dependent upon environmental factors, power structure(s), knowledge networks, and work task requirements. At one end of the continuum is knowledge that can be identified as transactional and at the other end is knowledge that is negotiated. As knowledge becomes less tangible, groups are able to create knowledge through interaction and negotiation (negotiated knowledge). In other words, partaged knowledge is negotiated or knowledge that is created through group interaction. Figure 5-1 also is a visual representation of knowledge becoming more spatial and distributed, and less linear when it is disbursed through the group, departments, knowledge networks, organizations, and even a profession.

![Figure 5-1. Continuum of tangibility and features of knowledge genres](image)

In the emerging theory of distributed group knowledge creation, the type of knowledge defined as *tangible representation of knowledge* is close to Kolb’s (1984) comprehensive knowledge. This is knowledge that can be articulated, represented in

131
various forms (such as visuals, documents, presentations, interviews), and stored for future use. Unlike the more traditional content or explicit knowledge, tangible representation of knowledge may include implicit knowledge. For example, educational credentials (e.g., licensing, degrees) tangibly represent certain knowledge that may include implicit and explicit knowledge. These credentials can be used as currency within a group, thus making knowledge appear tangible. However, within a traditional model of knowledge creation or knowledge management theories, the knowledge that credentials represent would be considered a competency or implicit knowledge that would be expected to be applied in any given situation. In the traditional model, the knowledge that credentials represent would then be both implicit and explicit knowledge, fitting into two different categories: content knowledge and competency (Cook & Brown, 1999; Cook & Yanow, 1993). The emerging theory of distributed group knowledge creation, therefore, needs to allow for a broader definition of knowledge genre attributes that includes abstract and tacit knowledge that can be represented through visuals, documents, and artifacts and stored for use by others.

In reconceptualizing the term competency to procedural and tacit knowledge, knowledge genre attributes move the concept of individually held knowledge and know-how to a socially constructed understanding of how things work within a given situation. It expands the concept of individually possessed knowledge about procedures and processes from a purely cognitive definition (competency) (Allee, 1997; Contu & Willmott, 2003; Raelin, 2008) to a socially constructed understanding of the situation in which procedures and processes are used (requiring analytical ability), the intangible variables that affect the situation, and the interpersonal relationships and meaning
negotiation that create social cognition (Herling, 2000). The term competency, does not capture the alignment of knowledge within distributed group power structures, the withholding or use of knowledge based on perceived value, the negotiation of knowledge, the development of knowledge networks, or the distancing of work from the individual based on perceived ownership or agency. In the study, processes and procedures represented work quality expectations, reconciling processes and procedures between group members and departments, and understanding the environment in which work was situated. This indicates a much deeper level of socially constructed understanding, situational analysis, and understanding of how and why things function a certain way, which requires the new term *procedural and tacit knowledge*.

The use of distributed groups has allowed for both collaboratively constructed knowledge, also referred to as a shared mental model (Mohammed & Dumville, 2001) and the distribution of knowledge throughout an organization (Nonaka, 1994; Raelin, 2008) However, there is no term for knowledge that can be both shared and divided for future use. I use the term *partaged knowledge* for knowledge that one would need to be able to access and link to other knowledge (i.e., linking ideas, putting into context). The term *partaged knowledge* is derived from the French word *partager*, which means both to share and to divide. Partaged knowledge might be internal, such as what happens during an individual’s writing process. Initially there may be many ideas, seemingly without any correlation (divided). Through the writing process, an author must link together those ideas into one cohesive whole (thus the sharing or putting together through interaction of ideas).
Partaged knowledge can also happen with group processes in which members come into the group (especially a distributed group) with different expertise, access to resources, cultural influences, and experience/mental models of the work (divided resources and expertise). Through their work processes, group members’ knowledge is partaged or distributed through knowledge networks throughout the group and beyond. This partaged or distributed knowledge is then accessed when needed and modified or translated for use within a given situation. Partaged knowledge, therefore, includes the ability to co-create knowledge, divide the knowledge for later use, access the knowledge when needed, and translate or interpret the knowledge for a given situation. Partaged knowledge is the most valuable for knowledge-based organizations as it allows for knowledge to be evenly distributed throughout the organization, thus making organizations less vulnerable should an employee leave (Allee, 1997). It also allows for others who are not directly exposed to content, work processes, experience, and/or environments to be able to access knowledge outside of an individual’s knowledge base. Knowledge can be part of the network internal to the group, external to the group, within the profession, internal to the organization, and external to the organization. However, partaged knowledge is difficult to quantify, control, and capture because it is situated, visceral, and collocated.

Partaged knowledge is created through creative practices (writing, design, problem solving) rather than through the imposition of formats or processes. In the traditional knowledge model, expertise is an intangible form of knowledge held at varying degrees by individual group members and demonstrated through performance (Herling, 2000, Nonaka, 1994. Yklief, 2002, 2010). Expertise assumes that knowledge
boundaries are static and access to knowledge ultimately is based on the individual and his or her ability to use the knowledge. In the emerging theory of distributed group knowledge creation, expertise, tacit knowledge, and content can be held by individuals, the group, the organization, or even stakeholders in the form of partaged knowledge. It is not enough for an individual to be able to access information. Rather, it is important to link ideas; add knowledge to the group and/or organization; store the knowledge within a network for future use by others; value knowledge situated in differing power structures and knowledge networks; and link new meaning to established meaning, negotiating the creation of new knowledge boundaries within the distributed group knowledge system.

Partaged knowledge also differs from expertise in that partaged knowledge is the possibility of future knowledge creation when it is needed. Partaged knowledge is the possibility to access and create knowledge within a knowledge network in the future. Even the concept of what knowledge may be needed is abstract with partaged knowledge, although partaged knowledge is based upon a knowledge network that will allow those who are part of the network to access knowledge when needed. To access and use the network, individuals, groups, and organizations need to understand where and when to create knowledge.

**Location of knowledge creation, agency, and ownership**

The traditional model of knowledge creation locates knowledge and ownership of knowledge with the individual (Nonaka, 1994; Raelin, 2008). Nonaka further identified an individual’s level of autonomy as a requirement for organizational knowledge creation. The granting of autonomy is termed agency. In the traditional model, the idea of agency and ownership are separate with agency being controlled by the power
structure and ownership tied to work task artifacts (Lundsford, 1999; Lundsford & Ede, 1992). An individual who contributes to the work task artifact would be a partial owner of the knowledge created through the distributed group process merely by contributing to the process. The degree of ownership would depend on the level that agency was granted.

However, this study suggests that agency plays an important role in how distributed group members and their knowledge networks perceive ownership. The perception of ownership and agency is as much an individual construct which relates to social identity theory as it is a socially defined construct created through interaction by distributed groups based on perceived agency at the intra-group, inter-group, and exter-group levels. The findings of this study suggest that agency is not as much granted as perceived as being granted by those within the power structure through the use of genres (communication and knowledge), perceived value of individual contributions, distributed work processes, and perceived ownership of the final work artifacts and created knowledge. In the study, the greater level of perceived individual agency to create knowledge within a distributed work task, the greater perception of individual ownership over the knowledge and work task artifact.

The emerging theory for knowledge creation in distributed groups, therefore, would use a continuum to identify perceived level of agency and resulting ownership depending on the distance between the individual group member and the perception of where knowledge was created. In other words, an individual without individual agency may perceive that knowledge is created and owned by the organization when group processes, contributions to created knowledge, and knowledge genres are dictated by the
organization. Even though the individual contributed work to the creation of knowledge and distributed group artifacts, the individual did not have agency. As a result, ownership moves from those completing work tasks to those that dictate discourse communities, knowledge genres, and work values, norms, and processes. As discussed in Chapter 4, an individual can create distance between his or her perceived level of ownership of work in order to maintain his or her social identity when individual agency is taken away. Therefore, the location of agency (individual, intragroup, intergroup, and exetergroup) will have an effect on the location of perceived ownership.

The continuum I developed to represent the distance between the individual and the level that he or she perceives the location agency and ownership of knowledge creation in distributed groups (see Figure 5-2) places high individual agency at one end and low individual agency at the other. The greater the level of individual agency the closer an individual perceives ownership of created knowledge by the individual. On the other end of the continuum, the absence of individual agency in distributed group processes, the greater distance in ownership between the individual and the knowledge created through distributed group processes.

![Diagram](image)

**Figure 5-2.** Agency and perceived level of ownership of distributed group work continuum

137
Using the Quarterly Report as an example, individual group members of the project group had the perception that they had little agency in the final written product. Each project group member was told what information to submit, the format to use in submission, and even which style to use (e.g., bullet points, paragraphs, discourse style). Once each project group member submitted his or her part, they had little control over edits, rewrites, and merging of individual contributions. On the continuum, they would be at the low individual agency end. As the continuum indicates, individual members perceived that the Quarterly Report was owned by those external (or extergroup) to the organization even though group members wrote parts of the report individually. Many of the project group members never even saw the finished Quarterly Report.

**Situating knowledge boundaries**

There are a number of situational and environmental factors that affect the creation of knowledge and the use of knowledge genres in distributed group work. As discussed in previous chapters, knowledge creation in distributed groups are situated in the work patterns and power structures within which distributed groups work (Contu & Willmott, 2003; Foss & Pedersen, 2002; Goodwin, 1994; Laufer et al., 1998; Sternberg & Horvath, 1999). Those work patterns and power structures affect how knowledge is valued; where knowledge is created, stored, accessed, and used; who has access to valued knowledge within the workplace, discourse communities, communities of practice, and the power structures; and when different types of knowledge is accessible from (often) competing power structures, knowledge networks, and social networks.

Theories in group communication (Akoyo, et al., 2002; Engleberg & Allison, 2007; Galanes, 2007; Gersick, 1988), communities of practice (Boland, 1992;
Haythornthwaite et al., 2000; Johnson, 2001), discourse communities (Hagtvet & Wold, 2003; Parks, 2001; Russel, 1997), and organizational culture (Collis, 1999; Cook & Brown, 1999; Goodwin, 1994; King & Frost, 2002) apply to the study findings that situational factors such as the power structure, access to resources, and social interaction affect knowledge creation in distributed groups. Expanding on these theories, I identified situational factors that affect a distributed group’s knowledge creation as: (a) knowledge networks, social networks, work environment, and power structures of distributed groups including the choice and application of tools; (b) the creation, choice, dissemination, and use of formats; (c) membership in discourse communities; (d) modality of interaction; and (e) the use, creation, modification, storage, application, and collection of distributed group artifacts. As discussed in Chapter 4, many of these factors both affect and have an effect on the power structure(s) that control the environment and knowledge boundaries in which distributed groups create knowledge. Based on the findings of this study, I propose that creation of knowledge genres are bound by three situational attributes in distributed groups: temporal orientation, access to resources, and level and modality of interaction.

Temporal orientation is the perceived amount of time allowed for negotiation, creation, interaction, and storage of knowledge created by distributed group processes. Any given situation can require that either individual members or the distributed group as a whole create knowledge in a short time period (i.e., minutes or hours) or knowledge is created over a long period of time (i.e., months or years). In the study, if the knowledge needed to accomplish a task was located away from the individual (e.g., within a knowledge network, community of practice, or discourse community), temporal
orientation was more long term. The temporal orientation also affected and was effected by group members’ perception of when the knowledge would be needed (immediately, in the short term, in the future). Knowledge genres, therefore, can be bound by how long it takes to convert knowledge into an accessible tangible representation that is valued by those who will use the knowledge, how long it will take for a member to access valued knowledge, how long knowledge will be relevant to and/or stored by those within a knowledge network, and how static the knowledge is.

Another way in which knowledge boundaries were established in the distributed group work processes were through the allocation and access of resources such as communication modalities, social interactive spaces (e.g., conference rooms, collocated offices, online spaces), content experts, and personnel, both within and outside of the organization. Knowledge could be structured based on the resources available and the expectation of the power structures.

Knowledge genres are also bound by the social structures that create the environment and social spaces that affect interaction between individual distributed group members and social circles within which they work (intragroup, intergroup, and extergroup levels). These interactive boundaries are affected by tools given for interaction (i.e., software, office space, communication tools, storage of artifacts); discourse community values, norms, and rules of interaction; and place, time, and opportunity to interact with others at different levels. Knowledge genres may be limited through control of the social structures within which a distributed group works, such as limiting who is allowed to interact, the format of the interaction, power structures valuing some forms of interaction over others (e.g., weekly meetings or interaction via the
internet), and choice of discourse community (e.g., preference for one department or profession over another). However, knowledge genres may also have flexibility built in which allows for greater level of interaction and knowledge building. By establishing a more flexible structure for interaction between levels of the power structure, there may be greater control by the individual group member by giving the individual greater agency to create knowledge.

Each of these situational attributes help to define the knowledge boundaries used in the creation, storage, access, and use of knowledge while at the same locating the knowledge in the environment in which it was created.

**Examples of Knowledge Genres**

There were a number of knowledge genres used by participants in this study. Two of the knowledge genres study participants referred to the most when describing their work and the work of others in the distributed group were *credentials* and *professionalism*. Using the framework to identify knowledge genres outlined above, this section will identify the attributes of the knowledge genres *credentials* and *professionalism* used in this study. While perception of what credentials and professionalism was varied from group member to group member, department to department, and profession to profession, there was a shared knowledge boundary in which these genres (credentials and professionalism) were framed.

*Credentials.* *Credentials* are the establishment of tangible representation of knowledge possessed by the individual. Credentials can take the form of reports and other documentation of individual work; degrees, drafts, postings, or notes that contribute
to the group process; and transactional knowledge such as degrees, awards, and job titles. Unlike the traditional knowledge model, credentials within a distributed group is a socio-cognitive construct. Credentials represent valued knowledge that can be used or transformed into an identifiable form to be used as currency for the individual (e.g., future jobs), within the group, between groups, and externally (e.g., product or service sales). The value of the knowledge is situated within the power structure and environment in which the individual works. Credentials are situated within the knowledge needed for a particular task.

Credentials, unlike documentation, deliverables, and certification, are perceived by the individual as being owned by the individual to dispense whenever the individual believes it is to his or her advantage. As a result, a group member might have hidden credentials that they feel are undervalued or not needed by the group. Credentials also may be tied to the individual’s social identity, so the undervaluing of the individual credentials may result in a group member disengaging from the group, withholding knowledge, or presenting knowledge in a form that is inaccessible to group members (e.g., unfamiliar formats, technical jargon, limited access documents). In the last case, the individual then becomes invaluable to the group as the credentialed individual is the only one able to translate knowledge into a form that is identifiable and useful for the group.

The form that credentials can take may change depending on the who is perceived as owning the distributed work task, the alignment between levels of agency and shared mental models, and perceived location (either individual members or the distributed group as a whole) within the work task power structure. Professional credentials, such as degrees, licenses, and membership in a professional organization, will always have
relevance at the extergroup level, but may not have relevance at the intergroup level when organizational and professional qualifications for a specific task are not aligned. When there is misalignment at one of the levels, then credentials may be presented in multiple forms (e.g., diploma for the organization and license for the profession).

Credentials usually represent access to discourse communities and knowledge networks that an individual perceives are relevant for a certain work task. Credentials also may be used as a starting point for interaction between an individual and others (at intragroup, intergroup, or extergroup levels) in terms of resources, expectations, and work patterns for a given task. Finally, credentials tend to have a long term orientation, as it takes a long time to develop credentials. Credentials tend to be composed of static knowledge, and once established, credentials can be stored with the individual for future use.

**Professionalism.** Professionalism is trans-organizational which means that there needs to be interorganizational interaction for professionalism to exist. This interaction can come in the form of interaction and training with stakeholders, professional organizations, and professional institutions (e.g., professional training programs, higher education programs). The interaction creates both a shared mental model for the profession and an understanding of where and how to access resources within the profession so that it is unnecessary for an individual to *know* all aspects of the profession, but will have access to all professional knowledge when needed. In other words, professional knowledge is partaged throughout the profession and professional knowledge networks. Professionalism and professional knowledge exists outside of the individual(s) through formation of professional alliances and networks (Nonaka, 1994).
Once a person is identified as a member of the profession, he or she will need to understand where, when, and how to access community resources. However, membership in a profession is socially constructed through professional discourse communities and sub-communities (i.e. Healthcare profession and the sub-community of Healthcare Counseling profession). There are definitive knowledge boundaries that create a broad professional structure within which there is great flexibility for interaction, knowledge creation, and power structures for individual and distributed group work patterns. While the professional knowledge boundaries are fairly static, those individuals that identify themselves as members of the profession may have flexible knowledge boundaries based on interaction with others, both inside and outside of the profession. The individual will align his or her own individual knowledge boundaries with the profession, based on cognitive dissonance created through interaction with others. In other words, with knowledge perceived as professional knowledge, there is a low level of individual agency and, therefore, a high perception of ownership by the profession.

Professional knowledge, because of its partaged nature within the diverse environments in which knowledge creation occurs, is more susceptible to competing power structures. Because professional knowledge is situated in the work processes and social and knowledge networks within which a distributed group works, resources and temporal orientation vary. Therefore, the most valued members of the profession are those that understand how to access professional resources; translate professional knowledge into a form that those within and outside of the profession can understand; and create new knowledge that both fits within the professional knowledge boundaries and yet is situated within the distributed group’s work environment.
Conclusion

The framework presented in this chapter to identify and understand knowledge genres used by distributed groups differs from the Traditional Model of Organizational Knowledge Creation, in that the framework (a) uses an expanded understanding of knowledge that recognizes that knowledge can be held outside of the individual within distributed group knowledge networks; (b) identifies the attributes that bind the knowledge creation process within the social and knowledge networks situated in the distributed group processes; (c) expands the location of knowledge creation through interaction and perception of influence to include social spaces outside of the organization (extergroup); and (d) identifies the relationship between agency and ownership, and the ability for individuals to contribute to a collaborative artifact without having perceived individual ownership.

Central to the emerging theory of knowledge creation in distributed groups is the framework of knowledge genres for the creation of knowledge in distributed groups. The framework is grounded in this study’s findings that a) the construct of knowledge by distributed groups is complex, situated in workplace power structures, knowledge boundaries, and social identity; b) knowledge creation is affected by the social, environmental, political, formulaic or generic, functional, locational, and cognitive factors that affect the perception and use of knowledge in knowledge intensive organizations; and c) knowledge can be held outside of the individual at multiple levels both internal and external to the organization, either for current or future use. The framework of knowledge genres can be used to help identify the knowledge boundaries
and structure of knowledge used within the complex environment in which a distributed group works.
Chapter 6: Discussion and Implications

As more and more knowledge based organizations use distributed groups, there is a need to understand how knowledge is created during distributed group work processes. The purpose of this study was to understand the factors that influence a distributed group’s knowledge creation as members work on a collaborative task, such as creating a group document. In this dissertation, two different written tasks were studied. Each task allowed me to look at two different sets of factors and environments over a six month period. The findings of this study and the emerging theory on knowledge creation in distributed groups can contribute to three different fields of study: educational policy and academic writing; knowledge management and organizational learning; and group communication and social identity.

Educational Policy and Academic Writing

There has been much discussion of the educational and training needs of knowledge workers for the 21st century (Sones et al., 2004; Stiglitz, 2003; World Bank, 2009). Many of the worldwide systems are based on educational assessments that measure the level of content internalization by an individual. The Traditional Model of Knowledge Creation supports this system of assessing education. However, in the current knowledge economy which uses technology, distributed groups, and knowledge consumption as a product, this traditional model and basis of education does not develop skills a knowledge worker will need to maximize knowledge creation, the dissemination of knowledge, and the creation of broad knowledge networks. Most notably, findings from this study support the idea that there are multiple levels of knowledge creation. However, it is not necessary that an individual internalize knowledge in order to master
content. Rather, it is important that individuals understand how, where, and when to access knowledge that will be relevant for their work situated in their own environment. Writing, because it converts knowledge into a tangible representation of knowledge, is one field of education that can help teach the skills needed to identify relevant forms of tangible representation of knowledge. The writing classroom also can recreate various work environments and power structures so students can learn how to negotiate knowledge, create knowledge networks, and navigate the power structures in which knowledge is embedded.

Dias et al. (1999) found that one of the main distinctions between academic and workplace writing was the focus on the individual in academic writing and the organization in workplace writing. Current academic writing focuses on individual contributions, giving ownership to the individual even when completing collaborative writing tasks. However, both Dias et al.’s and this study indicate that agency and ownership of written artifacts can be attributed to groups, departments, and the organization. This study reinforces the need for new approaches to collaborative writing instruction, moving away from granting ownership for written contributions to the individual. The disconnect between academic writing at the individual level and workplace writing dependent upon the level (individual, intragroup, intergroup, extergroup) that agency is granted, needs to be addressed in further research.

Many of the findings of this study have relevance for online learning, in which distributed groups are used to create learning environments. The findings of this study support the theory that just by participating in a collaborative work task, such as writing as a member of a distributed group, groups and the individual distributed group members
can create shared mental models, shared meaning, and new knowledge boundaries at the individual and group levels (Barab et al., 2001; Brown, R, 2001; Collis et al. 1997; Haake et al., 2004; Henri, 1995; Jarvela & Hakkinen, 2002; Mohammed & Dumville, 2002; Mulder et al., 2002a; Mulder et al, 2002b) . The final product and learning artifact is not as important as actually participating in the distributed group work task. Another implication for online learning is that knowledge may be valued differently by individual students, but knowledge genres created through online interaction can create a structure to negotiate shared meaning (negotiated knowledge) or create knowledge that has value outside of class (i.e. transactional knowledge for each individual student’s learning and work environment). The greater implication for online education is that the distributed groups created through class can develop knowledge networks that can be used long after the class has ended. The online class, working as a distributed group with a variety of knowledge networks, has the potential to have a great impact on the dissemination of learning as students access their own knowledge networks.

**Knowledge Management and Organizational Learning**

This study indicates that the traditional model of organizational learning and knowledge creation relied too heavily on resources and factors within the organization. The result has been a tendency of organizations to try to contain knowledge internally (Akgun et al., 2003; Allee, 1997; Conceicao ,1998; Liu & Vince, 1999; Yaklief, 2002). However, this study suggests organizations should be looking to create and forge relationships outside of the organization and capitalizing on those relations to create new knowledge internally. One way to forge those relationships is to hire personnel who bring
extensive knowledge networks to an organization and the ability to translate knowledge external to an organization or department for organizational use.

Perhaps this focus on the level of internalization of knowledge rather than on relationships and social structures within the distributed group environment is one reason why knowledge management researchers have been frustrated in finding a better way to capture organizational learning and knowledge creation (Allee, 1999; Conceicao, 1998; Mason & Lafrere, 2003; Malmberg, Slovell & Zander, 1996; Nonaka, 1999). This study indicates that using performance indicators alone in the hiring and evaluation of knowledge workers does not capture the skills, knowledge, and potential contribution to knowledge creation needed for a knowledge based organization to be successful. It also limits access to knowledge to an organization’s internal processes rather than looking at the external resources available, as researchers such as Yaklief (2002) and Conceicao (1998) have advocated.

Among the synergy created in distributed groups is the understanding of other members’ knowledge networks in which knowledge is held outside of the group, either within or outside of the organization. However, by nature, the knowledge of distributed groups is dynamic, as members return to their own environments to create new meaning, understanding, culture, artifacts, and knowledge networks. Organizations and knowledge management researchers that are interested in maximizing the capture of knowledge created and used by distributed groups need to recognize the importance of each category of knowledge: knowledge that can be tangibly represented, procedural and tacit knowledge, and partaged knowledge. Partaged knowledge is often overlooked in traditional models and is especially important in distributed groups. As distributed
groups come together, they create a shared, collective knowledge that is more than one individual can possess. Through group interaction, access to knowledge networks, and participation in collaborative group processes, individual members can access relevant knowledge external to the distributed group and even the organization, even if the individual member has not internalized the knowledge or does not have specialized expertise.

The results of this study suggest that current research on distributed group knowledge creation should include the social structure within which collaborative tasks take place. As previous researchers have pointed out, there has been limited research on the impact of the social structure on knowledge creation in knowledge management literature (Conceicao et al., 2003; Cook & Brown, 1999; Nonaka, 1994; Sarker, et al. 2005; Thompson et al., 2001; Yahklef, 2010). Specifically, knowledge management theories need to understand the role that external social and shared cognitive factors have on structuring the creation, storage, access, and use of knowledge partaged throughout distributed group work tasks. In other words, social interaction, knowledge networks, and power structures create knowledge boundaries that limit or support knowledge creation in a distributed group. As this study demonstrates, it is not enough to create, store, and access knowledge at the individual level. Distributed group members also need to (a) understand how to navigate the power and social structures to identify knowledge that has perceived value; (b) represent knowledge (knowledge genre) in a format acceptable by decision makers; and (c) access and link knowledge both internally and externally through knowledge networks in multiple environments.
This study also gives insight into when and how collaborative tasks create shared understanding in distributed groups, a point of inquiry I outlined in Chapter 1. Participation in distributed group processes contributes to the creation and dissemination of knowledge at all four levels (individual, intragroup, intergroup, and extergroup) of perceived agency dependent upon perceived ownership of task outcomes. Both the imposition of knowledge genres at the organizational and professional levels (intergroup and extergroup) and the influence that group members have on the creation of knowledge genres (individual and intragroup level) create opportunities to learn from the group, understand another’s viewpoint, and encourage mutual understanding. In other words, the interaction at multiple levels develops perspective taking and requires higher order thinking skills by individual distributed group members (Boland & Tenkasi, 1995; Gunawardena et al., 1997; Hagtvet & Wold, 2003; Hakkinen et al., 2003; Jarvela & Hakkinen, 2002).

As researchers in organizational learning proposed, group processes created more than institutional record (Akgun et al., 2003; Ashton, 2004; Barab & Duffy, 2000; Boland & Tenkasi, 1995; Cannon-Bowers & Salas, 2001; Cook & Brown, 1999; Cook & Yanow, 1993; Nonaka, 1994; Raelin, 2008; Rouette & Vennix, 2008; Yakhlef, 2002, 2010). In the group studied for this dissertation, participants joined and/or created multiple communities of practice tied together through organizational knowledge genres. This is a departure from organizational learning theory which proposes that a uniform organizational culture is needed to create knowledge in the workplace (Collis 1999; Cook & Yanow), especially at the organizational level. According to Cook and Yanow (1993), organizational learning starts with a shared culture (developed through training or
standard organizational processes and formats). Learning is then measured by the level of individual internalization (expertise). In my study, distributed group members did not need a common organizational or community culture in order to create, access, and use knowledge created within the organization. Rather, they needed to be able to understand and interpret the knowledge network cultures of other group members or members of their knowledge network.

Knowledge genres became the structure within which distributed group members valued and/or negotiated knowledge held external to the individual members, either from other distributed group members or an individual group member’s knowledge network. The most valued employees were those that could move between different communities of practice (COP), translating knowledge found in the COP’s for other members of the distributed group. The process of crossing the COP’s knowledge boundaries could create cognitive dissonance which often resulted in learning in the distributed group in this study. The findings from this study suggest that organizational learning imposed from the top down (as current organizational learning theories suggest) does not maximize knowledge creation, especially for distributed group work, as it limits learning to individuals within the organization and organizational knowledge genres. At the same time, knowledge that is created within the distributed group work tasks may be lost if group members perceive the value of that knowledge to be low or misaligned with the organizational culture. Therefore, it is important to integrate COP theories with organizational learning.

Current COP theories also need to be expanded to incorporate the idea that knowledge can be partaged throughout the community and transactional in nature. The
current COP literature begins with the belief that communities have embedded values of knowledge that becomes expertise the longer a member is part of the community (Barab & Duffy, 2000; Haythornthwaite et al., 2000; Johnson, 2001). However, this study extends the current COP theories by expanding the definition of knowledge held within the COP. An expanded theory of knowledge within COP’s should include: (a) the creation of knowledge boundaries and partaged knowledge held within the group and its knowledge network (apart from the individual), for future use by individual group members; (b) the negotiation of knowledge created through interaction both within and outside of the COP, thus allowing for continual knowledge creation within a COP as knowledge networks extend outside of the COP; (c) the creation of transactional knowledge in response to the COP members’ perception of the value placed on the knowledge by the COP’s power structure; and (d) the placement of a COP member’s status in the community dependent upon his or her ability to create, access, and/or translate knowledge that has value to those perceived as being part of the COP’s power structure.

The findings of this study suggest that members of a COP can have access to knowledge without specialized, internalized knowledge that Herling defined as expertise (2000). The longer an individual is a member of the COP, the greater the access an individual member has to knowledge valued by the COP and understanding of the power structures that placed value on specific knowledge (Contu & Willmott, 2003). It could be argued, based on the findings of this study, that a new member to a COP may come into the community with an expertise. However, if that expertise is not valued by the COP, then the specialized knowledge will not contribute to the COP’s knowledge.
Reciprocally, a new member of the COP may not understand how to access the community’s knowledge genre. Until the new member has a better understanding of how knowledge is created, accessed, stored, valued, and used in the COP, neither the individual new member nor the community will be positioned within the COP to take advantage of the new member’s expertise.

**Group communication and social identity**

While the starting point of this study was the individual within a distributed group writing task, the findings indicate that there is knowledge creation at multiple levels when writing is done collaboratively in the work place. Collaborative writing tasks, along with other distributed group work tasks, contribute to knowledge creation at different levels of an individual’s knowledge network. However, the amount and type of knowledge that is created is bound by power structures, knowledge genres, and social and knowledge networks.

As mentioned in Chapter 2, very little research has looked at how individuals make sense and learn from the collaborative process (Schneider, 2002). The findings in this study suggest that an individual’s sense making and ability to learn from others in a distributed group is dependent upon the individual’s perception of where they are located in the various levels of the social structure (individual, intragroup, intergroup, extergroup) where knowledge is created and valuated. This study reinforces the idea that meaning making and organizational learning in distributed groups are socially constructed, dependent upon competing power structures, access to discourse communities, social identity at the individual, intragroup, intergroup, and extergroup levels, and perceived level of agency and ownership over the collaborative work process.
Researchers contend that discourse communities have shared values and culture embedded in the discourse and genres used by their members (Berkenkotter & Huckin, 1995; Cook & Brown, 1999; Goodwin, 1994; Syriquin, 2006, Wang et al., 2004). In addition, discourse is limited to the knowledge boundaries of the discourse community unless there is an event which causes cognitive dissonance (Buchanan, 1994; Galinsky & Kray, 2004; Jenn & Mannix, 2001; Mohammed & Dumville, 2001). The implications of my study for distributed group theory building are that events of cognitive dissonance are created simply by crossing discourse communities. A result of the cognitive dissonance is the creation of an environment in which negotiated knowledge can be created and transactional knowledge is valued. However, the granting of agency within the environment which then affects perceived ownership, may impact the extent that new knowledge boundaries are created. New knowledge boundaries may be created at the individual level if a distributed group member has access to other group members’ discourse communities. However, as seen in this study, individual group members may limit access to their knowledge and social networks by translating discourse or representing knowledge in a tangible format that fits the distributed group’s genre of communication. When other members are limited in their access to new discourse communities, then new knowledge creation is limited at the individual level, even though there might be knowledge creation at the intragroup, intergroup, or extergroup level.
This study also adds to the growing research on distributed groups and distributed knowledge within groups (Cannon-Bowers & Salas, 2001; Conceicao et al., 2003; Holton, 2001; King & Frost, 2002; Levesque et al., 2001; Mohammed & Dumville, 2001; ). With the advent of the internet, research on group communication and group processes have concluded that group knowledge can extend outside of the immediate group. King and Frost (2002) identified this as collocated knowledge. Building on the theories of knowledge in distributed groups, the framework for knowledge genres presented in Chapter 5 identifies the attributes that bind collocated knowledge as a result of interaction between various levels of influence within the distributed group environment. McGrath et al. (2000) identified three levels of influence: individual, intragroup, and intergroup. I identified a fourth level of influence: extergroup.

The identification of extergroup level, positioning distributed groups within knowledge networks that overlap, supports the concept of knowledge nets and their importance in distributed group knowledge creation (Nonaka, 1999). This has important implications for group communication theories. As Jehn et al. (1999) found in their research on conflict in groups, distributed groups need the opportunity to experience and resolve cognitive dissonance in order to improve group outcomes. However, as my study demonstrated, the cognitive dissonance may be triggered by power structures outside of the distributed group, such as the departments or professions to which individuals belong. As conflict is resolved at one level by distributed group members, it may trigger cognitive dissonance at another level. Consequently, it is important that group members are aware of the influence on individual members that power structures, knowledge genres, and discourse communities to which group members belong exert on the
distributed group as a whole. The influence is dynamic as there is constant realignment of knowledge, both transactional and negotiated, within the environment in which a distributed group works.

The dynamic nature of group conflict is especially heightened in distributed groups, which is a departure from the group communication and small group conflict literature. Group communication and small group conflict literature tends to view conflict and conflict resolution as a more static concept. In traditional small group conflict resolution theories, cognitive dissonance triggers conflict, which when identified then uses conflict resolution interventions to resolve conflict and create knowledge (Jehn & Mannix, 2001; Moreland & Levine, 2001). This process of conflict resolution is linear and relatively static. However, in my study, there were multiple levels of conflict as distributed groups work because of the realignment of knowledge between the individual and those at the intragroup, intergroup, and extergroup levels. Conflict resolution is spatial and constant for a distributed group. The resolution of this continuous conflict influences the valuation of knowledge (transactional knowledge), group interactions that create new knowledge (negotiated knowledge), the creation of shared mental models and knowledge attributes (knowledge genres), and the access to knowledge networks outside of the group (partaged knowledge). As a result, the findings of this study suggest that each individual will create slightly different knowledge within the same distributed group because each member’s knowledge is based on a different working environment outside of the distributed group work processes.

This study supports Skitka’s AIM theory of Social Identity. The imposition and creation of knowledge genres structure the environment for distributed group interaction.
These structures establish both social and cognitive boundaries (Song, 2003) for distributed work processes. When the knowledge genres conflicted, an individual needed to prioritize the use of the various knowledge genres. If the power structure dictated the use of knowledge genres that conflicted with personal values, participants in my study used all three strategies predicted by Skitka’s model: (a) realigning beliefs to fit those of the power structure, (b) leaving the distributed group if the individual member’s personal values could not accept the power structure’s knowledge genres, or (c) maintaining personal values by granting ownership of knowledge genres to others and distancing the individual member’s social identity from the distributed group work processes.

**Conclusion**

Future studies should identify knowledge genres in different contexts for distributed groups. While the focus of this study used the lens of analysis for organizational learning, other fields would benefit by looking at knowledge creation in collaborative workplace writing or work tasks including information management, organizational communication, professional writing, and applied psychology. Studying collaborative workplace writing and work tasks through the lens of these fields may give new perspectives in workplace identity, organizational politics and power structure, human/technology interaction, meaning making and perspective taking in professional contexts, and the impact of networking on organizational structures.

This study also has implications for the discussion on education for the 21st century and online learning. By identifying and understanding how knowledge genres are created and used, policy makers will have a clearer understanding of how to develop the knowledge creation skills and environments that will support innovation and a skilled
labor force. It is possible that online learning, where students are limited in communication modalities, may create and use different knowledge genres than hybrid or face-to-face classes.

Additional studies should look at transorganizational groups. In the current climate of budget cuts in which activities perceived as social are being cut, conventions and professional working groups may in fact add to a knowledge based organization if participation in these activities promote knowledge creation. Studies of distributed groups that transcend organizations may help to delineate the idea of partaged knowledge and how it functions outside an organization. Studies outside of the organization could also help to harness the creation of knowledge within discourse communities and communities of practice located outside of the organization. However, there needs to be a clearer understanding of how knowledge networks are developed, accessed, protected, valued, and used outside of the organization.

More research needs to be done to understand the ways in which knowledge is valued, translated between knowledge boundaries, represented in tangible forms, and situated in the social and political organizational structures. This dissertation identified many strategies distributed group members used to navigate the power structures embedded in the complex environments in which distributed groups work. There needs to be a clearer understanding of these strategies and when they are used.

Finally, the framework presented in Chapter 5 to identify knowledge genres needs to be applied to a variety of work environments. As a growing catalog of knowledge genres is created, research can begin to understand how knowledge boundaries are
reformulated, how knowledge can be stored within the genres for future use, and how the genres help (or hinder) the creation of transactional and negotiated knowledge.

Distributed group knowledge creation processes are situated in the complex environments within which the group and individual group members work. By studying the collaborative writing processes of a group, the way in which knowledge is created by distributed groups is more transparent. Social factors such as membership in discourse communities, access to knowledge networks, and the perceived level of agency and ownership of work products have as much impact on the creation of knowledge within a distributed group as the exchange, documentation, and storage of information.
References


163
Galinsky, A. & Kray, L. (2004). From thinking about what might have been to sharing what we know: The effects of counterfactual mind-sets on information sharing in groups. *Journal of Experimental Social Psychology, 40*, 606–618.


Glossary

Agency: The level of agency (at individual, group, departmental, or organizational) can be linked to organizational knowledge creation using Nonaka’s (1994) concept of individual commitment. Commitment by individuals can be further divided into intention, autonomy, and fluctuation. Intention is the meaning making of the individual based on the action of knowing and understanding within a specific “context of purposeful activity” (p. 17). Autonomy is the perception an individual has to create new knowledge outside the knowledge boundaries imposed by the organization (through genre and discourse communities). Fluctuation is the level of change an organization allows to impact individuals either though the environment or social interaction.

Apprehensive Knowledge: Apprehensive knowledge is the intuitive process that happens as we experience the world. Apprehensive knowledge makes us aware of what we are experiencing and perceive our world, although it may not have meaning. “Apprehension of experience is a personal subjective process that cannot be known by others except by the communication to them of the comprehensions that we use to describe our immediate experience” (Kolb, 1984, p. 105).

Community of Practice: Community meaning based on work patterns, group values, and social relationships that create the boundaries that identify a community. These practices then are passed down from experts to novices within the group through community practices. Those that are new to a particular community of practice (COP) or are coming
Comprehensive Knowledge: Comprehensive knowledge is the abstract ideas and understanding we create based on our experience. “Comprehension, on the other hand, is an objective social process, a tool of culture” (Kolb, 1984, p. 105).

Competency: Individuals need to have skills and experience to use content knowledge efficiently and effectively. This is then known as competence (Herling, 2000; Yaklief, 2010). Herling (2000) defines competence as “an ability to do something satisfactory—not necessarily outstandingly or even well, but rather to a minimum level of acceptable performance” (p.9). At the organizational level, the competency model of management is based on the identifiable skill sets needed to efficiently perform required work and the overall capacity among workers. Organizations need to identify skill sets, gaps in the skill sets, potential problems due to the gaps, and ways to manage/train so that the organization can perform efficiently (Herling, 2000; Sanghi, 2007).

Content: This is knowledge that can be possessed (Nonaka, 1994), as “what is known, or the corpus of knowledge that does not belong to any particular individual or context (Yakhlef, 2010, p.39).” Knowledge of content can be measured, identified (especially lack of content knowledge), and/or recorded and stored for use by those who would not ordinarily have access to the knowledge. As a result, content knowledge can also be
abstracted for use by those that have never required a particular content knowledge, nor have had access to an environment or situation that required that content (Yakhlef, 2010).

**Credentials:** Work experience, degrees, and licenses or certification. These credentials not only imply a level of content knowledge, but also a certain level of experience and understanding in the application of the content.

**Culture:** We define culture in application to organizations as a set of values, beliefs, and meanings, together with the artifacts of their expression and transmission (such as myths, symbols, metaphors, rituals and ritual objects), that are created, inherited, shared, and transmitted within one group of people; that, in part, distinguish that group from others; and by which the patterns of collective action unique to that group are acquired, maintained, changed, and put to use (Cook & Yanow, 1995, p. 445).

**Design:** The processes embedded in the organizational cultures, and aligned with organizational vision. Design is the result of analyzing a situation, applying concepts based on experience and perception of what works and does not work, and developing a plan the creates boundaries within which individuals and workers have the intent to work. Design is the result of analyzing existing structures, but also helps in the creation of new meaning and understanding as designs are situated differently. The success of a design is based on environmental factors, intention (including the degree of agency granted to those implementing the design), and boundaries setting the orientation to thinking. (Buchanan, 1994).
**Discourse Community:** Discourse communities are more than those groups in which an individual interacts and, thus, have developed the community member’s communication (discourse) style and rules. Discourse communities also develop co-constructed knowledge, epistemology, and rules of interaction that allows its members to negotiate meaning using community heuristics and genres. Members who function within a particular discourse community (e.g., engineer, UAlbany alumni, upstate New Yorker, parents) create meaning without making explicit common assumptions, communication rules and styles, and shared mental models (Berkenkotter & Huckin, 1995; Dias et al., 1999; Schneider, 2002; Syriquin, 2006).

**Distributed Groups:** Groups that are distributed do not work within the same physical space on a daily basis. They may be distributed by department, by location (e.g., field office and home office, US based and foreign based) or by specialty (e.g., sales, support, management).

**Expertise:** Expertise requires a depth of understanding based on experience. An expert not only knows what (content knowledge) and how (competency), but also why and when to use knowledge (Allee, 1997). This requires a certain level of tacit knowledge about the domain and/or environment in which the application of knowledge is required (Sternberg & Horvath, 1999). Expertise requires the translation of content knowledge into practice, applying knowledge to the environment, problem, and/or situation, modifying content through discursive processes (Laufer & Glick, 1998; Yahlief, 2010).
Genre: Knowledge can be codified in order to be maintained, shared, and stored within groups, the organization and external shareholders, such as clients and other members of a profession, as the environment and situation requires. The form that this codification takes can be identified as a genre. As Berkenkotter and Hackin (1995) describe the role of the genre, “knowledge production is carried out and codified largely through generic forms of writing…Genres are the media through which scholars and scientists communicate with their peers. Genres are intimately linked to a discipline’s methodologies and they package information in ways that conform to a discipline’s norms, values, and ideology” (p.1).

Know-How: The knowledge of a process that is developed through experience, also known as tacit knowledge (Conceicao et al., 1998; Conceicao et al., 2003; Yakhlef, 2002). Know-how is more action oriented. Know-how also appears to be an individual concept.

Knowledge Genre: In analyzing collaborative writing in distributed groups, genres could be applied to different ways in which knowledge is organized, created, accessed, and used. I refer to this structuring of knowledge as knowledge genres.

Knowledge Management: the access, monitoring, acquisition, and storage of organizational information which is codified into a common format in order for those within the organization to participate in sense-making, group decision making and
problem solving, and the creation of shared mental models at the group, departmental, and organizational level.

*Learning:* The construction of knowledge and that knowledge is constructed through interaction with the environment, artifacts (such as reports and technology), and other people. However, there is individual choice and agency in the construction of knowledge.

*Negotiated Knowledge:* Knowledge created as a result of cognitive dissonance, overlapping knowledge boundaries, and a desire to create shared meaning and mental models. Negotiated knowledge is dynamic, difficult to identify (intangible), and dependent on situational factors. When expertise and perceived knowledge is shared, there is a process of negotiation in which meaning is created and knowledge boundaries are recreated.

*Organizational Learning:* the access, monitoring, acquisition, and storage of organizational information which is codified into a common format in order for those within the organization to participate in sense-making, group decision making and problem solving, and the creation of shared mental models at the group, departmental, and organizational level.

*Partaged Knowledge:* Derived from the French word *partager*, which means both to share and to divide, partaged knowledge is knowledge that one would need to be able to
access and link to other knowledge (i.e., linking ideas, putting into context). Partaged knowledge therefore includes the ability to co-create knowledge, divide the knowledge for later use, access the knowledge when needed, and translate or interpret the knowledge for a given situation. Partaged knowledge is difficult to quantify, control, and capture because it is situated, visceral, and collocated.

*Power Structure:* The power structure consists of expectations by those who have organizational power, those within the group who have *expert* power (as opposed to authority), stakeholders within the profession and the funding agency, and the authority of the official hierarchy within the project group and departments.

*Social Identity Theory (SIT):* According to SIT, an individual’s membership in a group is linked to how closely he or she identifies with the group’s norms (Skitka, 2003; Van Knippenberg, 2000). However, some norms are dependent on the context and the social identity which an individual is willing to present to the group. Depending on the context, an individual will choose his or her identity and values to be used within a certain group situation (Skitka, 2003; Whitworth et al., 2000). Therefore, individuals will have multiple social identities and multiple norms depending on which group they are associating with at any given time.

*Tacit knowledge:* Is the knowledge needed for *knowing how* (processes and training) and *doing* (performance, competency). For *knowing how*, tacit knowledge is made accessible through processes and training that focus on developing tacit knowledge through standard
operating procedures and replication of successful practices. Tacit knowledge that is formed through *doing* is formed through interaction with a structured environment, whereas tacit knowledge that is formed as *knowing how* is formed through problem solving and reflection within an unstructured environment. By its nature, tacit knowledge is difficult to identify and pass on to others because often it is situated in experience and the environment in which it was created and used (Sternberg, 1999).

*Transactional Knowledge*: Transactional knowledge was knowledge and expertise of perceived value often used as currency within the power structure. In order for *knowledge* to be used as currency, it would need to be of value, accessible by others, identifiable, stable (with clearly defined knowledge boundaries), and available in either a tangible form or tangibly represented.
Appendix A: Interview Questions

Individual Interview 1

I am going to begin by asking you some general questions about your job and the organization you work for.

1. Can you describe your position?

2. What skills or knowledge do you feel you bring to your position? In other words, if someone were to temporarily fill your position, what qualifications do you feel they would need in order to duplicate the quality of work you do?

3. Where do you perceive your position fits into the organization?

4. Where do you perceive your team or working group fits into the organization?

5. What is your perception of how your team (on Healthcare Counseling Project) was created? In other words, who chose who would be on your team and why? What do you think was their basis for deciding on team members?

Now I am going to ask you some questions about your opinions on writing and collaboration in teams/groups.

6. What is the purpose of writing for your job? Why? Can you give me some examples of the type of writing you do?

7. What writing tasks do you think you do well? Why? Can you give me an example of some writing that you think you did a good job on?

8. Which writing tasks do you feel the weakest doing? Why? Can you give me an example of some writing that you don’t think is very good?
9. When doing a written project as part of a group, what role or roles do you like to do? What role or roles do you usually do? Why?

10. What, if anything, do you like about working in a group?

11. What, if anything, do you dislike in working in a group?

12. Can you describe to me your best experience in working in a group? Why do you consider this a good experience?

13. Can you describe to me your worst experience in working in a group? Why do you consider this a poor experience?

I want to get some information about the project you are going to work on and the Quarterly Report.

14. Can you briefly give me a description of the project you are going to work on? Include what you think the purpose of the project is, what you will need to do to complete the project, and what resources, time, and expertise you will need to accomplish it.

Can you briefly give me a description of the Quarterly Report? Include who is it written for, who will be reading it, what format it should take and why, and what resources, time, expertise you will need to accomplish it.

15. Have you ever worked with any of the other group members before?

16. What are your perceptions of the other group members? What do you think they can contribute? What possible problems do you anticipate in working with them? Who do you think will have the most influence on what goes into the Quarterly Report? Who do you think you will work best with and why? Who do you think you will learn the most from?
17. Describe the best possible scenario of how you will be working with your group in writing the Quarterly Report.

18. Describe the worst possible scenario of how you will be working with your group in writing the Quarterly Report.

19. How important is this project to your career? Your group? Your department? Your boss? Your organization?

20. What other projects and project tasks will you be working on as you complete the Quarterly Report?

21. What other resources or expertise might you need outside of your group? Where would you get those resources/support?

22. What role do you perceive the communication technology as having in the communication process for the project? For the Quarterly Report? How does it influence your writing, if at all?

Finally, I’d like you to try to define the following words (you may give examples if you’re not sure how to define them):

- Knowledge
- Training
- Healthcare
- Collaboration
- E-learning
- Writer
- Video
- Know-How
- Technology
- Team
- Quarterly Report

**Group Interview**

I am going to begin by asking you some general questions about the group project

1. Where do you perceive your team or working group fits into Organization? Where do you perceive the group fits into your departments?
I want to get some information about the Project you are going to work on and the Quarterly Report and top 10 objects document.

2. Can you briefly give me a description of the project you are going to work on? Include what you think the purpose of the project is, what you will need to do to complete the project, and what resources, time, and expertise you will need to accomplish it.

3. What role does the Quarterly Report play in the project? Who is it written for? Who will read it? What format does it take and why? Who is or are the authors? Who contributes and how?

4. What role does the top ten learning object play in the project? Who is it written for? Who will read it? What format will it take and why? Who is or are the authors? Who contributes and how?

5. Describe the best possible scenario of how you will be working with your group in writing the Quarterly Report.

6. Describe the worst possible scenario of how you will be working with your group in writing the Quarterly Report.

7. What other projects and project tasks were you working on as you completed the Quarterly Report? How did this impact completing the Quarterly Report? The top 10 learning object?

8. What other resources or expertise might you need outside of your group in writing the Quarterly Report or 10 ten list? Where would you get those resources/support?
9. What role does the communication technology play in writing documents such as the Quarterly Report or 10 ten list? How is the communication technology used by your group?

Finally, I’d like you to try to define the following words (you may give examples if you’re not sure how to define them):

Knowledge  Video  Technology
Collaboration  Technology  Quarterly Report
Know-How  E-learning
Training

**Individual Interview 2**

I am going to begin by asking you some general questions about the project.

1. Where do you perceive your team or working group fits into the organization? Where do you perceive the group fit into your departments?

2. What skills or knowledge do you feel you bring to your position? In other words, if someone were to temporarily fill your position today, what qualifications do you feel they would need in order to duplicate the quality of work you do?

3. Where do you perceive your position fits into the organization?

I want to get some information about the project you are working on and the Quarterly Report and top 10 objects document.

4. Can you briefly give me a description of the project as you perceive it today? Include what you think the purpose of the project is, what you will need to do to complete the project, and what resources, time, and expertise you will need to accomplish it.

5. What are your perceptions of the other group members? What do you think they can contribute? What possible problems do you anticipate in working with them? who do
you think will have the most influence on what goes into the Quarterly Report? Who do you think you will work best with and why? Who do you think you will learn the most from?

6. What other resources or expertise might you need outside of your group? Where would you get those resources/support?

7. What role does the Quarterly Report play in the project? Who is it written for? Who will read it? What format does it take and why? Who is or are the authors? Who contributes and how? How does it influence your work or what impact did it have on your work?

8. What role did the top ten learning object play in the project? Who was it written for? Who read it? What format did it take and why? Who were the authors? Who contributed and how? How did it influence the work you do today or what impact did it have on your work in the project?

9. What other documents or work are the result of the second Quarterly Report or the Top Ten List? Who was responsible for those documents? How did the second Quarterly Report or Top Ten List influence those documents?

10. What role does the communication technology play in writing documents such as the Quarterly Report or documents like the Top Ten List today? How is it currently being used by your group?

Finally, I’d like you to try to define the following words (you may give examples if you’re not sure how to define them):

<table>
<thead>
<tr>
<th>Content</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design</td>
<td>Customer</td>
</tr>
</tbody>
</table>
Appendix B: Codes and Themes

Codes

1. identifying expertise
2. withholding expertise or resources
3. validating work
4. hedging
5. valuating expertise
6. leveraging influence
7. contributing expertise
8. identifying WITH expertise (creating identity based on expertise)
9. prioritizing levels and types of expertise
10. prioritizing who to please
11. prioritizing work and expertise
12. aligning meaning
13. establishing boundaries of meaning, roles and abilities
14. negotiating meaning between “experts” and “non-experts”
15. reformulating ideas
16. creating shared mental models
17. lacking expertise
18. aligning individual with group, department, professional, and/or organizational assumptions.
19. creating standards and developing guidelines
20. applying goals and expertise
21. establishing standards for valuation within the power structure
22. identifying key human and intellectual resources
23. articulating professional beliefs
24. imposing expertise and/or format
25. knowing about other’s work and projects
26. asserting individual preferences
27. connecting work within and outside of group, department, or organization
28. reconnecting group expectations to professional standards
29. (locating?) placing themselves within the power structure
30. creating knowledge
31. creating shared work processes
32. defining group roles
33. assessing expectations with reality
34. choosing communication tools
35. negotiating image
36. changing without a change agent
37. giving options
38. blocking group communication and processes
39. withholding/assigning ownership
40. defining group expertise (collective)
41. applying expertise
42. understanding group dynamics and social relationships
43. resolving conflict
44. soliciting help and information from others
45. classifying relationship
46. continuing to learn craft
47. choosing philosophy of learning to apply and applying philosophy of learning
48. defining epistemology
49. creating identity based on social relationships within power structure
50. making sense of hierarchy
51. placing physical location within the power structure
52. labeling and defining work
53. identifying interconnections within group

### Thematic codes by question

1. How do individuals define knowledge?

   Knowledge and expertise is defined by profession/professional standards
   Knowledge is possessed and can be identified
   Knowledge is defined by the group/department expectations and formats
   Knowledge is defined by the formats and processes developed within the work power structure.
   Knowledge is created through negotiation of meanings
   Expertise is used as currency: withholding, contributing, and prioritizing expertise and who to please.
   Knowledge and expertise can’t be defined

2. What process or processes does a distributed group in the workplace use to create shared meaning and understanding during collaborative writing projects?

   The group prioritizes work and expertise at the individual, group, departmental, and organizational level.
   The group aligns goals and project vision with resources and organizational expectations. The group develops common work and communication protocols and shared mental models.
   Relationships within and outside of the group are used to compete work tasks.
   The group establishes hierarchy within and outside of group.
   The group defines and redefines meaning and understanding within the group.
   The group identifies threats and barriers to work processes.

3a. What patterns of work activity are maintained and changed at the individual, group, and organizational level within a distributed group?

   Work activity is based on the negotiation and alignment of meaning between the individual and group
Work activity is based on the negotiation and alignment of meaning between the group and organization/department.

Work activity is based on negotiation and alignment of meaning between individual and stakeholders and profession.

Work activity patterns are dependent on relationships and social patterns.

The group defines patterns of work activity.

The group does not define patterns of work activity.

Work activity patterns differ dependent upon the task structure.

Work activity patterns can be categorized and defined.

Work activity patterns are difficult to define.

Work activity patterns can be disrupted.

3b. Who do workers identify with in maintaining or changing work patterns in different contexts?

Workers do not identify with anyone but themselves.

Workers identify with those with whom they have a perceived relationship.

Workers identify with those they perceive as “leaders”.

Workers identify with those they perceive as being part of the group.

Workers identify with those they perceive as being “expert”.

Workers identify with their department.

Workers identify with those perceived as having power or authority.

Workers identify with their culture (values and epistemology).

Workers identify with their professions.

The power structure influences the patterns of work activity.

The patterns of work activity influence the power structure.

4a. What knowledge do members of a distributed workplace group identify as being important when creating a group product?

Members have a common vision of the group project and work patterns.

Members do not have an “expertise” defined as important by the group.

Members have an “expertise” defined as important by the group.

Members are unable to realign work with expectations.

Members can identify and understand expectations and can realign them.

Members can make or identify connection between individuals, departments, stakeholders, and resources.

Members need to know how to classify, establish, and maintain a relationship and understand the social climate.

Members don’t understand the workplace power structure.

Members understand the workplace power structure.

Members do not have a common vision of the group project and work patterns.

4b. What factors influence the choice of what knowledge is important?
There is no sense of interrelatedness, nor common vision with other group members so the choice of which knowledge is important is deferred to those with “legitimate” power.

There is a deep sense of interrelatedness and common vision
Power to make decisions is taken away
*Power* is implicitly granted to make choices on what is important or not.
Expertise is perceived as legitimate within the department or organization
Expertise is perceived as legitimate within the profession
Expertise is perceived as legitimate within the group
A sense of empowerment influences the choice of knowledge
Social factors influence the choice of knowledge

**Examples of Relationship between Initial Codes and Thematic Codes:**

Format: Research question, Thematic code, Initial code number (from *codes* listed above)

1. How do individuals define knowledge?

Knowledge and expertise is defined by profession/professional standards (codes 30, 27, 28, 18, 23, 19, 17)
Knowledge is possessed and can be identified (codes 1, 2, 17)
Knowledge is defined by the group/department expectations and formats (codes 18, 20, 25, 24, 21, 19)
Knowledge is defined by the formats and processes developed within the work power structure. (codes 27, 21, 25, 24, 29, 17, 19)
Knowledge is created through negotiation of meanings (codes 12, 13, 14, 15, 16, 17, 28, 30)
Expertise is used as currency: withholding, contributing, and prioritizing expertise and who to please. (codes 2, 5, 6, 7, 8, 9, 10, 11, 26, 17)
Knowledge and expertise can’t be defined (codes 3, 4, 17)
Appendix C: The Group and Its Environment

In order to understand the interaction between the distributed group, individual group members, and the organization and its departments within this study, it is important to understand the various working environments and perceived power structures.

Project Overview

The group chosen for the study was a natural occurring preexisting group, rather than a group developed for the purpose of the study. The project group was established by the home organization to provide training to workers in the Northeast using traditional and electronic media. This was a government-funded initiative. The organization replied to a Request for Proposals (RFP) to develop a program to train providers on the newest techniques in the healthcare/social services profession. For the purpose of this study, I have changed the name of the project and its specific purpose to healthcare counseling for healthcare professionals. However, the original project was in the field of social services and many of the aspects of healthcare counseling are similar to the actual project goals.

Personnel were taken from three departments to work on this project: Healthcare Consulting (informally known as face-to-face or Stand-up Training department, both terms used interchangeably), IT (instructional technology or e-learning, both terms also used interchangeably), and Video Production. Because the first department had the same name as the project group, the department will be referred to as the Stand-up Training department while the project group consisting of members from the three departments will be referred to as the Healthcare Counseling Group or the project group from this point on. The original RFP was developed and proposed by the Stand-up Training
department, with some input from the E-learning department. At the start of this study, the project had been in existence for six months, although most personnel had been part of the project group for only 1-3 months. The initial three months were spent negotiating with the funder, identifying and hiring key personnel both internally and externally, and setting up the project infrastructure.

Initially, the E-learning and Stand-up Training departments were located on different floors of the same building. In this same building were the organizational management team, including the project directors and training organization’s General Director. The Video Production Department, on the other hand, was located in a different building across town.

Six months after the start of the project, the E-learning group was moved into the same building as the video group, but on a different floor with a separate entrance. The E-learning department shared space with other groups that were part of the home organization as a whole, but not the training organization. Access to the E-learning department by the Video Production required two security points, where members of the E-learning department had to be available to let visitors into their office space. Office space was provided in the E-learning department at the request of the Stand-up Training department. However, this was not reciprocated by the Stand-up Training department, so that any collaboration was done in the IT offices at the instigation of the Stand-up Training department.

The project was originally granted for a two-year period, with a possibility of extension based on future funding and training needs. It consisted of face-to-face training through subcontracted organizations, online training, and technical assistance and web-
based resources targeted towards outside clients that were individual agencies and subgroups within the healthcare counseling profession. The original intent was to modify a curriculum developed for the funder by another organization, and for the Healthcare Counseling Group to develop multi-media training and a train-the-trainers program based on that curriculum. However, the Healthcare Counseling Group was dissatisfied with the original curriculum, so the project group was also entrusted with revising and developing a new training curriculum.

The Healthcare Counseling Project group used three main modes of communication: meetings, a web-based groupware project software tool provided by the organization, and email. In addition, some group members relied on telephone calls, others used editing software and the track changes feature of Word, and others still developed their own tools for selected group members to use.

**Healthcare Counseling Project Group**

![Organizational chart of health counseling group](image)

*Figure C-1. Organizational chart of health counseling group*
The Healthcare Counseling Project Group in this study consisted of 5 core members drawn from three departments (Helen, Stand-up Training; Phillip, Stand-up Training; Ronda, E-learning; Paul, Stand-up Training-technical assistance; and Olivia, Video Production), a project manager (Robert), and an auxiliary manager from the E-learning department (Sam). A sixth member from the E-learning department (David) started out as a technical contributor to the IT side of the project, but soon became a member of the core group when one of the core group members from E-learning department left the organization. Figure C-1 is an organizational chart that illustrates the relationship that members had to each other within the organization.

**Robert.** Robert was the Project Manager by title. He was one of many project managers within the Stand-up Training department, but was also designated as the Healthcare Counseling Project Manager. Robert described his job as one in which he was more of an orchestrator rather than an authoritative figure. He perceived his main role in the group as the link between the different group members, the stakeholders, the departments, and the funders. He had previously worked on multiple projects within the Stand-up Training department, and the Healthcare Counseling project was his first as a project manager. He did have professional background in healthcare counseling, and as such, perceived himself as a *content expert* for the group.

His philosophy of training also aligned more closely with that of the Stand-up Training department. Throughout his interviews, Robert focused on three concepts: administrative and work processes, control over the project, and the contract. Robert felt that he would have to take a directive stance in order to authorize project work and tasks.
Helen. Helen was one of the creators of the project proposal and had a strong personal connection to the project. All of the Healthcare Counseling Group members identified her as having the most influence on the overall project development and direction, including Helen herself. In fact, many of the group members identified her as the unofficial leader of the project, especially during the second set of interviews. At times Helen was overwhelmed with the responsibility she had over the project. However, because of her commitment to the project, she was willing to take on the additional work to ensure the project met her standards for the project as she had envisioned it as a co-creator of the proposal.

In addition to experience in the field of healthcare, Helen also closely associated herself with adult education and training theories. She was just as interested in making sure the training within the field would be effective and relevant for healthcare workers. Throughout the project, Helen perceived herself as a trainer, rather than a content expert. While she understood the content and was an active part of the curriculum development, she perceived her role as the person to ask how the curriculum would be presented in its various forms.

While Helen was a member of the more siloed approach Stand-up Training department, this was not her personal work preference. Helen tried to work around many of the Stand-up Training department’s standardized formats and tools.

Ronda. Ronda was initially the E-learning point person for the project group. Her job title was instructional designer and writer. Ronda was a key link between the Stand-up Training department and the E-learning department. However, despite this, she still
worked on other projects while she was working on the Healthcare Counseling project, with only 60% of her time devoted to the Healthcare Counseling project.

She left the organization in November so her second interview was conducted after she had been working at another organization for about a month. As a result, her second interview was given from a perspective outside of the organization, with more candor than her original interview. In the end, one of the reasons Ronda left the organization was because she believed the power over her own work was taken away from her by the IT Director. This impacted her perception of how she worked not only on the Healthcare Counseling project, but her other e-learning projects as well. She did not want to continue to work for the organization after the perceived change of her role and work processes within the department.

Ronda drew from two professions in creating her standards for her perceived role in the department: writing and instructional design. In terms of writing, most of her colleagues in the project group identified her as a writer. She also had a perception that she had something extra to bring to her department; namely, an understanding of how learners learned.

**Phillip.** Phillip was one of two employees hired from outside of the organization specifically for this project. A content expert in healthcare counseling, Phillip’s job title was senior education specialist. He was hired for his expertise in the field of healthcare, having worked as a frontline healthcare provider, a supervisor, and manager. Phillip entered the group with the understanding that this would be a springboard to returning to the field, which he had left for a few years.
Phillip’s main role in the project was as curriculum developer. He perceived himself as the subject matter expert from the healthcare worker’s point of view. Because of his license in healthcare counseling and experience “in the trench” (Phillip, interview 2), he was committed to this project because he felt it would help the field worker in healthcare. As the project progressed, Phillip’s role became more important. Initially, his role with the e-learning piece of the project was to co-develop the topics that would be covered and to verify information within each learning or content module. However, as the Stand-up Training department was given more control over content by the management group, Phillip perceived his role to have expanded to include developing the sequence of training, editing the e-learning modules so they would reflect trainees’ expectations, and, along with Helen, ensuring that the E-learning aligned with the Stand-up Training.

This expanded role lead to his perception by the second interview that he needed to have input into the development process for the entire project, including the E-learning section. He often commented on the discussion software, trying to give the perspective of the front line healthcare worker, about any piece that was being developed. He was frustrated when he perceived he was not consulted for the E-learning piece because he felt his first-hand experience would contribute to making the final product relevant for the learners. For this to happen, the learners would need the E-learning to use appropriate terminology, tone, and context to give the final project credibility.

Paul. Paul came into this project with an active agenda for the field of healthcare counseling. He actively lobbied for his position, senior education specialist providing technical assistance to administrators and clinicians, during the project development
phase even though he was employed at a different non-profit organization in healthcare counseling at the time. He was committed to the project due to his personal belief in the approach the training would develop within the healthcare profession.

There were two influences that informed Paul’s work. The first was the current research within the healthcare profession. Paul prided himself on his knowledge of resources, research, and sources of information within the profession. As such, he perceived himself as a content expert in finding information and passing on information both within the Healthcare Counseling Group and the profession as a whole.

The second influence was the power structure within the healthcare counseling profession as a whole. Paul looked to carve a place within the profession as the “go-to guy” when it came to anything having to do with healthcare counseling, thus becoming indispensable within the profession as a whole. As this was a temporary position, he did not appear to have any particular allegiance to any one organization, but rather would look to other opportunities outside of his current job within the healthcare counseling profession once the project was completed.

Paul’s expanded vision for the project was often at odds with Robert’s more focused vision of what the funder wanted. Initially, Paul worked with all the other group members, providing them with information that would expand the scope of their training. As time went on, however, Paul focused on providing resources just to stakeholders external to the project group. He cut back his project work responsibilities and tasks to align more with Robert’s focused approach as he perceived this was what those in the power structure preferred.
**Olivia.** Olivia was the designated video producer for the Healthcare Counseling Group. While she was the only producer who would be allowed to work on the Healthcare project, she also worked on other projects within the Video Production department.

Olivia identified strongly with the Video Production department’s procedures and formats. She also had a strong identity within the Video Production department. This was demonstrated by her adherence to the department’s production procedures. These structured procedures informed her work, whereas the lack of structure in the project group work processes was disturbing to her. This lack of her preferred structure and differences in work practices may have been one reason that she did not feel she fit into the project group or organization.

The lack of knowing who was in charge was a prevalent concern in her first interviews, but did not come up in her second interview. It was clear in her second interview that Helen and the IT Director would give her direction for her work. Ultimately, Olivia identified herself with the Video Production department and perceived her role as auxiliary to the project group. Likewise, the project did not perceive Olivia as an active member, but rather as an auxiliary member who would do work as requested by the other group members. This was in spite of the fact that Olivia was designated as the only video production staff member allowed to work on the project through the project contract.

**David.** David perceived his role as changing from the time when he originally was appointed to the project to the second interview six months later. Originally, he was asked to be part of the team as a creative director. He perceived his role as someone who
would add creativity to any of the project group’s products, whether it be the E-learning, Stand-up Training, or technical assistance pieces. His initial perception was that the tasks would be developed with equal collaboration among group members, and that he would be able to use his expertise as a designer in multiple dimensions. This included visual, programming, instructional, and informatics design. Because he related so strongly to his training and profession of design, he had difficulty reconciling his personal professional expectations with the project demands from the project group members and upper management decision makers.

Due to changes in personnel within the project group from the E-learning department, David’s role in the group changed between the first and second interview. While he was unofficially designated the creative director of the project, he did not feel comfortable taking a leadership role within the group. Ronda’s leaving the organization shifted his role in the project group to the lead for E-learning; a role with which he was not comfortable.

In the end, David relinquished decision making power to the IT Director and the stand-up trainers. He perceived the E-learning department as having become a subcontractor within the project group rather than an equal collaborator within the group. As a result, he would have little input into the final product with the exception of programming and technology. He rewrote the programming platform so the stand-up trainers would have control over content and design, which he had controlled initially. While this did not seem to be his preferred method of working, he accepted this as long as he was able to contribute his expertise in design.
Sam. As a member of the E-learning department, Sam was assigned to help expedite the E-learning portion of the project. He had been a member of the E-learning department for a long time, first as a programmer with a background in education, then as an instructional designer/programmer and project manager. There was a change in perception of what Sam’s role was in the project between the first and second interviews. Sam was initially responsible for facilitating the E-learning piece of the project, although the extent of his power to do so was never clearly defined by the IT Director. By the second interview, however, the IT Director became part of the management team that shifted the power structure of the project from the project group to the management team within the organizational hierarchy. As a result, Sam no longer was as active in the group process because the IT Director took on many of his managerial responsibilities. In fact, during the second interview, many of his answers reinforced the impression that he was only consulted when needed and otherwise, he had very little knowledge of the group and its processes. This was a change from the first interview when he did participate in group meetings and gave feedback on documents that were posted to the group project software space for comment.

Unlike other group members, Sam did not appear to have a strong affiliation with his professions (instructional design, programmer) or the department (E-learning), per se. Rather, his beliefs on the importance of integrating E-learning into training appeared to inform his work and position within the organizational power structure. Sam had a good understanding of the organization and organization’s power structure. As such, he seemed much more adaptable to various work processes, project outcomes, and organizational structures.
Auxiliary Staff. In addition to the study participants, there were other employees that might have influenced the project, but were outside of the scope of the writing projects studied. These included the Project Director; the Director of IT; Daphne, the administrative assistant; a videographer; Zak, a programmer; Mary, who replaced Ronda on the project in November; and Diane Smith, assistant to the Project Director.

The Organization

The group under study was located in a larger educational research and teaching organization (called “home organization” from this point). Within the home organization was the workplace “training” organization (referred as “training organization” from this point), which was dependent upon outside contract work and funding. In most cases, group members did not even mention the home organization. Rather, they identified their organization as the training organization.

The training organization was comprised of three branches: traditional Stand-up Training, E-learning, and Video Production departments. Figure C-2 is a visual depiction of the organization. The training organization used a traditional hierarchal structure, with a General Director at the top of the hierarchy, in charge of the three departments. According to the participants, the training organization used a “silod” style of management in which each department (Stand-up Training, E-learning, and video) worked independently, rarely sharing resources, personnel, or expertise (Ronda, group interview; Phillip, Interview 1). The Stand-up Training department was comprised of three project directors who reported to the General Director. Each of the project directors were in charge of multiple training programs, each program having dedicated staff for a
contract. The programs in the Stand-up Training department also used a siloed approach to management.

In addition, the Director of Instructional Technology (IT) and the Director of Video Production also reported to the General Director. However, in each of these shops, projects rarely had dedicated staff. Often employees worked on multiple projects. The Stand-up Training, E-learning, and Video Production departments traditionally worked only within their own groups. The Healthcare Counseling project was the first project that integrated personnel from each of the departments. Throughout the study, there was tension in terms of who would direct the project group. Initially, even though Robert was the project manager, there was a question of who was responsible for which personnel.

![Organizational Chart](image)

*Figure C-2. Organizational chart of the home organization*
By the end of the first year of the project, the lines of authority were much more clearly defined. The core decision makers moved from within the project group to a management team within the training organization. This management team was lead by the Project Director and included the IT Director; Robert, the project manager; and an assistant who was brought in by the Project Director to work on one of the project’s discreet tasks. This change in the project’s power structure had a profound effect on the group dynamics, member identities within the group, and perception of where the group fit into the training organization. Group members perceived that the Stand-up Training group members had more authority within the group, especially after the new Project Director took over project decisions.

While the power structures within the training organization were realigning as the perceived importance of the project changed, the departments became more entrenched within their departmental cultures and processes. The differences resulted in conflicts that the hierarchy wanted to minimize, as they perceived these stresses slowed down the progress towards deliverables. Their way of doing so was to discontinue regular project group meetings, close out discussions on the project management software space, and take control of the decision making for group tasks and work processes.

**Departments**

The project group studied consisted of personnel from three distinct departments: the traditional Stand-up Training, E-learning (IT) department, and Video Production. Each department traditionally had their own work processes, management style, and perceived values and epistemology.
Traditional Stand-up Training. Members of the Healthcare Counseling Group from the Stand-up Training group were 100% dedicated to the project in terms of responsibilities and funding. In fact, this was how most projects in the Stand-up Training department were managed, with employees assigned to one specific project for the duration of the funding. Some projects had multiple funders, but it was rare that employees in this department would work on multiple projects except during the transition of projects, when one project ended and another started.

The perception of those within the Stand-up Training department was that they were the lead department for this project. They provided the content, the direction, the leadership, and coordination for the project while other departments augmented their deliverables. The culture of this department was traditional top down hierarchy with standardized formats and processes across projects. Most projects would only deliver training that was outlined by funding agencies, avoiding any added value or deviation from the contracts. Most workers were given narrow job descriptions and were expected to stay within those designated responsibilities.

E-learning (IT) Department. The E-learning department consisted of workers who may act as programmers, instructional designers, educators, writers, interface designers and graphic/visual designers. Many of the project group members from the E-learning department had multiple functions and skills. For example, Ronda was a writer, educator, and instructional designer. David was a graphic/visual designer, programmer, and instructional designer.

Employees of the E-learning department were used to working on multiple projects simultaneously, in self-directed teams, and with multiple group or team
members. Because of the various skills needed to accomplish work within the
department, employees were given different roles for various projects depending on the
project requirements. So David worked on one project where he was the lead
programmer, another project where he combined his skills as a programmer, instructional
designer, and graphic/visual designer, and initially used his creative skills as a visual
designer throughout the duration of the Healthcare Counseling project.

The self-directed teams within the E-learning department would consist of a
project manager who would report to the IT Director, and manage multiple team
members working on different parts of a project. Unlike the Stand-up Training
department, there were no employees who were dedicated project managers. Rather, the
E-learning department would appoint a team member as the administrative lead who
would then act as Project Manager. At any given time, a department member could be a
designer, programmer, or project manager on multiple projects, depending on the need.

As a result of this team approach to work, the perception of the E-learning
department, then, was that their departmental culture and work processes were different
than the training organizational culture. They were used to a more open, cooperative,
collegial approach to work, in which any member of the department could be consulted
on a project, whether they were funded by that project or not. There also appeared to be a
more horizontal approach to management and decision making, with team members
perceived as having equal power within the group. The one exception to this was the IT
Director, who would have the final decision and could direct the project contrary to what
team members decided.
As the project progressed, the perceived role of the E-learning department as a whole also seemed to change. Throughout the project, the E-learning department had a strong perception of departmental autonomy and identity. As the project progressed, there was pressure for the E-learning department to change their work processes to align more closely with those of the Stand-up Training department.

**Video Production Department.** The Video Production department originally was a self-contained organization that was merged into the training organization just as the Healthcare Counseling project proposal was being written. Because of its relatively new status in the organization and a history of creating training videos, Helen and Robert, at the suggestion of the General Director of the training organization, included Video Production in the project.

Throughout the study, the Video Production department was located at the north building, across town from the organizational headquarters. The video production offices had separate access to the building with their own security system. Even when the E-learning department moved into the same building, the IT and Video Production department were physically separate.

As a result of its short history within the organization and past autonomy as a unit, the Video Production department had a strong departmental identity with established work processes and expectations. Outside of the Video Production department, however, video was often an afterthought in both the training organization and the project group. There was a perceived difference in Video Production’s culture from the rest of the training organization as evidenced by the rigid work processes the department used.
Stakeholders

Outside of the organization and the immediate group, there were a number of stakeholders that the group members perceived as potentially having an influence on the group, work processes, and final product (deliverables). These included the funding agency who funded the project; the healthcare profession represented by the National Healthcare Conference; trainees, trainers, and regional centers that helped train the trainers (HSSC); and competing training organizations and departments within the training organization.

The funder had a great deal of influence on project content and documentation. The funding agency provided the structure for the project through a contract with the training organization. The initial project structure was developed as a result of the change in regulations promoted and endorsed by the healthcare counseling profession. The initial project curriculum was developed and paid for by the funder by a well-respected consulting firm within the healthcare profession. Any changes to the curriculum needed to be approved by the funder and fit within the parameters of the project contract.

While the group perceived the funder to have a definitive goal for the project, there appeared to be two distinct schools of attitudes about healthcare counseling within the healthcare profession: those that supported counseling (the public health approach) and those that felt counseling was useless, even dangerous in some cases (the recovery approach). For the most part, this second group was healthcare professionals in the field, which was the target audience for the training. This difference in the profession affected the curriculum developers’ work especially.
Another stakeholders’ group that had an impact on the project was the trainees and project training partners. The project was set up with five regional training centers (HHSC) acting as subcontractors. These centers recruited, registered, and provided training facilities for healthcare counseling providers and counselors. Paul delivered much of the technical assistance through the HHSC and Robert was the director of one the HHSC’s. As a result, Paul and Robert had the most direct interaction with the project training partners, while the face to face trainers had the most direct interaction with the trainees.

Writing Tasks

Two disparate collaborative writing tasks took place during the study. Both had different formats, processes, and influences in the creation of the written products. The first was a Quarterly Report, a document required by the funder. While no standard format was required by the funder, it did contractually require the project group to include specific content within the report. The second was a learning object (later referred to as a content object by project group agreement). This was not a required document, but rather was developed jointly by the project group to help conceptualize E-learning and ended up defining the project as a whole.

Quarterly Report. The process for the first Quarterly Report was that the project manager collected information (verbally) from each group then wrote the report. There were seven categories in the first Quarterly Report. In the second Quarterly Report, again, there were seven categories, but the titles were somewhat modified.

The process for writing the Quarterly Reports changed from the first to the third report. In the first report, Robert, the project manager, collected information from each
of the departments and used that information to write the entire report himself. According to Rhonda, the E-learning department writer, she had members of the E-learning department prepare bullet points of information on key issues and work during the first quarter of activity. These bullet points about IT activities in the first Quarterly Report were then passed on to Robert, the project manager, to integrate into paragraph form for the final report.

However, in the second report, the IT Director asked Ronda to prepare a report using written paragraphs. This necessitated members from the IT staff to write up a brief summary in paragraph form. In addition to the E-learning department, Ronda was also asked to collect information from the Video Production staff and integrate it into the third section. This report was then combined with reports from members of the Stand-up Training department and edited by Robert. After Robert edited the second Quarterly Report, the report had to be approved by both the IT Director and the new Project Director. Changes were sent back to both Robert and Ronda for final revisions.

The third Quarterly Report used the same categories as the first Quarterly Report. However, the tasks were assigned differently. For the third Quarterly Report, each employee of the IT staff submitted a paragraph of their activities to the IT Director. She then passed this on to Ronda, who rewrote a draft of the Technology section. This was then sent back to the IT Director, who asked for revisions from Ronda. Once these revisions were made, Robert added the Technology section without making any revisions.
The second document created collaboratively by the project group was described on the project management software site by Ronda, the original author, as follows:

This learning object is designed to encourage a learner to figure out the plainspoken message embedded in the formal guidelines. The task is for the learner to write the caption for [a patient] or [caregiver], then compare their answer to the answer suggested below in red. This object requires no audio or video, although it would be great if we could deliver the ten guidelines with some experts a la David Letterman’s Top 10. (Ronda, Top Ten List posting)

The actual document at its inception had various perceptions, varying from person to person. Over time, it changed its title from Top Ten List to the Subway Map as the perception of what the document was and how it would be used was collaboratively developed.

The antecedent of the document was a white board chart outlining the components of the Stand-up Training curriculum, developed by the Stand-up Training department for planning purposes. Ronda, from the E-learning department, was part of the planning some of the time, although the purpose of this planning process and Ronda’s role was perceived differently between departments. Using one of the pieces of the chart, Ronda developed a learning object, which was later referred to as a content object, as a prototype of what the E-learning would look like. The Top Ten List learning object changed drastically as the content and concept were reformulated. However, one piece of the original learning object document was the document interface, which was a map of the curriculum made to look like a Subway Map. On each line of the subway, there were learning stops. This piece of the learning object became known as the Subway Map.

The Subway Map document seemed to have an influence on the project group’s work and was constantly revised as perceptions of the project group’s work changed.
Even the Video Production department, who did not seem to feel connected to the Quarterly Report, placed value on the Subway Map document as a vital road map to their work. They received the Subway Map document after it had been completed, but were part of the meetings that discussed its content and subsequent revisions.

**Virtual Layout**

There were three different group spaces set up within the software. The first was a Healthcare Counseling project group space in which all group members and management could access. Eventually, a second was developed for use by other Stand-up Training centers and was used by Paul for training support. This second space was used as a depository for documents. Another space was developed by the E-learning department for work on the project, predominately by the group members from the E-learning department. This third space was created to circumvent the feedback that was given by non-experts in e-learning during the planning stages of the project. However, Helen was given access to this space.

The perception that the project software tool may bring too much comment, information, and feedback which could negatively affect the group collaborative process was given as a reason for the project group to stop using the project management software tool. Between September and the study end in December, the group had ceased to post documents for discussion. Instead, documents were emailed from group members to group members. The only project management account that was used on a regular basis was the one designed for technical assistance which was used to communicate with the training centers.
While some members of the group, such as David and Paul, embraced the use of the virtual communication tools to accomplish work, others, such as Olivia and Helen, actively resisted it. David and Paul both created their own formats and processes within the virtual communication tools they were provided. Both David and Paul differentiated tools depending on their task and who they were communicating with. Helen only used technology when those with whom she was working used those tools exclusively.

**Group Changes**

Throughout the project there were some events that had an impact on the group dynamics, the project, and the project written products. One of the first major changes was the appointment of a new Project Director. According to group members, the first Project Director took a hands-off approach, giving group members a lot of leeway to develop group processes, tasks, final products, and communication channels. However, at the start of the study, six months into the project, a new Project Director was appointed. The perception was that she was much more involved in the daily operations and decision making for the group. The shift in management style resulted in a shift in the power structure for the project, moving from a self-directed group to a management lead team.

Due, in part, to the change in work processes and the project power structure, two members of the E-learning department left the organization. This created two problems with the E-learning piece of the project. First, the loss of Ronda, a key member of the group from the E-learning department, left a changed dynamic within the project group. In the first set of interviews, Ronda and Helen were identified as a major influence on the
project by other group members. Once Ronda left, Helen, in the Stand-up Training department, was the sole person identified as a major influence on the project, thus reinforcing the shift of power within the project group from conjoined to the Stand-up Training.

Another problem caused by the loss of Ronda was that she had a high level of tacit knowledge of the project within the E-learning department. This meant that her replacement, Mary, was coming into the project with little tacit knowledge within the field of healthcare training during a time when E-learning required more intense work to complete their part. As a result, David had to play a greater role, both in training Mary for the project and in applying his expertise to the final product.

Because of the changes in the E-learning personnel, there was a fear in the group that the E-learning piece would not be completed. As a result, pieces of the original project, such as the videos, were dropped. Also, the curriculum designers took greater control over the E-learning process. Rather than coauthoring the content and design for the E-learning, the stand-up trainers designed and authored the curriculum and content, which was then modified for E-learning. Thus, the loss of personnel resulted in changes in group power structure, work processes, and final products.

Another major change that impacted the group processes and perceived final product was the change in economic climate. In the first set of interviews, Robert, Paul, and Helen spoke of the project in terms of long term goals. While the project was only a two year contract, the perception was that it would be renewed for additional years. However, by the second set of interviews, it was clear that due to the economic downturn, the project would end when the current contract was completed. This impacted the
project priorities, resulting in some modifications of the project group’s perceived final product.